



Reference Document 2016 Annual Financial Report

In this Reference Document, unless otherwise stated, references to “Company” and “EDF” refer to EDF SA, the parent company, and references to “EDF group” and “Group” refer to EDF and its subsidiaries and affiliates.

In addition to the information contained in this Reference Document, investors should carefully consider the risk factors described in chapter 2 “Risk factors and control framework”. These risks, or one of these risks, could negatively impact the Group’s activities, its financial position or its financial results. Furthermore, other risks, which have not yet been identified or considered as material by the Group, could have the same negative impact and investors could consequently lose all or part of their investment in the Company.

This Reference Document also contains information relating to the markets in which the EDF group is present. This information has been taken from surveys carried out by external sources. Considering the very rapid changes that characterise the energy sector in France and globally, it is possible that this information could prove to be erroneous or

no longer up to date on the filing date of this Reference Document or thereafter. The Group’s activities could consequently evolve in a manner different from those described in this Reference Document and the declarations or information appearing in this Reference Document could prove to be erroneous.

Forward-looking statements in this Reference Document, notably in section 1.3 “EDF group strategy” could also be impacted by risks, uncertainties or other factors that may cause the future income, performances and achievements of the Group to differ significantly from the objectives expressed and suggested. These factors may include changes in the economic and commercial environment, in regulations, as well as the factors set forth in chapter 2 “Risk factors and control framework”.

Pursuant to European and French legislation, the regulated entities respectively responsible for the transmission and distribution of electricity within the EDF group (RTE and Enedis), which are managed in a fully independent way within

the meaning of the French Energy Code, are not allowed to communicate certain information they gather while conducting their activities to the other entities of the Group, including its Management. Similarly, certain data specific to generation and supply activities cannot be communicated to the entities responsible for transmission and distribution. This Reference Document has been prepared by the EDF group in compliance with these rules. For the sake of brevity, further references in this Reference Document made to RTE and Enedis will not always specify their independent nature as within the meaning of the French Energy Code.

A glossary for the major technical terms is provided at the end of this Reference Document.



FRENCH SOCIÉTÉ ANONYME
WITH A SHARE CAPITAL OF €1,054,568,341.50
REGISTERED HEAD OFFICE: 22-30, AVENUE DE WAGRAM
75382 PARIS CEDEX 08
552 081 317 RCS PARIS

EDF group

REFERENCE DOCUMENT

2016 Annual Financial Report



This Reference Document was filed with the Autorité des marchés financiers (the "AMF") on 6 March 2017 in accordance with Article 212-13 of the AMF General Regulations. It may be used for purposes of a financial transaction if supplemented with an offering memorandum (*note d'opération*) that received a visa from the AMF. This document has been prepared by the issuer and its signatories are responsible for its content.

Pursuant to Article 28 of the European Commission Regulation (EC) no. 809/2004, the following information is incorporated by reference into this Reference Document:

- consolidated financial statements of the EDF group for the fiscal year ended 31 December 2015, prepared in accordance with international accounting standards, as well as the accompanying Statutory Auditors' report, set forth respectively in Chapter 6, sections 6.1 (pages 306 to 412) and 6.2 (pages 413 and 414) of the EDF group's 2015 Reference Document;
- consolidated financial statements of the EDF group for the fiscal year ended 31 December 2014, prepared in accordance with international accounting standards, as well as the accompanying Statutory Auditors' report, set forth respectively in Chapter 20, sections 20.1 (pages 281 to 386) and 20.2 (pages 387 and 388) of the EDF group's 2014 Reference Document;
- the review of the financial position and results of the EDF group for the fiscal year ended 31 December 2015, presented in Chapter 5 (pages 262 to 301) of the EDF group's 2015 Reference Document;
- the review of the financial position and results of the EDF group for the fiscal year ended 31 December 2014, presented in Chapter 9 (pages 176 to 210) of the EDF group's 2014 Reference Document.

Copies of this Reference Document are available free of charge at EDF's registered office (22-30, avenue de Wagram, 75382 Paris cedex 08) and on EDF's website (<http://www.edf.com>) as well as on the AMF website (<http://www.amf-france.org>).



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Governance

BOARD OF DIRECTORS

Missions

The Board of Directors determines the Company's business policies and ensures that these policies are implemented. The Board deliberates on the Company or the Group's main strategic, economic, financial or technology policies, as well as on matters that the law expressly entrusts to the Board or that the Board has reserved for itself.

COMPOSITION

Chaired by Jean-Bernard Lévy, the Board of Directors is composed of:

11 directors appointed by the EDF' Shareholders' Meeting:

Jean-Bernard LÉVY, Chairman and Chief Executive Officer of EDF

Olivier APPERT, General representative of the National Academy of Technologies of France

Philippe CROUZET, Chairman of the Management Board of Vallourec

Bruno LAFONT, Co-Chairman of the Board of Directors of LafargeHolcim, Honorary Chairman of Lafarge

Bruno LÉCHEVIN, Chairman and Chief Executive Officer of the French Environment and Energy Management Agency (ADEME)

Marie-Christine LEPETIT, Head of Inspectorate General of Finance reporting to Minister for the Economy, the Industry and the Digital Sector and the Minister for Finance and Public Accounts

Colette LEWINER, Professional Director

Christian MASSET, Secretary General of the ministry of Foreign Affairs and International Development

Laurence PARISOT, Associate Director of the Gradiva consulting firm

Claire PEDINI, Senior Vice-President in charge of Human Resources for the Saint-Gobain Group

Michèle ROUSSEAU, Head of the Environmental Authority Regional Mission (MRAe) for the Haut-de-France region of the General Council for Environment and Sustainable Development Regional Environmental Authority*

Representative of the French State:

Martin VIAL, Commissioner for French Government Shareholding Agency reporting to the Minister for the Economy, Industry and the Digital Sector and the Minister for Finance and Public Accounts

6 Directors elected by the employees:

Christine CHABAUTY, sponsored by CGT

Jacky CHORIN, sponsored by FO

Marie-Hélène MEYLING, sponsored by CFDT

Jean-Paul RIGNAC, sponsored by CGT

Christian TAXIL, sponsored by CFE-CGC

Maxime VILLOTA, sponsored by CGT

Additionally the Government Commissioner and Head of the French State General Economic and Financial Supervisory Mission to the Company as well as the Secretary of the Central Works Council attend the meetings of the Board of Directors.

* The Board of Directors decided, in accordance with Article L. 225-24 of the French Code de commerce and Article 13 of ordinance n° 2014-948 dated 20 August 2014 relating to the governance and operations on the share capital of companies with a public shareholding, to appoint Ms. Michèle Rousseau on a temporary basis, as director following Mr. Gérard Magnin's resignation, for the remainder of his term of office, i.e. until the close of the ordinary General Meeting of the shareholders deliberating in 2019 upon annual financial statements for the fiscal year 2018. The ratification of Ms. Rousseau's appointment will be submitted to vote during the General Meeting of the shareholders to be held on 18 May 2017.

EXECUTIVE COMMITTEE

COMPOSITION



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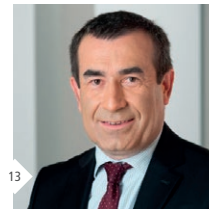
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01 Jean-Bernard LÉVY

Chairman & Chief Executive Officer,
Chairman of the Executive Committee.

02 Marc BENAYOUN

Group Executive Vice President with
responsibility for Gas and Italy, Deputy
Director of Edison.

03 Antoine CAHUZAC

Group Senior Executive Vice President,
Renewable Energies, Chief Executive
Officer of EDF Énergies Nouvelles.

04 Xavier GIRRE

Group Senior Executive Vice President,
Group Finance.

05 Véronique LACOUR

Group Senior Executive Vice President in
charge of Transformation and Operational
Efficiency.

06 Henri LAFONTAINE

Group Senior Executive Vice President,
Customers, Services and Regional Action.
He supervises Dalkia and Citelum. He also
heads the Commercial Division.

07 Marianne LAIGNEAU

Group Senior Executive Vice President,
Human Resources.

08 Dominique MINIÈRE

Group Senior Executive Vice President,
Nuclear and Thermal.

09 Vincent DE RIVAZ

Group Senior Executive Vice President,
Chief Executive Officer of EDF Energy.

10 Simone ROSSI

Group Senior Executive Vice President,
International Division.

11 Pierre TODOROV

Group Senior Executive Vice President,
Group General Secretary.

12 Philippe TORRION

Group Senior Executive Vice President,
Innovation, Strategy and Planning.
He supervises EDF Trading.

13 Xavier URSAT

Group Senior Executive Vice President,
New Nuclear Projects and Engineering.
He supervises Sofinel.

14 Alexandre PERRA

Executive Committee Secretary.

Missions

The Executive Committee is a decision-making body as well as a reflection and consultation body on operational and strategic topics of the Group. The Committee studies all matters significant to the Group, monitors the objectives and operational results and contributes to the management and anticipation of major issues for the EDF group.



Presentation of EDF group

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1.1 History and development of the Company

In the context of nationalization of gas and electricity sectors, the Act of 8 April 1946 created EDF as a State-owned industrial and commercial establishment (EPIC) and created a special status for the personnel of the electric and gas industries (IEG). The law nevertheless left in existence a certain number of non-nationalized distributors (DNN) and local distribution companies (ELD).

The years 1946 to 2000 were marked by the development of the Group's industrial base. Initially, there was a fleet of thermal generation facilities using coal and then fuel oil, as well as hydropower facilities, in particular with the construction of the dams at Tignes in 1952 and Serre-Ponçon in 1960. In 1963, EDF commissioned the first commercial-scale nuclear generation unit at Chinon (70MW), the first of a series of six generation units of the Uranium Natural Graphite Gas (UNGG) family, the construction of which continued until 1972. The oil crises of 1973 and 1979 led to accelerated replacement of thermal power with nuclear power. In 1969, the UNGG family was abandoned in favour of the Pressurised Water Reactor (PWR) family, which was used for new power plants.

In the beginning of the 1990s, EDF embarked on a significant expansion abroad in particular with the acquisition of London Electricity (which was renamed EDF Energy on 30 June 2003) in December 1998. This policy was pursued in 2001 with the acquisition of 20% of EnBW (a stake that was successively raised to 45.01% by 2005) and with the acquisition of equity interests in the Italian company Edison by the IEB consortium (63.8%), in which EDF holds a stake of 18.03%, and in 2002, with the acquisition of EPN Distribution Plc. and Seeboard Plc., two England-based distribution companies.

In France, the major development in recent years has been the liberalisation of the market pursuant to European regulations. In February 1999, sites where electricity consumption exceeded 100GWh per year, *i.e.* 20% of the market, became entitled to choose their supplier. The eligibility threshold was then progressively lowered, opening thus 30% of the market in May 2000, then 37% in February 2003, and 69% in July 2004, due to the liberalisation of all of the market for non-household customers. Since July 2007, the market has been fully liberalised, including for residential customers.

At the same time, the structures necessary for a competitive market to function effectively were set up. The French Electricity Regulation Commission, which became the Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE) was created in May 2000. That same year, in order to guarantee non-discriminatory access to all operators in the market, EDF created Réseau de Transport d'Électricité (which became a wholly-owned subsidiary of EDF in 2005 under the name RTE EDF Transport, and which has been renamed RTE Réseau de Transport d'Électricité), responsible for managing the high voltage and very high voltage public electricity transmission network. In 2000, the Group formed the trading company, EDF Trading, with the trading specialist Louis Dreyfus. It became a wholly-owned subsidiary of EDF in 2003. In 2001, Euronext and various industrial and financial operators in the electricity market, including EDF, created Powernext, the French electricity exchange. In 2001, as a condition for authorising EDF's acquisition of a stake in EnBW, the European Commission required EDF to set up a system of power supply capacity auctions (Virtual

Power Plants or VPP) to facilitate access to the market for competitors. In 2003, the EDF group sold its stake in Compagnie Nationale du Rhône to Suez (now Engie).

On 20 November 2004, pursuant to the Act of 9 August 2004, EDF became a French limited company (*société anonyme*) with a Board of Directors.

In 2005, EDF and A2A SA (formerly AEM SpA) entered into agreements for a joint takeover of Edison following the launch of a tender offer. The EDF group has pursued a strategy of refocusing on Europe and sold its controlling interest in its subsidiaries Edenor and Light and its assets in Mexico.

EDF filed for an initial public offering in November 2005 through the issue of 196,371,090 new shares and the sale by the French State of over 34.5 million shares it held in the Company to employees and former employees of EDF and of certain EDF subsidiaries. Subsequently, on 3 December 2007, the French government sold an additional 45 million of its shares.

In late 2006, EDF Énergies Nouvelles, an EDF group's 50%-owned subsidiary, filed for an initial public offering.

Since 1 January 2008, EDF's distribution business has been conducted by Enedis (previously ERDF), a wholly-owned subsidiary of EDF to which the distribution business was contributed pursuant to the Act of 7 December 2006 on the energy sector.

In 2008-2009, the EDF group became a major player in the revival of nuclear power internationally, by creating a joint venture with the Chinese utility CGN, acquiring British Energy, one of the largest energy companies in the United Kingdom, and acquiring nearly half of the nuclear assets of US-based Constellation Energy. EDF also acquired a 51% stake in the Belgian company EDF Luminus, and subsequently raised its stake in EDF Luminus to 63.5% in 2010.

EDF finalised in 2010 the sale of its British distribution networks to the Cheung Kong group of Hong Kong and, in 2011, it completed the sale of its interest in EnBW to the German state of Baden-Württemberg.

In 2011, EDF confirmed its positioning as a key player in the field of power generation using renewable energies by increasing its stake in EDF Énergies Nouvelles to 100% by way of a simplified alternative cash or exchange tender offer, followed by a squeeze-out of minority shareholders.

In 2012, after more than seven years of a strategic partnership with A2A, EDF took over Edison, one of the key players in the Italian electricity market, the fourth largest market in Europe. This transaction was carried out as part of the group's gas strategy, which will rely on Edison's expertise at all stages of the gas chain.

In 2014, EDF has delegated to Exelon, the leading American nuclear operator, the operational management of the five nuclear reactors owned by CENG, held by EDF (49.99%) and Exelon (50.01%). Furthermore, EDF took over all of Dalkia's lines of business in France, including the Citelum group, and Veolia took over the Dalkia group's international business. Finally, F2i, Edison and EDF Énergies Nouvelles created the third largest Italian operator in the renewable energy sector, owned by F2i (70%) and a holding company (30%) owned by Edison and EDF Énergies Nouvelles.

In 2015, EDF and China General Nuclear Power Corporation (CGN) entered into a non-binding strategic investment agreement relating to the construction and the operation of the Hinkley Point C nuclear power plant in Somerset. This partnership has been approved on 28 July 2016 by EDF's Board of Directors. The contractual documentation was signed on 29 September 2016.

In 2015 and 2016, EDF and AREVA signed two non-binding memoranda of understanding providing for the acquisition by EDF of the exclusive control of AREVA NP, the creation of a dedicated company, owned at 80% by EDF, aimed at optimizing the design and management of new reactors projects, and for the entering into an overall strategic and industrial partnership. In accordance with the terms of these memoranda, an agreement providing

for the terms and conditions of the acquisition by EDF of the exclusive control a new wholly-owned subsidiary of AREVA NP ("New NP")¹, was signed on 15 November 2016. The completion of the transaction remains subject to several conditions precedent (see section 1.4.1.2.3.4 "Memoranda of understanding and share sale agreement between EDF and AREVA").

Pursuant to a request made by the French Minister for Finance and Public Accounts and the French Minister of Economy, Industry and Digital in a joint press release dated 22 April 2016, EDF has concluded an agreement on 14 December 2016 to transfer an indirect shareholding of 49.9% in RTE to the Caisse des Dépôts and CNP Assurances. However, the completion of such transfer remains subject among other things to the approval of antitrust authorities.

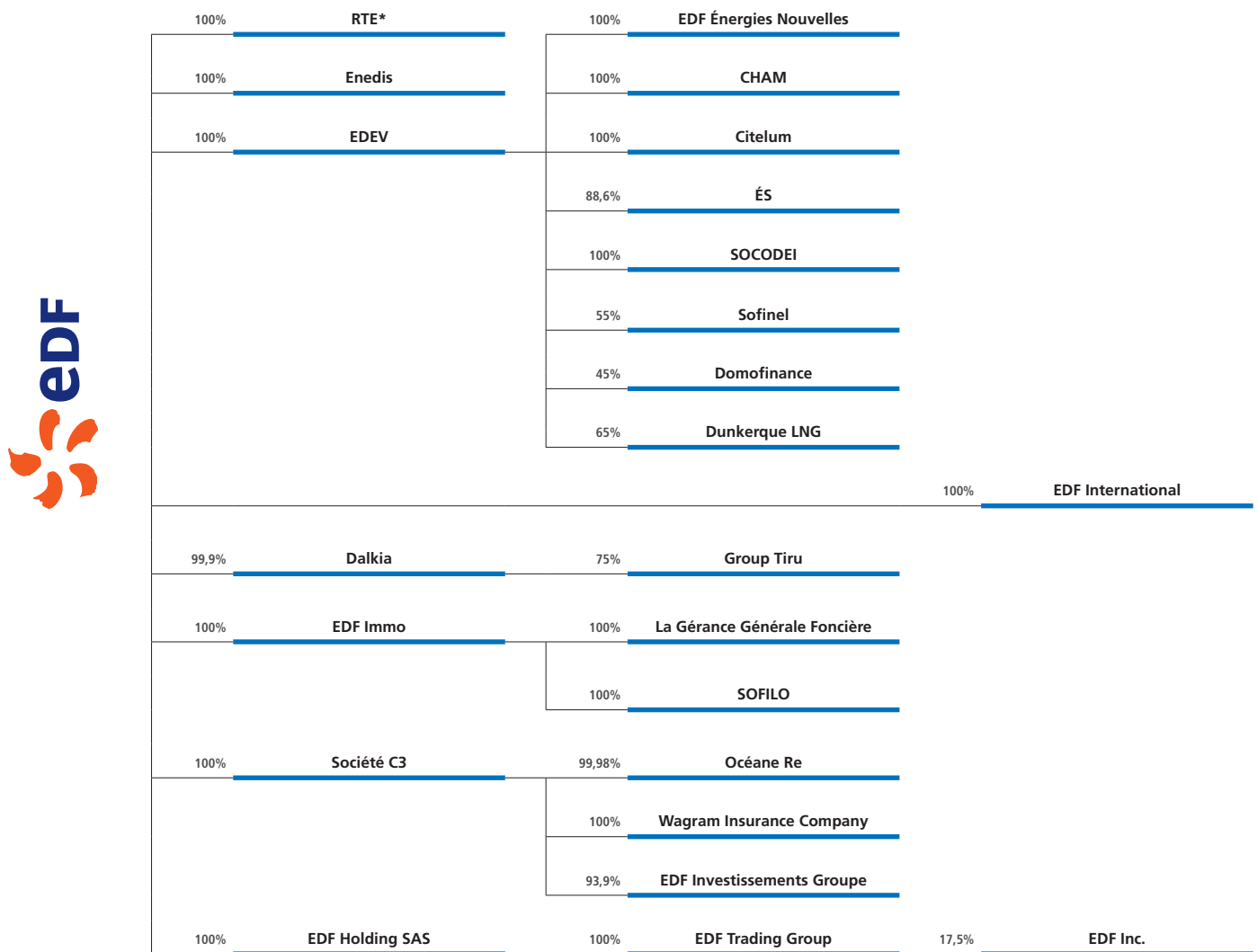
1. This entity is indifferently named "New NP" or "New AREVA NP" in this reference document.

1.2 Organisation of the Group

1.2.1 ORGANISATIONAL CHART

A simplified organisational chart for the Group, as of 31 December 2016, is presented below. The percentages for each entity correspond to the ownership interest in capital.

The companies or groups of companies within the Group's scope of consolidation are indicated in Note 51 to the consolidated financial statements for the year ended 31 December 2016.



* Ongoing sale of 49.9% of the share capital.

INTERNATIONAL

100%	EDF Belgium	68,6%	EDF Luminus
82,5%	EDF Inc. / United States	49,99%	Constellation Energy Nuclear Group
		100%	Unistar Nuclear Energy
		100%	EDF Trading North America
100%	EDF Norte Fluminense / Brazil	51%	Companhia Electrica de Sinop (CES) / Brazil
19,6%	Shandong Zhonghua Power Company Ltd / China		
35%	Datang Sanmexia Power Company Ltd / China		
25,6%	Taishan Nuclear Power Joint Venture / China		
4,4%			
100%	EDF (China) Holding Ltd	49%	Jiangxi Datang International Fuzhou Power Generation Company Ltd / China
100%	Figlec / China		
		40%	NTPC (Nam Theun) / Laos
56,3%	Meco / Vietnam		
100%	EDF Démász / Hungary*		
32,3%	Kogeneracja / Poland	98,4%	EC Zielona Gora / Poland
17,7%			
99,5%	EDF POLSKA / Poland**		EDF Energy Nuclear Generation Ltd.
		99%	
100%	EDF Energy UK / United Kingdom	100%	Groupe EDF Energy
		80%	Lake Acquisitions Ltd.
		66,5%	NNB Holding Company Ltd.
100%	TDE SpA	97,4%	Groupe EDISON / Italy
		100%	EDF Fenice
100%	EDF Gas Deutschland	50%	FS GmbH
100%	EDF - Alpes Investissements / Switzerland	25%	Alpiq
50%	Sloe Centrale Holding BV / The Netherlands		
100%	EDF Development Company Ltd UK		

* Sold on 31 January 2017.

** Sale in process.

1.2.2 INTRA-GROUP CONTRACTS

The information on the regulated agreements and commitments referred to in Article L. 225-38 of the French Commercial Code is stated in the Statutory Auditors' special report, which is reproduced in section 7.5.4 to this reference document.

Cash pooling agreements entered into between EDF and its subsidiaries

The cash pooling system set up by EDF centralises all the cash positions of its subsidiaries and thus optimises the Group's liquidity. Cash pooling consists of grouping all the cash balances of subsidiaries at the level of the parent company. It includes certain French and international subsidiaries. It does not include RTE.

The cash pooling system in place for companies of the EDF group is defined under cash agreements. Bilateral agreements between EDF and each subsidiary define the specific conditions for each arrangement (remuneration of balances, etc.).

At international level, subsidiaries participating in the system enter into a framework agreement, whereby EDF serves as the Cash Centre.

EDF also centralises all the currency flows from its French subsidiaries.

Financial flows between EDF and its subsidiaries

In addition to the financial flows relating to the cash pooling agreements mentioned above, financial flows between EDF and its subsidiaries are also

related to distributions of dividends within the Group. A substantial portion of the dividends is paid by EDF International. In 2016, EDF received a total of €2.194 million in dividends from its consolidated subsidiaries.

Other financial flows between EDF and its subsidiaries correspond mainly to loans, asset transfers and guarantees made by the parent company of the Group for the benefit of certain subsidiaries.

In the context of the Group's financing centralisation policy, decided on in 2006, EDF centralises part of the financing of its foreign subsidiaries, through a subsidiary located in Belgium, EDF Investissements Groupe, which aims to grant medium- and long-term intra-group financing.

In addition, the nuclear fuel purchases are managed centrally by EDF SA, including the purchases intended to its subsidiary EDF Energy.

With regard to financial flows related to fees paid by subsidiaries, contracts for the supply of intra-group services have been concluded with the main subsidiaries under the scope of consolidation since 2012. EDF may also be required to provide specific services to certain subsidiaries or entities outside the Group. In addition, following EDF brand development work, the Company has set up licensing agreements with subsidiaries that use the EDF brand.

Insurance

EDF and its subsidiaries have entered into accession protocols in order for the latter to benefit from the insurance coverage provided for by the Group's insurance programs.

1.3 EDF group strategy

1.3.1 ENVIRONMENT AND STRATEGIC CHALLENGES

The European market and regulatory environment are currently constraining the economic model of electricity producers, at a time when significant investment is still required to maintain existing assets and, over the longer term, to renew the generation fleet:

- fuel prices are decreasing (oil, gas, coal) and despite a slight recovery that started at the very end of the year, the average levels in 2016 were below those in 2015;
- CO₂ price remains very low, which is inconsistent with the low carbon and energy transition goals in Europe;
- such low CO₂ price *de facto* supports the economic viability of coal and lignite production means at a time when electricity demand remains subdued (+0.5% annual average between 2000 and 2014¹) and when, nonetheless, significant subsidised energy capacity has been connected to the grid. Therefore, the over-capacity of the European generation fleet, which could lead to additional massive reductions in Europe, explains the historically low electricity market prices: for instance, in France, whereas

they had settled around €40/MWh in 2015, France N+1 electricity market prices fluctuated between €26 and €33/MWh in the first half of 2016. Since October 2016, forward market prices for delivery in 2018 rose slightly and settled around €34-38/MWh.

By way of contrast, electricity consumption is rising fast in emerging markets, especially in Asia, benefiting the electricity producers in these regions with forecasts¹ of around +160TWh per year in China between 2014 and 2040 (+2.35% p. y. on average) and +44TWh/year in Africa (+4.0% p. y.), versus +13TWh per year in the European Union (+0.4% p. y.).

In Europe, France and the UK are developing low-carbon energy independence policies, primarily built around a mix combining energy efficiency and renewable and nuclear energies. Thus, the UK, which must undertake a major renewal of its electricity generation facilities, has established a market model consistent with this policy (Carbon Price Floor, Contracts for Difference, capacity market, etc.). In France, electricity is also used as a driver of the migration to low carbon, and the Law of 17 August 2015 on Energy Transition and Green Growth sets a ceiling of 63.2GW for the nuclear capacity installed in France, which given the evolution in demand and export capacities suits the development of renewable energies in the energy mix.

1. Source: AIE, *World Energy Outlook*, November 2016.

In fact, the agreement reached in Paris at the 21st session of the Conference of Parties (COP 21) confirms the effort being made to combat climate change and the ramping up of energy transitions beyond Europe. The agreement, ratified by 111 countries at the end of November 2016, has entered into effect. COP 22, held in Morocco in November 2016, confirmed the roadmap decided in Paris.

Customers are looking to increasingly take ownership of their consumption and local communities of their energy policy. These new expectations are forcing energy producers to come up with new solutions and new, more decentralised models, facilitated by innovations in telecommunications and digital technologies and the emergence of new uses, including electric vehicles.

The electricity sector is thus changing more than ever, at the centre of medium and long-term societal and technological trends. Against this background and with this outlook, European electricity producers have scaled back their investments and focussed them on targeted segments, particularly renewable energy, low carbon solutions, international growth areas, networks, supply to customers and services.

EDF is thus addressing specific strategic challenges:

- to play a responsible role in the fight against climate change; to contribute to the achievement of the goals set out in the Energy Transition and Green Growth Law in France, in the Climate Change Act in the UK, and more broadly in the 2020 and 2030 Energy and Climate Change Packages in the European Union;
- to ensure the economic performance and safety of the nuclear assets;
- to innovate in order to set itself apart and to have the technological and economic capabilities to renew and expand its generation and the services it offers to customers, in particular digital services, and thereby play a role in energy efficiency and supply security;
- to ensure that the EDF group is consistently a stellar public service operator, in particular in terms of solidarity and the fight against energy poverty, respect for others, responsibility and ethics in the way it runs its business;
- to put the EDF group on a sustainable value creation path for all stakeholders;
- to create an environment that facilitates the involvement of all stakeholders in the EDF group's transformation.

Therefore, in a particularly difficult market context, the EDF group rallies its forces and has defined its CAP 2030 strategy in order to be able to finance its priority developments despite its high level of debt.

1.3.2 PRIORITIES OF THE CAP 2030 STRATEGY

Being a responsible and efficient electricity producer that champions low carbon growth: this is the goal of the EDF group, driven by the CAP 2030 strategy. This goal can be split into three priorities, which combine the search for growth drivers with the optimisation of existing assets:

- proximity to customers and local communities;
- low carbon generation, with a balanced mix of nuclear and renewable energy;
- international expansion.

More than 15 strategic programmes were launched in 2015 and continued in 2016, embodying each of these three priorities.

This goal will also be achieved through a transformation programme based on the following four main lines: innovation and digital, human ambition, accountability and performance management, simplification.

1.3.2.1 Proximity to customers and local communities

In order to support customers and local communities in their energy transition, the EDF group offers them competitive low carbon energy solutions and acquired industrial expertise in smart grids.

The EDF group's strong position in energy services via Dalkia and other subsidiaries (Sodetrel, Edelia, Netseenergy) allows to support its customers in achieving energy performance and developing decentralised local systems.

As for residential customers, the EDF group offers and continues to develop a range of digital energy services, marketed in France and in the "core European countries" (United Kingdom, Italy, Belgium). For example, the launch of Sowee in 2016 (a subsidiary offering Connected Home innovative products and solutions) reflects EDF's commitment to meeting the new expectations of its customers, especially regard sustainable well-being at home. Existing offerings and customer relations will also continue to be enriched by new digital technologies and features, facilitated in particular by smart meter systems deployed in several countries.

The EDF group is fully engaged in the energy transition:

- by proposing or developing energy saving solutions for its customers (insulation, high-efficiency solutions, deployment of digital tools such as e.quilibre, enabling residential customers to monitor their energy consumption, etc.);
- by working to replace fossil fuels with new efficient uses of electricity, which could represent additional dozens of TWh in France by 2030 (electric mobility, heat pumps, low carbon habitat, etc.);
- by developing carbon-free and decentralised electricity generation capacity such as the self-consumption offer "Mon soleil et moi";
- by developing and operating heating networks that use renewable and recovery energies.

Finally, the development of renewable energies, the deployment of the Linky¹ smart meters and the emergence of metropolitan areas are putting the distribution networks at the front line of the transformation of the electricity system. The distributor thus plays a key role as facilitator of the energy transition.

To support the energy transitions, the EDF group is intensifying research and development in storage, solar energy, electric mobility, smart electricity systems and sustainable local energy solutions (smart cities).

It is also increasing its innovation efforts to meet the expectations of its customers and offer solutions and services adapted to the new consumption patterns and based on increasingly digital connections.

Lastly, in the context of CAP 2030, the EDF group has been giving much thought to its sustainable development ambitions in terms of corporate responsibility.

1. Linky is a project handled by Enedis, the distribution network operator. For the sake of brevity, further mentions of Linky in the rest of the document will not always specify that it is a project handled by Enedis.

1.3.2.2 Low carbon generation: nuclear and renewable energies

To remain the leader in low carbon electricity generation, the EDF group is intensifying the development of renewable energies while ensuring at the same time the safety, performance and competitiveness of the existing nuclear fleet and new nuclear investments. In fact, EDF's nuclear fleet is already giving France a major lead compared to its neighbours as for curbing greenhouse gas emissions, all while ensuring lower electricity costs.

Achieving the low carbon generation goal starts with the consolidation of the hydropower and nuclear asset basis:

- EDF regularly invests in hydropower concessions in order to tie together economic, energy and environmental performance, and will propose solutions strengthening hydropower generation;
- EDF is investing in order to obtain approval to extend, under the highest safety conditions, the operating life of the French nuclear fleet beyond 40 years, now that the economic and carbon competitiveness of this fleet has been demonstrated. In this context, EDF's Board of Directors approved the principle of the "Grand Carénage" on 22 January 2015 (see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet" – "Investment programme for the existing nuclear fleet in France"). Furthermore, on 28 July 2016 the Board of Directors approved the extension to 50 years of the amortisation period of the PWR 900MW series (excluding Fessenheim) in France, without prejudice to the decisions authorizing the continuation of the operation, which will be made on a unit-by-unit basis by the French Nuclear Safety Authority (ASN) after each ten-year inspection. These decisions are consistent with the multi-year energy plan. The project to close the Fessenheim plant underwent a consultation procedure by the Central Works Council, which, during its meeting held on 10 January 2017, voted unanimously against such project. During its meeting held on 24 January 2017, EDF's Board of Directors approved the terms of the compensation protocol and authorised the Chairman and CEO to sign it on behalf of EDF in due course. The Board also decided that the filing of the application for the revocation of Fessenheim's operating permit will be subject to further deliberation on its part (see section 1.4.1.1.6 "Decommissioning of nuclear power plants" – "Closure project for the Fessenheim plant");
- investments are also made to extend the operating life of the entire UK nuclear fleet by of eight years on average;
- as a responsible electricity producer, the EDF group will also carry on investing in the preparations for the decommissioning of the nuclear fleet and for the waste management in France and the United Kingdom.

The EDF group will continue new developments, balanced between nuclear new build projects and renewable energies. The main issues concerning nuclear new build projects are:

- the commissioning of Flamanville 3 and Taishan;
- the project of building and operating two EPR reactors at Hinkley Point, for which the final contracts were signed on 29 September 2016 by EDF, CGN and the British Government;
- the preparation of the reactors of the future with the New Model EPR project, conducted jointly with AREVA;
- the strategic and industrial partnership with AREVA, which includes the acquisition by EDF of the exclusive control over a new company comprising the design and supply activities of AREVA's nuclear boilers and fuel assemblies, and the incorporation of a company, owned at 80% by EDF and dedicated to the design and construction of the nuclear island for new reactor projects.

In regard to renewable energy, the new means developed will be essentially onshore wind power, photovoltaic, hydropower and offshore wind power.

The development of these assets outside France is undertaken in line with the Group's international strategy. In that respect, the EDF group strengthened its integration in the renewable energy industry throughout 2016 by developing new projects, not only in France, but also in the United States, Brazil, Chile, India and China (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

In line with the low carbon generation priority, EDF supports the need to implement measures to increase the price of CO₂, such as the principle supported by the French Government of a price corridor for European quotas. EDF believes that such measures should be applied to all sectors to be fully effective. They will constitute an incentive for economic and financial operators to invest in the cheapest ways to reduce carbon emissions and help give full value to non-polluting assets.

1.3.2.3 International expansion

The EDF group wants to be a key player in the energy market in France and in its core countries in Europe (United Kingdom, Italy, Belgium) by playing a role in energy security, the enhancing of economic competitiveness and the European economy low carbon transition, in line with public policies.

The Group is also expanding outside Europe in a few targeted countries with high growth potential and is strengthening its expertise and the competitiveness of its offers.

Investment in low carbon generation projects, and in energy and engineering services are central to the Group's development strategy in these countries.

A proactive approach is also being implemented in hydropower to reproduce the undisputed success of the dam in Laos through some specific projects.

Gas-to-power regulated infrastructure projects are also being developed where they are a key component of the energy transition. The Group resorts to all its areas of expertise that can contribute to developing such projects: renewables, energy services, nuclear new build but also other engineering skills (network, thermal, hydropower, etc.), trading and gas delivery capabilities in Europe and worldwide.

1.3.2.4 Transformation

Health and safety, digital and new work practices, responsibility and simplification, skills and the recognition model are the five major levers of the Group's transformation.

The Group adapts its managerial practices by streamlining its organisations and modus operandi. For example, in 2016, two labour agreements were signed by EDF SA concerning both the introduction of a fixed number of working days for managers and an "expertise" agreement aimed at boosting the careers of employees and promoting internal mobility and promotional training.

Moreover, the promotion of innovation, based in particular on experiments (labs and co-construction platforms with customers) and on an open innovation programme will contribute to this transformation. The (undergoing) creation of a department in charge of "new businesses" will complement the skills EDF is gradually developing in order to meet the challenges in this field.

The digital transformation involves employees and internal modus operandi, customer relations and the management and design of industrial assets. The creation of a Transformation and Operational Efficiency Department, which would combine the Group's activities relating to information systems, purchasing, real estate and shared services, reflects the Group's desire to be more active in this field.

Performance improvement has always been a priority for the EDF group. The current economic and financial context further increases the urge for such improvement. The Group is strengthening control of its costs to bring them into line with its environment. The approach is adjusted depending on the scopes involved (cross-disciplinary functions, operating entities, etc.).

1.3.2.5 Sustainable development

As part of its CAP 2030 strategic project, EDF has undertaken a review of its ambition in terms of corporate responsibility, echoing the United Nation's new Sustainable Development Goals (2015-2030). Such review led to a strong commitment through six Corporate Responsibility Goals in respect of which the Group has committed to presenting annual results – that lay down a road map for the Group's functions and subsidiaries to serve a profitable and responsible development:

- going beyond the requirements of the 2°C trajectory defined by COP 21 by drastically reducing the Group's CO₂ emissions, which already reach a remarkable level compared to the Group's main European counterparts;
- incorporating best practices of the industrial groups in terms of human development: health & safety, gender equality and internal social advancement;
- offering all vulnerable groups information and solutions to support them in their energy consumption and help them assert their rights;
- innovating through digital energy efficiency solutions so that each customer can better manage their usage;
- systematically organising an initiative of worldwide dialogue and consultation which is transparent and includes all involved parties, for each new project;
- launching a positive approach of biodiversity, to understand and reduce the impacts of the Group's activities and in the long run to have a positive effect on biodiversity.

1.3.2.6 CAP 2030 success factors

CAP 2030 enables the Group to develop a portfolio of assets focused on low-carbon, renewable and nuclear energy: services for customers, decentralised energy solutions. The key success factors of CAP 2030 are:

- the management of major projects, in particular the new models of nuclear reactors, the "Grand carénage" programme or the development of the Nuclear New Build in the United Kingdom;
- the selectiveness of investments in international projects;
- the expansion of the range of offers and the exemplarity in customer relations;
- the transformation of the Group's modus operandi and the collective commitment;
- cost control.

In this context, the Group announced on 22 April 2016 the launch of a performance plan that includes:

- an optimisation of net investments (excluding Linky, new developments and assets disposals) to reach ~€10.5 billion in 2018;
- a reduction in operational expenditures¹ of €0.7 billion from 2015 to 2018, and of €1 billion from 2015 to 2019;
- an asset disposal plan of ~ €10 billion between 2015 and 2020.

See also section 5.5 "Outlook".

On 26 July 2016, EDF's Board of Directors agreed on the principle of a capital increase in an amount of €4 billion to strengthen its equity capital. The French State, holding a 85% equity interest in the Group, announced that it would subscribe to it for €3 billion.

At the end of February 2017, the disposal plan underwent significant progress, the asset disposals signed or finalised since 1 January 2015 representing approximately €6.7 billion. The main asset disposals are the following ones:

- on 29 September 2016, CGN signed a partnership agreement with EDF for the development of the nuclear new build in the United Kingdom. This agreement is materialised by CGN's acquisition of interests in the companies in charge of the development of the new nuclear projects in Great Britain, initiated by EDF at Hinkley Point (33.5% in HPC), Sizewell (20% in SZC) and Bradwell (66.5% in BRB);
- on 26 October 2016, following an open competitive process, EDF announced that it had entered into exclusive negotiations with IFM Investors, who made a firm offer to the Group to repurchase its cogeneration activities (heat and electricity) in Poland. The coal-fired thermoelectric power plant in Rybnik (capacity of 1.8GW) was undergoing a separate sale process, for which the EDF group was in exclusive negotiations with EPH. The completion of these two transactions required the prior split of EDF Polska into two autonomous entities, bringing together the cogeneration assets on one side, and Rybnik on the other. On 12 December 2016, however, the Polish Government notified the EDF group of its decision not to allow this split. EDF is now studying the reasons for its refusal and reserves all rights to further actions. On 27 January 2017, a memorandum of understanding was signed between EDF and a consortium of Polish utilities composed of PGE, Enea, Energa and PGNiG. The purpose of this memorandum is to provide a framework for the discussions on the sale of EDF Polska;
- on 5 December 2016, EDF International SAS (EDFI) signed with the national public service company "Első Nemzeti Közműszolgáltató Zrt" (ENKSZ), wholly-owned by the Hungarian State, a definitive agreement for the sale of the entire share capital of its Hungarian subsidiary EDF Démász Zrt. The transaction was carried out on 31 January 2017 following clearance by the Hungarian antitrust authorities, the approval by the Hungarian energy regulatory authority and authorisation by the French Ministry for the Economy;
- on 14 December 2016, EDF, Caisse des Dépôts and CNP Assurances signed a binding agreement for the acquisition by Caisse des Dépôts and CNP Assurances of a 49.9% stake in Réseau de Transport d'Électricité (RTE), as well as the terms and conditions of a long-term partnership to promote RTE's development. The agreed final valuation is set at €8.2 billion for 100% of RTE's equity capital, which may be supplemented by an additional value of around €100 million;
- on 21 December 2016, JERA Trading and EDF Trading announced that they had signed binding agreements for the acquisition by JERA Trading of EDF Trading's coal and freight activities. EDF Trading will hold 33% of JERA Trading shares. The sale is expected to be completed at the end of the first half of 2017;
- on 23 December 2016, Tikehau Investment Management acquired a portfolio of around 130 office real estate and business assets from Sofilo, the EDF group's property investment company. The portfolio is composed of assets located in Ile-de-France and other French regions, covering floor space of approximately 300,000 square meters. This transaction was undertaken as part of an asset disposal plan coupled with an operating lease agreement.

1. At constant scope, exchange and hypothesis of pensions discount rates. Excluding change in operating expenses of service activities.

1.3.3 INVESTMENT POLICY

1.3.3.1 Investments in 2016

The Group continued its programme of gross operating investments for a total amount of €14.4 billion in 2016, versus €14.8 billion in 2015. Some investments are regarded as growth investments, only expected to generate cash flows in a more distant future.

These gross operating investments mainly comprise investments in the Nuclear New Build, in renewable energies and energy services. They represented €4.9 billion in 2016, including €1.8 billion in renewable energies (including hydropower) and €2.1 billion in Nuclear New Build.

Net investments totalled €11.7 billion in 2016, versus €12.7 billion in 2015, split across regulated (31%) and non-regulated activities (69%). These net investments include new developments (including Linky, led by Enedis¹ for €0.3 billion, and British New Nuclear for €0.7 billion) and asset disposals for €1.1 billion, including the sale of 33% in Hinkley Point C project to CGN. The new developments net of disposals represent a net investment of -€0.2 billion in 2016, compared to a net disposal of €0.3 billion in 2015.

In the non-regulated field, net investments of development of new capacities (in particular renewable energy and Nuclear New Build) amounted to €2.3 billion. Investments in maintenance totalled €5.7 billion, including €3.8 billion for nuclear maintenance in France.

Net investments in France (€9.4 billion, of which €5.8 billion in non-regulated activities and €3.6 billion in regulated activities) increased by +2.1%, reflecting the Group's desire over the past years to invest in the existing industrial facilities. The Group continued its efforts made in international investments (€1.7 billion), in particular through its EDF Energy subsidiary in the UK for close to €0.6 billion, and via its subsidiary Edison in Italy for €0.5 billion. €0.6 billion were also invested in other business lines (EDF énergies Nouvelles, gas business and Dalkia in particular), mostly located in France.

1.3.3.2 Investment programme

In the medium term, the Group aims to:

- complete major industrial projects such as the Flamanville 3 EPR (European Pressurized water Reactor) in France as well as the smart meters in France (Linky), representing investment amounts of respectively €10.5 billion² and €4.5 billion (see respectively sections 1.4.1.2.2 "Update on the Flamanville EPR project" and 1.4.4.2.4 "Future challenges");
- continue investing in Nuclear New Build in the UK in order to complete the Hinkley Point C project of £18 billion in nominal terms³ (see section 1.4.5.1.2.5 "Nuclear New Build business");
- continue its "Grand Carénage" industrial programme for nuclear power in France for an investment amount of €₂₀₁₃45 billion (see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet");
- intensify its investments in renewable energies in France and internationally, with a gross investment in renewables above €2 billion per year over the 2017-2020 period.

With regard to the aforementioned projects of Flamanville 3, Linky, Hinkley Point C and *Grand carénage*, they have been approved by the Group governance bodies. As for investments in renewable energies, the guidance disclosed is consistent with presentations made to the Group's management bodies. Firm commitments undertaken by the Group in connection with acquisitions of tangible and intangible assets, in particular those related to these projects, are described in Note 44.1.2.1 of the consolidated financial accounts for the year ended 31 December 2016. In 2017, firm commitments in connection with the acquisition of tangible assets for the building of Hinkley Point C have been formalised under contractual agreements for an amount of €2.7 billion.

In 2020, the Group expects to dedicate more than 50% of its total net capital expenditures to regulated assets, Linky, British Nuclear New Build and renewables activities.

Moreover, in line with both its integrated electricity producer strategy and the CAP 2030 strategic principles, the Group will selectively target new development projects in addition to those already initiated, in line with its policy and financial constraints: New Model EPR projects, nuclear new build projects in the UK, new projects in renewable energy, as well as international equity investments.

1. EDF fully independent subsidiary as defined by the Energy Code.

2. Cost of the Flamanville 3 project in 2015 euros, excluding interim interests.

3. Nominal or current costs refer to the costs at the date when they are incurred. They include the cost of inflation each year. Excluding interim interests.

1.4 Description of the Group's activities

The EDF group is an integrated energy company, active in all electricity businesses: nuclear, renewable and thermal generation, transmission (activity handled by RTE¹, shareholding consolidated resorting to the equity method), distribution (handled by Enedis), sales and marketing, efficiency and energy services and energy trading. It is the leading player in the French electricity market and holds strong positions in Europe (mainly in the United Kingdom (UK), Italy and Belgium), which makes it one of the world's leading electric energy companies and a renowned gas player.

With a global installed net generation capacity of 132.3GWe² as at 31 December 2016, generating 583.9TWh, the Group has one of the largest generation fleets in the world. Among the ten largest global power suppliers, it produces the smallest amount of CO₂ per kilowatt-hour generated³ thanks to the share of nuclear, hydro and other renewable energies in its generation mix.

The EDF group supplies electricity, gas and related services to 37.1 million customer accounts⁴ worldwide (of which 26.2 million in France).

Electricity generation is a non-regulated activity, which is open to competition in the same way as the sale of electricity and gas (see section 1.4.2 "Sales and supply activities") and upstream/downstream optimisation (see section 1.4.3 "Optimisation and trading activities"). The Group is thus implementing an integrated model for the joint operational management of its portfolio of assets upstream (generation and procurement of energy and fuels) and downstream (wholesale and retail) to guarantee supply of energy to its customers through the best possible management of operational and market risks and with a view to maximising gross margin.

In addition, the Group is also present in regulated sectors such as electricity transmission and distribution, in particular via RTE and Enedis, respectively, which are fully independent subsidiaries as for the purposes of the Energy Code (see section 1.4.4 "Regulated activities in France").

1.4.1 ELECTRICITY GENERATION ACTIVITIES IN FRANCE

In mainland France, the electricity generation activities have been split since 2015 across the Nuclear and Thermal Fleet Department and the Renewable Energy Division. In addition to these two departments, the Engineering and Nuclear New Build Project Department is responsible for the development projects for the Group's new nuclear generation assets, in France and abroad. Each of these three departments has all the expertise and performance drivers required to operate the leading European electricity generation fleet and ensure its development and sustainability, and offer their technical and industrial expertise to the whole Group in these three areas (also see section 1.4.5 "Group's international business").

Strengths of the generation fleet

The Group's generation fleet has significant strengths:

- a competitive generation mix with low variable generation costs⁵ and limited exposure to hydrocarbon and carbon market fluctuations due to nuclear and hydropower facilities;
- a variety of means of generation, which enable adequate coverage of EDF's downstream portfolio needs (end users, sales to alternative suppliers, sales on the wholesale markets, etc.). Use of the fleet's various components is managed by giving priority, at any given time, to the generation type offering the lowest variable costs: run-of-river hydropower plants are used for base generation; nuclear plants, because of their low variable generation costs, are used for base and mid-merit generation; adjustable hydropower generation (coming from dams) and thermal fleet are used for mid-merit and peak generation;
- a significant standardised fleet of nuclear facilities, for which EDF provides full control over their entire life cycle. Moreover, EDF is working towards extending the operating lifespan of its power plants and improving their technical performance;
- a fleet generating at over 95% without CO₂ emissions due to the predominance of nuclear and hydropower generation facilities, in an increasingly restrictive environmental regulatory context;
- a geographical position at the junction of electricity exchanges between the continental platform and the electric peninsulas (Italy, Spain and the UK).

Composition and specifications of the installed fleet

With a total installed generation capacity of 92.3GW in mainland France⁶ at 31 December 2016, EDF has the largest generation fleet in Europe, accounting for nearly 9% of the total installed capacity of the main countries of Europe (the 35 member areas of ENTSO-E – the European Network Transmission System Operators for Electricity – that includes Germany, Italy and Spain⁷).

In 2016 in France, EDF's generation fleet produced 431.7TWh excluding pumped storage hydropower, and 438.3TWh including pumped storage hydropower.

At 31 December 2016, the capacity of EDF's generation fleet in mainland France was composed of:

- 58 nuclear units based on pressurised water reactors (PWR) (a unit is defined as a generation unit including a reactor, steam generator, a turbine, a generator, the related equipment and the buildings that house them). These units have electrical power capacities varying from 900MW to 1,500MW and are spread out over 19 sites, with an average age of 31 years;

1. EDF fully independent subsidiary as defined by the Energy Code.

2. Source: EDF. Figures calculated according to consolidation accounting rules.

3. Source: Comparison based on data published by these ten groups.

4. One customer can have two customer accounts: one for electricity and another for gas.

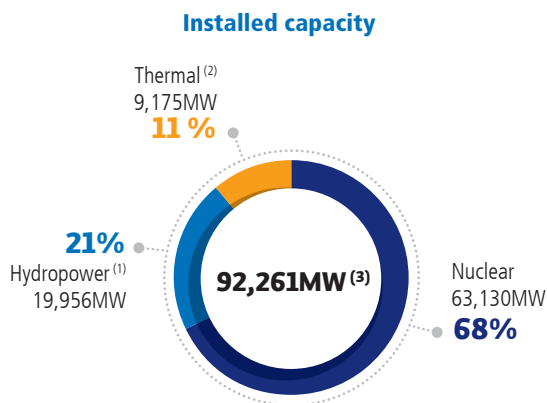
5. Variable generation costs are all costs that vary directly with the amount of energy generated. Variable costs for electricity generation are mainly fuel costs.

6. For Corsica and the French overseas departments, see section 1.4.4.3 "Island Energy Systems".

7. Calculation based on the ENTSO-E statistics for the year 2015, as the statistics for the year are only available on 30 April of the following year.

- 26 functioning thermal units, with an average age of around 25 years;
- 433 hydropower plants, with an average age of 72 years¹ (see section 1.4.1.4.1 "Hydropower generation in France");
- the wind power generation capacities of EDF Énergies Nouvelles in France (see section 1.4.1.4.3 "EDF Énergies Nouvelles") and the incineration plants of the Tiru group in France (see section 1.4.6.1.1 "Dalkia" – "Tiru");
- 84 hydropower plants owned by Group subsidiaries: SHEMA group (100%), FHYM (98.82%), CERGA (owned 50/50 with the German electricity company EnBW). These plants represent a total of approximately 140MW of installed capacity in 2016.

2016 INSTALLED CAPACITY AND OUTPUT IN MAINLAND FRANCE:

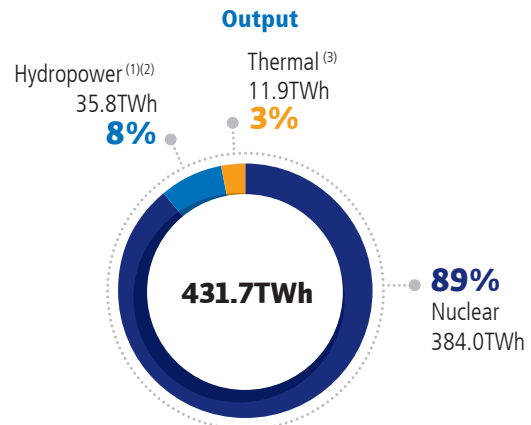


NB: Expressed in megawatts of maximum capacity linked to the network.

(1) Excluding Corsica and overseas departments, 440MW in 2016.

(2) Excluding Corsica and overseas departments, 1,623MW in 2016.

(3) Excluding Wind generation capacity of 12MW and including tidal generation capacity of 240MW.



(1) Excluding Corsica and overseas departments, representing 1.3TWh in 2016.

(2) Net pumped storage generation: the electricity consumption needed for the operation of pumped storage power plants (STEP) amounted to 6.6TWh in 2016, resulting in hydropower generation (including pumped storage consumption) of 38.9TWh, including generation from the tidal power on the Rance river of 0.5TWh.

(3) Excluding Corsica and overseas departments, 4.5TWh in 2016.

1.4.1.1 Nuclear electricity generation

The electricity generated by EDF in France from its fleet of nuclear power plants represented 90.0% of its total electricity generation in 2016 excluding pumped storage hydropower.

1.4.1.1.1 EDF's nuclear fleet

EDF's PWR model is divided into three series of available electrical power:

- a 900MW series consisting of 34 units of approximately 900MW (for a total power capacity of 30,770MW) with an average age of 35 years;
- a 1,300MW series consisting of 20 units of approximately 1,300MW (for a total power capacity of 26,370MW) with an average age of 28 years;
- the N4 series, which is the most recent with an average age of 16 years, consisting of 4 units of approximately 1,500MW (for a total power capacity of 5,990MW);

for a total of 58 units spread over 19 sites owned by EDF, and constituting a total authorised capacity of 63,130MW as at 31 December 2016. With an average age of approximately 31 years for an estimated technical operating lifespan of over 40 years, EDF's nuclear fleet is about average compared to the fleets installed worldwide.

1. Arithmetic mean.

The commissioning and most recent ten-year inspection (VD) dates for these units as of end-2016 are as follows:

Units	Year of industrial commissioning	Most recent ten-year inspection	Next ten-year inspection	Units	Year of industrial commissioning	Most recent ten-year inspection	Next ten-year inspection
Fessenheim 1	1978	2009	VD4	Gravelines 6	1985	2007	VD3
Fessenheim 2	1978	2011	VD4	Cruas 3	1984	2014	VD4
Bugey 2	1979	2010	VD4	Cruas 4	1985	2016	VD3
Bugey 3	1979	2013	VD4	Chinon B3	1987	2009	VD3
Bugey 4	1979	2011	VD4	Chinon B4	1988	2010	VD3
Bugey 5	1980	2011	VD4	Paluel 1	1985	2016	VD4
Dampierre 1	1980	2011	VD4	Paluel 2 ⁽¹⁾	1985	2005	VD3
Gravelines 1	1980	2011	VD4	Paluel 3	1986	2007	VD3
Gravelines 2	1980	2013	VD4	Paluel 4	1986	2008	VD3
Tricastin 1	1980	2009	VD4	Saint-Alban 1	1986	2007	VD3
Tricastin 2	1980	2011	VD4	Flamanville 1	1986	2008	VD3
Dampierre 2	1981	2012	VD4	Saint-Alban 2	1987	2008	VD3
Dampierre 3	1981	2013	VD4	Flamanville 2	1987	2008	VD3
Dampierre 4	1981	2014	VD4	Cattenom 1	1987	2016	VD4
Tricastin 3	1981	2012	VD4	Cattenom 2	1988	2008	VD3
Tricastin 4	1981	2014	VD4	Nogent 1	1988	2009	VD3
Gravelines 3	1981	2012	VD4	Belleville 1	1988	2010	VD3
Gravelines 4	1981	2014	VD4	Belleville 2	1989	2009	VD3
Blayais 1	1981	2012	VD4	Nogent 2	1989	2010	VD3
Blayais 2	1983	2013	VD4	Penly 1	1990	2011	VD3
Blayais 3	1983	2015	VD4	Cattenom 3	1991	2011	VD3
Blayais 4	1983	2015	VD4	Golfech 1	1991	2012	VD3
Saint-Laurent 1	1983	2015	VD4	Cattenom 4	1992	2013	VD3
Saint-Laurent 2	1983	2013	VD4	Penly 2	1992	2014	VD3
Chinon B1	1984	2013	VD4	Golfech 2	1994	2014	VD3
Cruas 1	1984	2015	VD4	Chooz B1	2000	2010	VD2
Chinon B2	1984	2016	VD4	Chooz B2	2000	2009	VD2
Cruas 2	1984	2007	VD3	Civaux 1	2002	2011	VD2
Gravelines 5 ⁽²⁾	1985	2006	VD3	Civaux 2	2002	2012	VD2

(1) The third ten-year inspections are ongoing at Paluel unit 2.

(2) The third ten-year inspections are ongoing at Gravelines unit 5.

EDF first-generation design plants have been gradually shut down and are currently being decommissioned (see section 1.4.1.1.6 "Decommissioning of nuclear power plants").

Generation allocation contracts

In the 1970-80's, EDF developed, industrial cooperation with European operators in the nuclear industry, in the form of generation allocation contracts backed by units of the EDF French nuclear fleet.

In its fleet, EDF has ten generating units participating in the contracts (up to 1.5GW) with the following European energy companies:

- Fessenheim 1-2: EnBW (17.5%) and the Swiss electricity group CNP (15%);
- Cattenom 1-2: EnBW (5%);
- Bugey 2-3: Électricité de Laufenbourg¹ (17.5%);
- Tricastin 1 to 4: Electrabel² (12.5%);
- Chooz B1-B2: EDF Luminus, EDF subsidiary in Belgium (3.3%).

The purpose of these generation allocation contracts is to make available to each partner the proportion of energy generated actually due to him, based on the share of the capacity allocated to him – in return for payment of their share of the construction costs, annual operating costs (including upstream and downstream fuel costs), local taxes and taxes specific to nuclear energy, and the costs relating to decommissioning. In these transactions, the partners have shared with EDF the industrial risks in the development of the fleet (three series heads are concerned) and assume the risks on performance linked to the current operation of the power plants. On the other hand, they have no operational role.

Furthermore, EDF signed a second type of generation allocation contract relating to a pool of power plants (totalling approximately 2GW) under which EDF makes available to its partners a share of the electricity determined by the level of availability of all or part of a standard fleet, applied to the capacity share reserved to the partners for the units concerned. These contracts mainly concern the following power plants:

- Chooz B1-B2 (N4 initial series unit): Electrabel (21.7%);
- Cattenom 3-4: Électricité de Laufenbourg (7.8%) and CNP (21.8%).

1.4.1.1.2 Operation and technical performance of the nuclear fleet

Nuclear power is a means of generation whose variable cost, mainly fuel-related costs, is low since it represents less than 30% of operating costs³. The main competitive levers of the nuclear fleet in its operating phase are thus the amount of generated energy and the optimisation of fixed operating and maintenance costs. The levers relating to the fuel cycle are further discussed in section 1.4.1.1.4 "The nuclear fuel cycle and related issues".

Operation methods of the nuclear fleet

Generation cycle and planned outages

To reconcile the challenges linked to the strong variations in seasonal consumption in France, due to its strong temperature sensitivity, the availability of maintenance resources and the efficient use of reactor fuel, EDF has now adopted generation cycles of 12 and 18 months for its fleet. At the end of 2016, this breakdown was as follows:

- 28 units of the 900MW series have an operating cycle of approximately 12 months;

- 6 units of the 900MW series, 20 units of the 1,300MW series and 4 units of the N4 (1,450MW) series have an operating cycle of approximately 18 months.

At the end of these operating cycles, shutdown periods are programmed in order to replace a fraction of the fuel loaded in the core and perform maintenance work.

Two types of planned outages are alternated at the end of each generation cycle:

- an ordinary shutdown for refuelling, for a standard period of approximately 35 days, during which unloading spent fuel and reloading new fuel is the main operation performed; although light maintenance or periodic testing may also take place during this type of outage;
- a partial inspection for refuelling and maintenance, for which the standard period⁴ lasts approximately 70 days.

Every ten years, the power plant is shut down for a standard period of approximately 110 days in order to carry out a ten-year inspection. This length of time varies according to the works and maintenance programme, as well as the series concerned. The programme for a ten-year inspection includes the following:

- unloading of spent fuel and reloading of fresh fuel, as at each outage;
- hydropower tests of the primary coolant system, a leak test of the containment, and inspection work of the reactor's pressure vessel;
- modification work, associated with ten-year safety re-evaluations;
- other specific maintenance operations, in particular renovation or replacement of major components.

At the end of the ten-year inspection, the ASN decides whether to approve the restart of the reactor and then issues technical prescriptions setting the conditions for continuing operation for another ten-year period.

Operation of EDF's nuclear fleet

Nuclear generation resources, owing to their low variable cost are first used for base-load generation, immediately after run-of-river hydropower and other unavoidable renewable energies, as well as the energy purchased under buying obligations from decentralised energy producers. Variations in energy consumption over one year (summer-winter, day-night) and the currently restricted fluidity of wholesale markets due to limited interconnections on the borders lead nuclear energy to be used also for mid-merit generation. High variations in seasonal consumption in France and its major variation during winter months require that planned nuclear fleet outages be concentrated between April and October. The 2003 heat wave highlighted the consequences of very strong warming of rivers, especially on the conditions for operating "riverside" units. The scheduling of unit outages was therefore reviewed to reduce the number of outages of "riverside" units in July and August to encourage these units to continue operating as much as possible since cooling capacities are less dependent on weather conditions.

Generation and technical performance

The nuclear fleet produced 384.0TWh in 2016, down 32.8TWh compared to that of 2015.

Nuclear generation expressed in annual energy corresponds to a load factor rate referred to as "Kp" for the French nuclear fleet (defined as the ratio of energy generated to the maximum theoretical energy, or the energy

1. Axpo Group.

2. Engie Group.

3. Operating costs are defined as follows: fuel costs (including downstream expenses in the fuel cycle), operating expenses (purchases and external services, employee expenses) and maintenance costs (expenses and investments). They do not include investments related to construction or decommissioning expenses.

4. Standard durations represent optimised and realistic reference durations by outage types. They take into account the feedback from past outages. Outage planned durations fluctuate around these standard durations, depending on the work programme to be performed.

generated if the installed capacity were operated *year-round*). This rate is obtained by multiplying two coefficients ($K_p = K_d \times K_u$):

- the availability factor, "Kd" (the available energy¹ as a per cent of the theoretical maximum energy, or the energy generated if the installed capacity were operated *year-round*). The Kd depends on outage durations, and is therefore impacted by standard durations and the work programme to be performed;
- a utilisation factor, "Ku" (energy generated compared to energy available). The Ku factor reflects environmental, regulatory and social constraints, supply of system services and optimisation implemented by EDF (fuel and modulation).

In 2016 the Kp factor reached 69.2%, down compared to 75.4% in 2015. This results from a Kd of 79.6%, down compared to 2015 (80.8%) and a Ku of 87.0%, also down 6.3 points compared to 2015.

Generation in 2016 was affected by several significant factors, including:

- the conduct of additional controls to better show that the boiler units potentially affected by the phenomenon of carbon segregation are able to perform their function safely. These controls consisted, among other things, in measuring the concentration of carbon at various key points in the boiler units, which were manufactured several years ago by JCFC (Japan Casting and Forging Corporation) on behalf of AREVA, and they resulted in the extension, or additional programming, of stoppages for several reactors. The analyses and controls performed made it possible to obtain approval from the French Nuclear Safety Authority to restart the majority of the affected reactors in late 2016, thus confirming that those reactors are able to operate safely;
- the detection of quality discrepancies in some of the manufacturing track-records for forged parts (of the so-called "blocked" and "no blocked" file issue) at AREVA's Creusot Forge plant. EDF categorised all of the irregularities affecting its operating reactors and concluded that there are no consequences for the safety of the affected reactors. At Fessenheim 2, AREVA submitted to the ASN and in September launched a battery of additional tests for the affected boiler unit. The results were sent by AREVA to the ASN on 6 January 2017 and confirm the integrity of the boiler unit and its ability to work in complete safety. This matter is currently being investigated by the ASN. One of these records has also brought to light a discrepancy during the production of a new boiler unit for Gravelines 5, which was shut down for its third ten-year inspection. AREVA is currently investigating the matter;
- the fall, in late March 2016, of a worn-out boiler unit in the Paluel 2 reactor building when it was being replaced during the reactor's third ten-year inspection. The accident had no impact on the personnel. After a control of the facility, the extraction of that equipment was completed in January 2017, and the boiler unit was transferred safely to its storage building. A full technical review is underway;
- the examination of the results of tests conducted on the Bugey 5 reactor wall as part of its planned outage, for which EDF provided a record of repair to the ASN in early April 2016. In late 2016, the matter was being investigated by the ASN and the IRSN and the reactor has not yet been restarted.

Furthermore, performance in terms of unplanned outages (a rate of 2.0% in 2016 compared to 2.5% in 2015) was kept at a very satisfactory level, with an unplanned outage rate halved since 2009², particularly thanks to the proactive maintenance strategy implemented in 2007 for renovation and replacement of major components.

Lastly, in view of the strong seasonal demand for electricity in France and of the state of development of renewable energies, the challenges have moved. Today, EDF's objective is to have a maximum generation capacity in winter, including sustained availability of the nuclear fleet greater than 90% during this important period of the year.

Investment programme for the existing nuclear fleet in France

EDF's industrial strategy is to operate the existing nuclear fleet well beyond 40 years under the best conditions of nuclear safety (integrating, in particular, post-Fukushima modifications), of environmental safety and protection, which requires to keep on performing significant maintenance operations over the 2014-2025 period. To overcome this challenge, involving all of the nuclear power sector on the short term, the "Grand Carénage" programme was implemented, in order to be able to integrate, with the Group's industrial partners, the significant amount of work to be done on the fleet.

On 22 January 2015, EDF's Board of Directors approved in principle the major overhaul programme (so-called "Grand Carénage") aimed at refurbishing the French nuclear fleet, enhancing reactor safety, and, if conditions allow, extending their operating lifespan, involving total investment of up to €₂₀₁₃55 billion (or €60 billion in current euros) for the 2014-2025 period for the 58 reactors currently operating³.

The optimisation work undertaken in both 2015 and 2016 has already lead to a downward revision of the overall cost of the programme to €₂₀₁₃45 billion (or €48 billion in current euros) over the 2014-2025 period. This revision was obtained mainly through continued optimisation efforts regarding the adopted technical solutions and component replacement strategies, and through greater precision in their deployment by integrating the capacities of the industrial base and taking into account an early closing date of the Fessenheim plant on 31 December 2018. The reduction reached €₂₀₁₃10 billion (or €12 billion in current euros) compared to the initial estimate, of which €7 billion in current euros were for the ten-year inspections and the incorporation of the feedback from Fukushima, €3 billion in current Euros for the replacement of steam generators and large components and €2 billion in current euros for other engineering projects and ongoing maintenance.

For the existing nuclear fleet, the amount of the programme covers both usual maintenance investments and investments relating to the project (replacement of the boiler units VD4 900, VD3 1300). This should cost an average of about €4 billion annually until 2025, then decrease to about €3 billion annually.

For the years 2014 and 2015, total investments in the existing nuclear fleet amounted to €3.6 billion; they reached €3.8 billion in 2016.

In order to complete the programme, a separate entity was created, the "Grand Carénage". The programme's sponsor is the Nuclear and Thermal Fleet Department (DPNT), which approves the programme's scope, currently

1. Available energy is equal to the maximum theoretical energy less generation losses due to technical reasons inherent to power plants, such as planned outages, unplanned outages due to failure or safety requirements, and performance of regulatory tests.

2. Unplanned outages exclude by definition outages for regulatory reasons, such as outages following Le Creusot issues.

3. The figures presented by the French Cour des comptes in its report of 10 February 2016 cover a longer time horizon, up to 2030, and included, beyond the investment, operating and maintenance expenses. Both assessments are consistent, as stated by the Cour des comptes in its report. Indeed, among the overall estimates calculated by the Cour des comptes and amounting to close to €₂₀₁₃100 billion for the 2014-2030 period, the investment -expenditures estimated at €₂₀₁₃74.73 billion should be distinguished from the operating expenditures estimated at €₂₀₁₃25.16 billion. Within the €₂₀₁₃74.73 billion of investment expenses between 2014 and 2030, €₂₀₁₁55 billion are dedicated to the 2014-2025 period, which allows the two estimates established by the EDF group and the Cour des comptes to be connected.

broken down into 22 sections, as well as the financial trajectory. The programme's supervision is taken care of by the Nuclear Generation Division, which defines the content of the activities. Project management is handled by the Director of the entity, assisted by the project managers over the life of the project in all areas: deadlines, quality control, financial trajectory. The Board of Directors studies major investments by broad project categories whose main characteristics are presented to it. The Board of Directors approves contracts or agreements which exceed a predetermined amount. The Board of Directors conducts the annual review of the programme's implementation on the basis of indicators showing the extent of its physical and financial progress, what remains to be completed and the final costs.

This industrial programme will be gradually implemented, in compliance with the objectives of the Energy Transition for Green Growth Law, multi-year energy plans, the opinions and orders of the French Nuclear Security Authority (ASN), as well as the procedures for authorisation for reactors to run for more than 40 years (see section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France").

Under this programme, the planned renovation or replacement of major components of power stations such as generators, transformers or steam generators will continue. At the end of 2016:

- the alternator generators were renovated on 43 units, for a total of 48 units to renovate;
- the programme for preventive replacement of the poles in the main transformers is ongoing. 103 main transformer poles out of 174 were replaced, *i.e.* approximately 59% of the programme;
- between 1990 and the end of 2016, steam generators were replaced in 27 units of the 900MW series.

Concerning the organisational aspects of routine maintenance, EDF continues to deploy the AP 913 procedure¹ aiming for reliability and the preparation of health reports of materials in order to reduce unplanned outages.

Strengthening the operational management of power generation and planned outages also continues, through the systematic implementation, for each outage, of an Operational Centre for Continuous Management of Unit Outages and by rolling out a new Information System. The ultimate goal is to reduce the average time of outage extensions by continued management of the outage's critical activities and a reactive response to technical alerts. The average duration of planned outages was cut in half between 2013 and 2014, and has been broadly stable since then, even if a slight deterioration was noted between 2015 and 2016, in a context of outstanding outages that were strongly disrupted due to unforeseen events.

In addition to improved management of outages, EDF seeks to optimise the volumes of routine maintenance during outages, to improve the quality of preparation and performance of maintenance operations and to strengthen the control of restarting operations. The nuclear fleet is, and will be over the next few years, in a period of important maintenance, with several renovation projects under way, leading to long outages. The challenge will be to industrially control the activities programme and its impact on the duration of outages.

The *Grand Carénage* programme will continue on the occasion of the third and fourth series of ten-year inspections of the 1,300MW units, the fourth series of ten-year inspections of 900MW units and the second and third series of ten-year inspections of N4 units. This programme will provide the opportunity to incorporate additional safety improvements identified following the Fukushima accident as well as modifications allowing the operation of facilities to be extended significantly beyond 40 years (see section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France").

1.4.1.1.3 Environment, nuclear safety, radiation protection

Environmental protection

EDF bases its environmental procedure on an ISO 4001-certified management system (see section 3.2.5.3 "Management and prevention of environmental risks" – "The environmental management system (SME)"), rolled out in 2002 at a number of sites and then extended to all nuclear generation units.

In terms of radioactive waste management, Very Low-Level Waste (VLLW) has been removed to the Morvilliers storage facility in the Aube since 2004. Concerning Low- and Intermediate-Level operating Waste (LILW), EDF is continuing to take steps to limit its intermediate storage on all nuclear sites and relies on the Centraco factory (SOCODEI, a subsidiary of the EDF group), where the melting oven was restarted in 2015 and which is now operating normally.

For a description of radioactive waste processing downstream of the fuel cycle as well as decommissioning, see sections 1.4.1.1.4 "The nuclear fuel cycle and related issues" and 1.4.1.1.6 "Decommissioning of nuclear power plants".

An ever-present nuclear safety procedure

EDF, in its capacity as a nuclear operator, takes responsibility for nuclear safety and, in a rapidly-changing context (market competition, environmental issues, etc.), reaffirms as its absolute priority the protection of the human and environmental health, among other things, through the prevention of accidents and the limiting of their consequences as regards nuclear safety. Moreover, the Codified Law of 13 June 2006 on nuclear transparency and safety (see section 1.5 "Legislative and regulatory environment") grants public access to information regarding in particular the nuclear safety measures taken by the operator and establishes a formal basis for transparency on nuclear safety.

The implementation of the French nuclear power programme led EDF to establish a safety procedure that:

- takes into account, from the design stage, the risks that might arise during the operation of the power plants, whether relating to the actual operation of the facilities or to internal or external attacks;
- is based both on the application of strict rules of operation, and on the cautious and inquiring attitude of the technical teams by means of the establishment of a true safety culture;
- is based on the cumulative experience of a standardised fleet of 58 reactors (*i.e.*, more than 1,700 reactor-years of operation, the arithmetic sum of years of operation of EDF's pressurized water reactor (PWR));
- incorporates a continuous improvement approach that is notably embodied by the ongoing efforts to decrease the number of automatic reactor trips;
- benefits from integrated nuclear engineering and Research & Development within the Group in order to anticipate the correction of failures, maintain the facilities in good working order, develop materials/equipment on an ongoing basis, reassess safety margins and monitor technology advances, as well as the implementation of more effective new technologies and the management of sites being decommissioned;
- relies strongly on the development of skills; with this objective in mind, each nuclear generation site is equipped with a simulator used for training to cope with any type of situation.

Nuclear safety is subject to numerous controls, both internal and external. The external control of the safety of nuclear facilities in France is carried out by the ASN.

1. INPO (Institute of Nuclear Power Operations) standard approach which consists in classifying the components according to the consequences of their failure. It helps develop a maintenance strategy tailored to the criticality of each component.

At the national level, there are two types of audits:

- scheduled or unannounced regulatory inspections carried out by the ASN (473 inspections in 2016 over all EDF nuclear facilities);
- a periodic (ten-year) review process designed to improve the compliance of operating nuclear plants with safety standards, and to reassess these standards based on feedback and new knowledge. The targets are established by the ASN which monitors compliance; EDF proposes solutions to meet these targets and implements them after obtaining the approval of the ASN (see section 1.4.1.1.1 "EDF's nuclear fleet"). The periodic safety review is an important step in extending the operating lifespan of power plants (see sections 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France" and 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities").

At the international level, regular inspections are held making it possible to share the experience gained worldwide:

- the OSART (Operational Safety Review Team) of the IAEA (International Atomic Energy Agency) performs reviews at the request of the French government with the objective of formulating recommendations and promoting best practices. In particular, EDF's first Corporate OSART was held in 2014 and concluded that EDF is fully compliant with the standards defined by the IAEA; the Follow Up Corporate OSART took place at the end of 2016;
- the international "peer review" inspections carried out by the WANO (World Association of Nuclear Operators) are organised at the request of EDF to assess safety performance compared to best international working practices.

EDF has also implemented internal control procedures. For example, every three to four years, EDF performs overall safety assessments for each nuclear power plant, which take place over a three-week period and involve approximately 30 inspectors. In addition, the General Inspector for nuclear safety and radiation protection, reporting to and appointed by EDF's Chairman and CEO, performs annual audits to issue an opinion on the overall safety of the nuclear fleet and suggests improvement actions to the company's management.

Efforts by EDF, notably to improve human performance, have resulted in a reduction over the last few years of the annual average number of automatic reactor trips. In 2016, they totalled 28 throughout the fleet.

Warning system

In the event of an accident, a crisis plan is in place to limit impacts on the environment and people, and to ensure the safety of the facility. This crisis system is based on two closely coordinated plans, designed for both local and national use. These are:

- the Internal Emergency Plan for each nuclear site, developed by EDF;
- the Special Intervention Plan, prepared by French prefectures in collaboration with the French government and EDF.

In order to provide greater effectiveness and thus improved protection of populations, these plans in particular take into account external risks (flooding, etc.) and internal risks (fire, etc.). The relevance of the system for warning, informing and protecting people is regularly assessed through accident simulation exercises. Each year, approximately 100 exercises are organised for the entire French nuclear fleet, i.e., approximately one drill every three days. Approximately ten exercises are on a national level, under the management of the ASN and involve EDF and the public authorities, in particular the prefectures. In 2016, three national-scale exercises were organised.

After its initial analyses following the Fukushima accident in March 2011, EDF supplemented its crisis management organisation with a national team capable of quickly delivering material and human assistance to a site in great difficulty. This system, called the Nuclear Rapid Action Force (FARN), has had many simulation exercises from regional bases located at Civaux, Paluel, Dampierre and Bugey and can be sent to a unit at any site in difficulty. The FARN is capable of a simultaneous response at six units on a single site.

Significant events regarding safety

The operational safety of nuclear facilities is taken into consideration from the initial design stage, and is regularly monitored, together with the implementation of an employee motivation policy and large-scale investment programmes. The Group's nuclear safety policy is incorporated into training for both EDF personnel and subcontractors.

Control and surveillance

Nuclear safety is subject to internal controls (annual reviews, internal control plans and nuclear inspection audits in France) and external controls (peer reviews between corporate members of WANO and OSART audits conducted by experts from the IAEA).

In France, the safety of nuclear facilities is controlled by the ASN. Events are classified on a scale from 1 to 7, with 7 being the most serious (INES scale¹). Incidents of no consequence for nuclear safety are classified as "deviations" or "level 0 events". Since the establishment of a scale of this kind in France in 1987, no level 3 event (serious incident – very low external emission, and exposure of the public representing a fraction of regulatory limits) or above has occurred in the French nuclear fleet.

The ASN also approved the creation of an additional crisis management system, the Nuclear Rapid Action Force (FARN) following additional safety evaluations carried out by EDF after the Fukushima accident.

Results for 2016

As in 2015, no major safety or radiation protection event was recorded in France in 2016 and, for the third consecutive year, the EDF group did not experience a significant safety event (ESS) classified at INES 2 or higher.

The results for 2016 were an improvement compared to the results obtained in 2014 and 2015, with an average number of unclassified events (level 0) remaining relatively stable at 8.75 ESS per reactor (i.e. 508 events), compared to 8.88 in 2015, and a drop in the average number of level 1 events per reactor to 0.94 (i.e. 55 events), versus 1.16 a year earlier.

The number of automatic reactor trips was 0.48 per reactor (0.66 in 2015).

The 2016 detailed results on nuclear safety are published in the annual report created by the General Inspector for Nuclear Safety and are available on the Internet.

Radiation protection

Work by field operatives has enabled continuous improvement of performance in terms of protection of employees against the effects of ionising radiation. Thus, the average annual collective dose of all workers, both employees of EDF and outside companies intervening in power plants, has been halved in less than ten years. In 2016, the average collective dose was 0.77 man-Sievert per reactor (or a collective annual dose of 44.2 man-Sieverts in 2016), in connection with an increased programme of activities compared to 2015. The collective dosimetry in 2016 is up compared to 2015 (41.2 man-Sieverts). EDF is proactively implementing an ALARA (As Low as Reasonably Achievable) policy to limit the collective dose with a view to the workload involved in the industrial project on the fleet in operation over the coming years.

1. International Nuclear Event Scale.

EDF is furthermore committed to continuing to lower exposure to radiation below the regulatory limit of 20mSv over 12 rolling months for the whole body. Accordingly, throughout 2016 and over 12 rolling months, none of the participants (neither EDF employees nor contractors) was exposed to an individual dose of higher than 14mSv.

In the coming years, given the levels already achieved, efforts will have to be focused on power plants with the poorest dosimetric results, in particular by cleaning their circuits.

1.4.1.1.4 The nuclear fuel cycle and related issues

The average annual reference volume for nuclear fuel used by reactors in the EDF fleet in France is approximately 1,200 tonnes (tonnes of heavy metal: natural enriched uranium, enriched reprocessed uranium, plutonium), of which approximately 1,070 tonnes corresponds to ENU fuel (enriched natural uranium), 110 tonnes to MOX fuel (fuel produced from reprocessed plutonium) and 20 tonnes to ERU fuel (enriched reprocessed uranium).

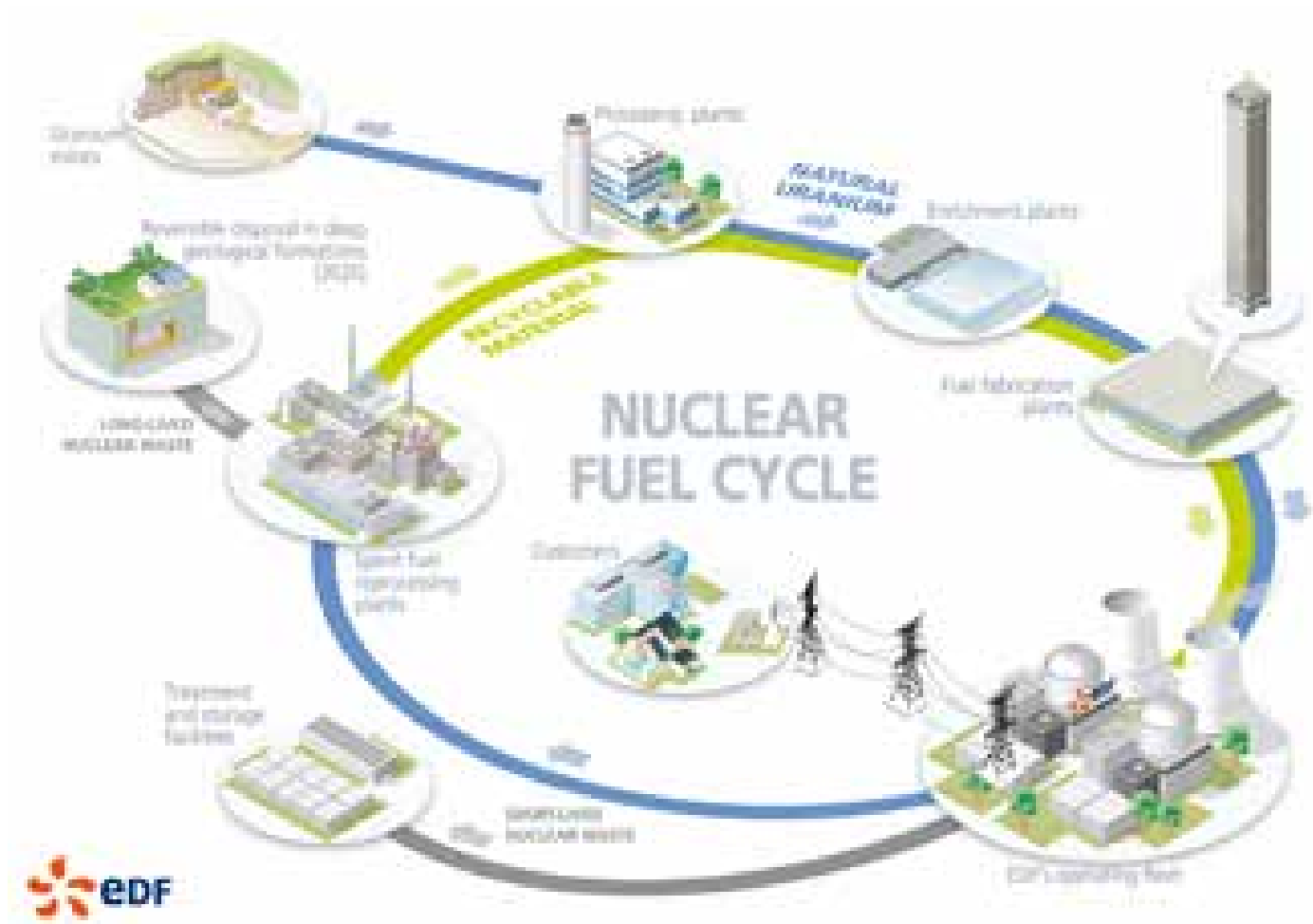
The nuclear fuel cycle encompasses all industrial operations in France and abroad involved in the supply of fuel for energy generation in reactors, as

well as removal and processing of the fuel. The cycle can be broken down into three stages:

- front-end (upstream) the purchase of concentrates from uranium ore, fluorination (or conversion), enrichment and production of fuel;
- the core cycle, corresponding to the use of fuel in the reactor: receipt, loading, operation and unloading; the fuel stays four to five years in the reactor;
- back-end (downstream), for the reactor fleet in France: interim pool storage, reprocessing of spent fuel, conditioning of radioactive waste and recycling of reusable materials, the intermediate storage of treated waste prior to storage, as required by the French Law of 28 June 2006 on the sustainable management of radioactive materials and waste.

EDF coordinates all the operations in the fuel cycle. Generally speaking, upstream and downstream operations are carried out by subcontractors or suppliers, generally on the basis of multi-year contracts. EDF acquires most of the raw materials as uranium concentrates (U_3O_8), with transformation into more processed products carried out by industrial operators through service contracts (fluorination, enrichment and manufacture), and provides core cycle operations. EDF is the owner in most cases and is responsible for the fuel and materials it uses throughout all different stages of the cycle.

STAGES OF THE NUCLEAR FUEL CYCLE IN FRANCE



Upstream

To ensure the continuity and security of the supply of its reactors in France and the UK, EDF retains overall control of all operations at each stage of the cycle, through a portfolio of contacts and by stockpiling at different stages of the front-end stage of the fuel cycle (natural uranium, fluorinated enriched or unenriched uranium, and warehousing of new assemblies).

The AREVA group is in this respect an important supplier (see section 2.3 "Dependency factors").

Where necessary, the Group implements a strategy of currency hedging for its uranium supplies.

Natural uranium supply

Most of EDF's uranium supplies are guaranteed by long-term contracts for periods of 7 to 20 years with a policy of diversification in terms of sources and suppliers.

In 2016, EDF continued the securing of its long-term supplies with a number of major market suppliers, including AREVA.

Indexation formulas for portfolio contracts of natural uranium supply include fixed prices (base prices whether inflated or not) and variable prices (indexed according to market price indexes) and are sometimes limited by floor and ceiling prices. Consequently, the effects of upward variations in market prices of natural uranium on supply costs are limited and smoothed out while enabling to benefit from potential price decreases.

With the industrial players of the nuclear sector meeting within the WNA (World Nuclear Association), which, in particular, brings together companies representing 90% of worldwide uranium production, EDF is encouraging the implementation of best practices in mineral extraction, to contribute to making overall progress in this sector. Since 2011, EDF has been periodically conducting mine audits based on a method drawn in collaboration with the WNA, which constitutes a standardised framework recognised by all stakeholders in the sector. Recommendations may be made, together with an improvement plan if necessary.

These principles defined by the WNA aim to perpetuate the best practices observed on the field and share them with all sector stakeholders; they notably reassert the principles defined by the International Council on Mining and Metals for sustainable extraction and use of uranium¹. The clauses listing EDF's expectations in terms of enforcement of the fundamental rights and main international standards by suppliers and sub-contractors have progressively been inserted in contracts signed by EDF. In particular, they stress transparency and EDF's faculty to come and audit the supplier.

Fluorination (or conversion)

EDF's needs are covered by the Comurhex plant of the AREVA group, as well as by other international producers, such as Cameco in Canada, Converdyn in the United States and Tenex in Russia.

In February 2016, EDF signed a conversion services supply contract with AREVA, to enhance coverage of its long-term needs.

Enriching natural uranium into uranium 235

With respect to supplies of enrichment services, EDF's needs have been significantly covered by enrichers such as Urenco (UK, Germany, the Netherlands, United States) and Tenex (Russia), primarily through fixed-price contracts, decreasing on a constant currency basis.

In February 2016, EDF signed an agreement with AREVA that helps secure its long-term supplies.

Enriched reprocessed uranium

Since the 1990s, reprocessing has made it possible to recycle within the reactors all or part of the uranium from processing spent fuel, which represents approximately 95% of the spent fuel mass.

This reprocessing was suspended in 2013, given the lack of economic incentive in light of the significant oversupply of natural uranium and pending the availability of a new industrial scheme. EDF is pursuing its examination of the conditions for restarting reprocessing by 2020.

Reprocessed uranium is stored in a stable form to be used at a later stage.

Fuel assembly manufacturing

Contracts with the fuel assembly manufacturers AREVA NP and Westinghouse, covering most of EDF's needs, were renewed in 2014 to secure provisions at least until 2020.

Downstream

EDF is responsible for what happens to its spent fuel and how it is processed and for the related waste, without any possibility of transfer of responsibility or limitation in time. AREVA is responsible for processing spent fuel and ANDRA for the management of the long-term storage of final waste, in accordance with the Codified Law of 28 June 2006 on the long-term management of radioactive materials and waste.

EDF's current strategy for the nuclear fuel cycle, in agreement with the French government, is to process spent fuel and recycle the plutonium separated in this process in the form of MOX fuel. The quantities handled are determined by the amount of recycled plutonium in reactors allowed to load MOX fuel ("equal flows principle"). The recycling capacity of nuclear units in the French fleet has allowed the processing of around 1,100 tonnes of spent fuel per year.

Processing of spent fuel from EDF's nuclear power stations

Spent fuel awaiting processing is temporarily stored underwater in cooling pools, first in pools at the plants and subsequently in those of AREVA's reprocessing plant at La Hague. The storage conditions are recognised as being safe over long time periods. Approximately ten years after the spent UO₂ fuel has been unloaded from the reactor, it is processed to separate the recyclable products from waste. The waste is subsequently conditioned and temporarily stored at the La Hague site in specific premises.

The relationship between EDF and AREVA concerning the transport, processing and recycling of spent fuel was formalised for the 2008-2040 period by a framework agreement signed on 19 December 2008.

In February 2016, EDF and AREVA signed an implementation agreement covering the 2016-2023 period as well as the associated supply contracts for the MOX assemblies.

The fuel supply of the two EDF reactors at Hinkley Point (United Kingdom)

In September 2016, EDF and AREVA entered into an agreement providing for the supply of uranium, conversion and enrichment services, and assembly manufacturing for the fuel supply of the Hinkley Point C reactors.

1. These ten principles concern the health of workers and local populations (safety and protection against radiation and emissions); environmental preservation (waste management and protection of drinking water resources); the need for a legal framework in accordance with current legislation and international standards (AIEA) to monitor and manage radiation, health and safety for stakeholders and the general public, waste management and environmental protection; information, transparency and dialogue with stakeholders; responsible management of hazardous waste and contaminated materials by using the best available technologies; the development of a quality management system upstream of the project (Environmental impact study) including risk analysis; accident management preparation; transport of hazardous waste in complete safety and security; regular staff training.

Storing conditioned ultimate waste

Radioactive waste, depending on its nature, level of radioactivity and the lifespan of its radionuclide components, has been classified into different categories: from High-Level Waste (HLW), to Very Low-Level Waste (VLLW) passing by Low-Level Waste (LLW) and Intermediate-Level Waste (ILW). It is called Long-Lived (LL) when it remains active for more than 30 years.

Long-Lived High-Level Waste (HLW-LL)

The processing of spent fuel enables the vitrification of HLW-LL, which provides very high-quality conditioning with a reduced volume. The waste is then temporarily stored at La Hague in specific facilities. For example, all of the Long-Lived High-Level Waste produced in this way, corresponding to the operation of the early Natural Uranium Gas Graphite plants (NUGG) and to 50 years of operation of the current PWR facilities, would represent a volume of approximately 9,300 cubic metres.

Long-Lived Intermediate-Level Waste (ILW-LL)

The structures of the assemblies (shells and nozzles, clad pieces, etc.) separated during the processing of spent fuel, constitute ILW-LL. They are currently compacted and conditioned in stainless steel containers. ILW-LL waste also results from certain maintenance and dismantling operations. For example, the total volume of ILW-LL waste, including in particular the waste from the operation and decommissioning of generation fleet 1 with Uranium Natural Graphite Gas reactors and the waste from the current PWR facilities, taking into account the 50-year operating life of the power plants and the decommissioning operations, would represent about 37,000 cubic meters. Unlike HLW-LL, it does not generate heat and thus is suitable for faster storage than HLW-LL because it does not require cooling.

HLW-LL and ILW-LL from the reprocessing of spent fuel is temporarily stored in dedicated facilities in La Hague, pending the implementation of the storage in deep geological layers, as is currently envisaged as part of ANDRA's Centre industriel de stockage géologique (Cigéo) project.

Cigéo is the French deep geological storage facility project for radioactive waste. It is designed to store highly radioactive and long-lived waste produced by all current French nuclear facilities until their decommissioning, and by the processing of spent fuel used in nuclear power plants. After 15 years of research, evaluation and public debate, the principle of deep geological storage was adopted by the French Law no. 2006-739 of 28 June 2006 on the sustainable management of radioactive materials and waste as a safe long-term solution to manage this type of waste without shifting the burden onto future generations.

If the project is authorised, the centre will be located in the east of France, at the border of the Meuse and Haute-Marne departments. Cigéo will consist of surface facilities that will be used to receive and prepare waste packages as well as to excavate and build the necessary underground structures. The waste will be stored in underground facilities some 500 metres below ground in an impermeable argillaceous rock formation able to contain radioactivity over very long periods. Cigéo is designed to operate for at least 100 years and provide flexibility in order to give future generations a maximum number of possibilities to adapt it as needed.

The French Law of 11 July 2016, which specifies the details of the creation of a reversible deep storage facility, represents the fulfilment of an important prerequisite before obtaining approval of the Cigéo project for the management of long-lived high and intermediate level radioactive waste (HLW-LL, ILW-LL). Design studies for the future facilities are currently being conducted in collaboration with ANDRA for the purpose of presenting an application for construction approval of the facility by 2018. According to the ANDRA's timetable, the construction approval is expected for 2021 and first waste is expected for 2030.

Regarding site land ownership aspects, pursuant to a decision dated 28 February 2017, the administrative tribunal of Nancy cancelled, on the ground of a procedural flaw, the deliberation approving the land exchange agreement entered into between ANDRA and the city of Mandres en Barrois. However the tribunal ruled that this procedural flaw will be cured if the city adopts a new deliberation approving the terms and conditions of the land exchange agreement within the next four months.

Long-Lived Low-Level Waste (LLW-LL)

LLW-LL comes from the decommissioning of the old NUGG reactors (graphite, processing waste – see section 1.4.1.1.6 "Decommissioning of nuclear power plants"). Given its lifespan, this waste cannot be stored in existing surface facilities (see below), but due to its lower level of activity than that of Long-Lived High- and Intermediate-Level Waste, the Law of 28 June 2006 provides for special subsurface storage. In July 2015, ANDRA transmitted a report on the feasibility of a storage centre on a site located in the Soulaines region (Aube) in France. This report was submitted to the ASN for its opinion. At this stage, uncertainties remain about the site's capacity to accommodate all of the waste foreseen in the baseline inventory of the LLW-LL storage facility and its availability date. Further studies are planned under the National Plan for the Management of Radioactive Materials and Waste.

Short-Lived Low- and Intermediate-Level Waste (LILW-SL) and Very-Low-Level Waste (VLLW)

Short-Lived Very Low-, Low- and Intermediate-Level Waste comes from nuclear facilities (gloves, filters, resins, etc.) and their decommissioning (concrete, scrap, lagging, piping, etc.). It is stored on the surface at the Soulaines and Morvilliers (Aube) storage facilities managed by ANDRA, and its radioactivity is very close to natural radioactivity.

In order to minimise volumes, some waste is treated beforehand by melting or incineration at the Centraco plant owned by SOCODEI, a subsidiary of EDF. In 2016, following the acquisition of the English and Swedish assets of Studsvik, the holding company "Cyclife" was created to bring together all the newly acquired assets and centralise the Group's internal and external activities in regard to waste treatment.

Consideration of future charges relating to the management of spent fuel and long-term management of radioactive waste

Each year, EDF makes provisions for the downstream side of the nuclear fuel cycle in France (see note 29 to the consolidated financial statements for the year ended 31 December 2016 in section 6.1).

1.4.1.1.5 Preparing for the future of the nuclear fleet in France

EDF's industrial goal for the preparation for the future of the nuclear fleet rests primarily on the following strategic areas:

- the implementation of technical conditions allowing the extension of the operational life of nuclear power plants beyond 40 years. In the first half of 2016, all technical, economic and governance conditions required to align the accounting amortisation period of the 900MW power plants in the French nuclear fleet with the Group's industrial strategy were fulfilled; EDF's Board of Directors therefore approved on 28 July 2016 the extension of the accounting amortisation periods of the power plants of the PWR 900MW series in France (excluding Fessenheim) from 40 to 50 years on 1 January 2016, without prejudice to the approvals for continued operation, granted on a unit-by-unit basis by the French Nuclear Safety Authority (ASN) after each ten-year inspection;
- continued safety improvements, primarily by integrating lessons learned from the Fukushima accident in Japan;
- implementation of a preventive policy with respect to ageing or obsolete equipment.

Continued operation of the operating units well after 40 years

Additional Safety Assessments (ASA) following the Fukushima accident

On 15 September 2011 and in light of the accident at the Fukushima nuclear plant in Japan, EDF submitted 19 Additional Safety Assessment reports to the ASN, one for each of its nuclear sites, encompassing all its existing reactors and all those under construction.

These assessments consisted of re-examining the defences of existing power plants and those under construction, in light of the events in Japan, taking into account issues set out in the specifications drafted by the safety authorities. Thus, the safety margins were reassessed against the risks of earthquakes and flooding, when dealing with situations of simultaneous loss of the cooling source and power supplies and the consequences of severe accidents. These assessments also led to inquire whether certain changes to the scenarios planned beyond situations used for the sizing of the protection systems, would lead to a worsening of the consequences in terms of safety ("cliff effects") and finally to deterministically consider the extreme situations that substantially exceed those used in the design of nuclear installations and subsequent safety reviews. The safety of EDF's nuclear fleet is based on the principle of continuous improvement: existing and new facilities continuously benefit from feedback from all power plants, and lessons are learnt from incidents and accidents that may occur in the world.

Finally, the ASAs also re-examined the rules applied in outsourcing.

These analyses confirmed first and foremost the adequate level of security throughout the EDF nuclear power fleet, particularly because of the periodic safety reviews carried out in France since the end of the 1980s and codified by the Law on nuclear transparency and safety (the TSN Law) in June 2006, and codified later in the French Environmental Code. EDF also proposed additional measures to the ASN that exceed those considered for sizing safety systems, to contribute to further improving the current safety level of power plants.

In its opinion to the government published on 3 January 2012, the ASN states, on the basis of the analyses of its technical support, that "after the additional safety assessments on priority nuclear facilities, the ASN considers that the facilities examined show an adequate level of safety, and that it will not thus request the immediate shutdown of any of them". At the same time, the ASN considers that "continuing to operate these facilities requires increasing their robustness, as soon as possible, to an extent beyond existing safety margins, to handle extreme situations".

The ASN also recommended the "hard core" concept and the FARN system (see section 1.4.1.1.3 "Environment, nuclear safety, radiation protection"). The "hard core" will be made up of the plant's structures, systems and components that can withstand situations studied in connection with ASAs. On 26 June 2012, the ASN made 19 decisions requiring EDF to follow over 600 technical requirements, which set regulatory requirements according to the post-Fukushima action plan. These technical rules require that all nuclear sites must have an organisation and local crisis centres resistant to the occurrence of a large-scale event affecting several facilities. For EDF power plants, the prescribed "hard core" must in particular have "bunkerised" electrical resources in each unit, which must be installed before the end of 2018. In the meantime, a temporary back-up diesel generator was installed at each of the 58 units in 2013. The complete definition of the "hard core" was covered in technical rules issued by the ASN in January 2014.

Operating life of EDF's PWR fleet

The provisions of the French Environmental Code do not set a limit on operating life, but require a safety review of the facilities every ten years in light of best international practices ("safety standards").

As part of the studies related to the third ten-year inspections of the 900MW series, in early July 2009 the ASN publicly stated that it had not identified a generic problem that called into question EDF's ability to control the safety of its 900MW reactors for up to 40 years. The ASN's general opinion is supplemented by a decision on each reactor.

EDF's industrial strategy is to operate the fleet beyond 40 years in the best conditions of safety and performance, particularly in view of the significant investment linked to the third ten-year inspections on the one hand and to post-Fukushima improvements on the other, but also to the energy needs of France. This target is consistent with trends observed around the world for reactors using similar technologies. To this end, EDF has implemented industrial and R&D action plans. Actions have been launched to renew the major components that can be renewed (see section 1.4.1.1.2. "Operation and technical performance of the nuclear fleet"), and solutions are being studied to demonstrate the capacity of non-replaceable equipment such as the confinement containment building and reactor vessels, to ensure their operation up to 60 years.

Concerning safety improvements to carry out to extend the operating life of units beyond 40 years, the ASN indicated that it would issue, following the meeting of the Permanent Strategic Decisions Group held in April 2015, an initial position on the major strategic decisions of the safety review relating to the fourth series of ten-year inspections of the 900MW reactors and a final position in 2018-2019 on the "generic" phase of this review, the final authorisation for use beyond 40 years being made on a reactor by reactor basis. On 20 April 2016, the ASN sent a letter to EDF in which it defines its expectations to allow a potential operational extension of the 900MW French nuclear reactors. After reviewing the report submitted by the EDF group, in which it presents its approach and its methodology to extend the use of 34 reactors of this type beyond 40 years, the ASN considers that the topics selected by EDF in its programme respond to the safety issues and do not call for any comments. However, the ASN asked EDF to complete its programme regarding several aspects, including the scope of control programme and the goals relating to improving investigations.

An extension to the life of the current nuclear fleet would enable, whilst respecting the absolute priority of nuclear safety and as part of the multi-year energy programme (see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet"), better use of the industrial base it represents and the spreading of the commissioning of new plants over time.

In the first half of 2016, given that all technical, economic and governance conditions required to align the life of the France nuclear fleet with the Group's industrial strategy were fulfilled, EDF's Board of Directors incorporated the extension of the lifespan of the power plants of the PWR 900MW series (excluding Fessenheim) from 40 to 50 years on 1 January 2016 into the consolidated financial statements at 30 June 2016, closed by the Board of Directors on 28 July 2016, without prejudice to the approvals for continued operation, granted on a unit-by-unit basis by the French Nuclear Safety Authority (ASN) after each ten-year inspection.

This change in the lifespan is part of the Group's industrial strategy to extend the operating life of the fleet in France beyond 40 years. It is based on the technical capacity of the PWR 900MW fleet facilities to operate for at least 50 years, supported by international benchmarks, as well as by the investments made progressively under the *Grand Carénage* programme. These investments will enable the PWR 900MW series to reach a level of safety as close as possible to that of the EPR, and one of the highest internationally, after its fourth ten-year inspection (VD4). The content of the VD4 inspections is currently being progressively aligned in regard to the topics selected and commitments made by the company, as indicated by the ASN's response regarding the guidelines for the review, addressed to EDF in April 2016. EDF is also taking into account additional ASN requests in terms of studies, inspections and works to be completed.

Moreover, the extension of the operating life of the 900MW units is compatible with the objectives of the multi-year energy programme, submitted for review on 30 June 2016 and adopted by the Decree published in the *Journal officiel* on 27 October 2016.

The accounting impacts of this decision are explained in section 6.1 "Consolidated financial statements at 31 December 2016", note 3.1 to the consolidated financial statements for the year ended 31 December 2016.

The accounting period of the other series of France's nuclear fleet (1,300MW and 1,450MW), which are more recent, currently remains at 40 years, because the conditions for an extension have not been met. The future extension of these other series remains one of the Group's industrial objectives, undertaken in line with the orientations of its energy policy.

At end of 2016, among the 900MW units, 29 out of 34 had passed their third ten-year inspection and one 900MW unit was shut down in preparation for its third ten-year inspection. 11 of these (Fessenheim 1 & 2, Bugey 2, 4 & 5, Tricastin 1, 2 & 3, Dampierre 1 & 2 and Gravelines 1) have completed the process of exchanging information with the ASN (the ASN's opinion and technical rules have been received). For all reactors, EDF has or will carry out the work required by the ASN pursuant to these prescriptions.

1.4.1.1.6 Decommissioning of nuclear power plants

EDF takes full regulatory, financial and technical responsibility for the decommissioning of its plants, the challenge being to demonstrate, through the decommissioning process, its control of the entire life cycle of the means of nuclear power generation.

The reference scenario adopted by EDF since 2001 is for decommissioning without a waiting period, consistent with French regulations, which provide for decommissioning "in as short a time as possible on acceptable economic terms and in line with the principles set out in Article L. 1333-2 of the French Public Health Code and Article L. 110-1 II of this Code" (see Article L. 593-25 of the French Environment Code).

The regulatory process for decommissioning is governed by the French Environment Code and Decree no. 2007-1557 of 2 November 2007 (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities"). It is characterised, for a given site, by:

- a shutdown declaration at least two years prior to the planned shutdown date;
- a decommissioning request resulting, following examination by the authorities and a public inquiry, in a single decree allowing for decommissioning;
- key progress reviews with the ASN, included in a safety reference system relative to dismantling;
- an internal authorisation procedure for the operator, independent of the operational staff and audited by the ASN, allowing work to be started within the authorised safety reference limits;
- finally, once the work has been completed, the declassification of the facility to remove it from the legal regime governing basic nuclear facilities.

Decommissioning of shut down power plants

Concerning power plants that have been shut down (a pressurised water reactor (PWR), Chooz A; a heavy water reactor (HWR), Brennilis; a fast-neutron reactor (FNR), Creys-Malville; and six graphite-gas-moderated reactors (NUGG) in Bugey, Saint-Laurent and Chinon), EDF has chosen to fully decommission them as soon as possible in line with the principles of the French Public Health Code and the French Environment Code while ensuring that the technical risks associated with these activities are managed.

The sequencing of the dismantling of the NUGG reactors was thoroughly reviewed at the end of 2015 to reflect the results of the 2013-2015 pre-project studies, which show a significant prolongation of the operations to dismantle the caisson (about 25 years instead of 10 as originally planned), and the need to make the operation less risky by completely dismantling an initial series unit before dismantling the other 5 units. The new dismantling schedule was presented to the ASN's College of Commissioners in March 2016. The update of the industrial scenario for the dismantling of first generation plants, in particular in regards to the NUGG reactors, had led to an increase in the provision of €590 million on 31 December 2015 (see note 29.1 to the consolidated financial statements at 31 December 2015).

The sites remain the property of EDF, and they will remain under its responsibility and monitoring.

Given its role as responsible owner, EDF will act as the contracting authority for the decommissioning.

The decommissioning of EDF's nine first-generation units in final shutdown will produce approximately one million tonnes of primary waste materials, of which 80% is standard waste material and none is High-Level Waste. The remaining 20% comprises Very-Low to Intermediate-Level Waste including about 2% Long-Lived Waste requiring the availability of a storage facility for ILW-LL and long-lived LLW-LL (Cigéo deep geological storage plan).

Existing means for removal of short-lived VLLW and LILW will be supplemented by:

- the project to build a packaging and intermediate storage facility for radioactive waste (*Installation de conditionnement et d'entreposage des déchets activés* – ICEDA), almost completed at the Bugey site. Start of the industrial operation is scheduled for mid-2018, following a testing phase which will begin at the end of 2017;
- the LLW-LL storage centre provided for by the Law of 28 June 2006 concerning the long-term sustainable management of radioactive materials and waste. Following an unsuccessful initial site search by ANDRA in 2008, and the sending of a report to the government at end-2012, in 2013 ANDRA restarted the search and in July 2015 submitted a report on the feasibility of a storage facility on a site located in the Soulaïnes region in France (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues"). Moreover, the new dismantling schedule of the NUGG plants foresees the construction of a storage facility for the LLW-LL liners of the silos at Saint-Laurent, pending the availability of a definitive disposal route.

The decommissioning process of the Chooz A and Creys-Malville plants is still under way, in particular with the opening of the Chooz A reactor vessel in mid-2016. Chooz A is a pressurised water reactor using a technology similar to the 58 units in operation, but of an older design. It was commissioned in 1967 and operated until 1991 (final ending date for power generation). The reactor location in a rocky cave in a hillside means that access conditions and entry and exit of materials are more difficult than those of the rest of the existing PWR fleet. After EDF chose to opt from 2001 for a strategy of decommissioning as quickly as possible (*i.e.* without any period of dedicated waiting time for radioactive decrease) and following adoption in 2007 of the Decree for complete decommissioning, such decommissioning was launched and is expected to come to an end by 2022, that is to say 15 years after it was authorised. This duration is the one prudently chosen by EDF for the decommissioning of the Pressurized Water Reactors.

Regarding Brennilis, pursuant to a 2008 agreement¹ with the CEA, EDF has become fully responsible for the decommissioning of this facility. The decommissioning work included in the scope of the original Decree is in progress. However, the final and complete dismantling work should be allowed by an additional decree that EDF applied for on 29 December 2011. In accordance with the opinion that the ASN had expressed, the Mission for

1. With this agreement, the CEA has become fully responsible for the decommissioning of Phénix.

Nuclear Security and Radiation Protection notified EDF in December 2012 that the request for authorisation for full decommissioning of Brennilis could not be pursued in its current state due to the cancellation of the ICEDA building permit (see section 2.4.1 "Legal proceedings concerning EDF"). The decision of the Administrative Court of Appeal in Lyon of 4 December 2014, by restoring the validity of the ICEDA building permit, led EDF to relaunch the study of a file on the complete dismantling of Brennilis, taking into consideration any new regulations arising since the creation of the previous file, in particular the application of the BNF regulations.

Regarding the six NUGG reactors, the updating of their dismantling schedule has yielded the following sequencing:

- implementation of a "de-risking" period before the "in-air" dismantling of the first caisson to address the risks identified in studies (additional characterisations, machinery tests based on models);
- realisation of an "in-air" dismantling of an initial series unit, followed by the realisation of a complete feedback procedure before engaging in the industrial dismantling of the other NUGG reactors;
- for the other caissons, work to develop a secure configuration after electromechanical dismantling and the dismantling of the peripheral buildings and structures (reactor buildings, pool hall, etc.) will be carried out for some in advance in regards to the previous scenario.

This new scenario forecasts an initial removal of the graphite from the first NUGG reactor by 2044 and pushes back the need for a disposal route for the other graphite waste to after 2070.

At the beginning of 2016, several meetings were held with the ASN's College of Commissioners, in order to share information about this new strategy. These hearings resulted in a follow-up letter dated 29 July 2016, requesting EDF in 2017:

- to provide a justification file regarding the main choices made (dismantling in "ambient air", leading model...), the regularity planning proposed, the respect of the principle of a decommissioning as short as possible: March 2017;
- to set up a review by independent experts to analyse the risks associated with the new NUGG programme: March 2017;
- to provide a strategy file and a safety option file regarding reactor boxes including a secured configuration: December 2017.

As a reminder, the update of the industrial scenario for the decommissioning of first generation plants, in particular the above-mentioned NUGG reactors, led to the increase of the decommissioning provision by €590 million on 31 December 2015. The impact of the change in the planning of NUGG reactors decommissioning also led to a €332 million decrease in the provision for long-term management of waste (see note 29.1 to the consolidated financial statements at 31 December 2015). The impact of these changes on 2015 earnings before tax therefore amounted to net expenses of €258 million (see note 14 to the consolidated financial statements at 31 December 2015).

Closure project of the Fessenheim plant

Article L. 311-5-5 of the French Energy Code, introduced by France's Energy Transition Law, caps the nuclear installed capacity in France at 63.2GW. The commissioning of the Flamanville EPR can therefore not take place before the closure of the two Fessenheim reactors in order to comply with that ceiling.

The early closure of the Fessenheim plant would give EDF the right to compensation, as recalled by the Constitutional Council in its decision of 13 August 2015, on the occasion of the review of the constitutionality of the Energy Transition for Green Growth Law of 17 August 2015.

Discussions between EDF and the French state have led to a draft memorandum defining the principles of compensation.

The Board of Directors of EDF, meeting on 24 January 2017, examined the terms of the protocol negotiated between the Company and the State in order to set the conditions for compensation for the harm resulting for the Company from the closure of the nuclear power plant at Fessenheim.

The Board was informed of the unanimously negative opinion given by the Central Works Council (CWC) on 10 January 2017.

The Board approved the terms of the protocol and authorised the Chairman and CEO to sign it, when so required, on behalf of EDF. The protocol specifies the following compensation for EDF:

- an initial fixed portion covering the advance costs to be committed after operation (expenses for personnel retraining, decommissioning, the Basic Nuclear Facilities (BNF) tax and for "post-operation"). This fixed portion is currently estimated at about €490 million with a forecast payment of 20% in 2019 and 80% in 2021;
- an additional variable portion giving rise, where applicable, to subsequent payments, reflecting lost earnings for EDF until 2041. This will be determined according to market prices and generation from EDF's 900MW series, excluding Fessenheim, as observed over this period. EDF's partners in the power plant (EnBW and CNP) may, under certain conditions, receive a share of the compensation for lost earnings according to their contractual rights on the generation capacity of the power plant.

Furthermore, the closure of Fessenheim requires a decree repealing the authorisation to operate the power plant, given at the request of the Company and which, in application of the law, will take effect at the time of the commissioning of the EPR (European Pressurised Water Reactor) at Flamanville 3, planned for the end of 2018.

In the corporate interest of the Company, and to comply with the legal limit of 63.2GW, the Board subordinated the presentation of this request for repeal to the entry into force of the authorisations necessary to continue construction of the EPR at Flamanville 3 and continuation of the operation of Paluel 2, currently under shutdown, and to the confirmation by the European Commission of the compliance of the protocol with the regulations in matters of State aid.

The Board decided that the presentation of this request for repeal would give rise to a new decision by it to ascertain that these conditions are fulfilled.

The duration of the Paluel 2 stoppages was extended by two years in an order published in the *Journal officiel* on 4 February 2017.

Decommissioning costs

EDF nuclear power plants

Since the beginning of operations at its power plants, EDF has made provisions to cover decommissioning operations, engineering, monitoring and maintenance of facilities, and site security (see section 6.1 "Consolidated financial statements at 31 December 2016", notes 29.1.3 and 29.1.5 to the consolidated financial statements for the year ended 31 December 2016). The final state targeted corresponds to an industrial use: sites will be decommissioned and fields will be able to be appropriate for an industrial use.

EDF continues to reinforce its analyses through international intercomparisons while making sure to take account of certain elements that could distort direct comparisons such as differences in the estimate scopes or national and regulatory contexts.

The year 2016 was marked by the revision of the cost estimate for the dismantling of second-generation power plants (GEN2, PWR plants in operation), in order to take into account both the recommendations of the audit mandated by the DGEC (General Division for Energy and Climate – *Direction Générale de l'Énergie et du Climat*) on the decommissioning costs of pressurised water reactors (PWR), conducted between July 2014 and August 2015 on the basis of the "DA09" model, and the feedback gathered from the decommissioning of first-generation power plants (GEN1, in particular the Chooz A plant).

Reviewing these cost estimates consisted in implementing a detailed analytical process, identifying all the engineering, work, operation and waste treatment costs linked to future decommissioning of units currently operated. It resulted in figures based on detailed plant decommissioning

feedbacks. This implemented process allowed to deepen the assessment of the costs specific to leading models and of the series and pooling impacts, those costs and impacts being indeed inherent to the size and the design of the fleet. The financial impact is described in note 29.1 to the consolidated financial statements at 31 December 2016.

The nature of main pooling and series effects selected when calculating the estimates are presented hereafter.

There are different types of pooling effects:

- some of them are linked to the affectation of common buildings and facilities to the operation of several reactors on a same location, and therefore these buildings and facilities will not have to be dismantled twice. Thus, structurally, the dismantling of a couple of reactors on a same location costs less than the dismantling of two single reactors on two different sites. In France, unlike in the other countries, there is no isolated reactor but locations with 2, 4 and in one case 6 reactors;
- some costs are not higher if you dismantle 2 or 4 reactors on a same site. It is usually the case for surveillance costs and costs incurred by keeping the site in safe operating conditions;
- waste processing in centralised facilities (for example for the cutting of major components) is cheaper than multiple processing facilities on the dismantling sites.

There are mainly two types of series effects:

- a first effect comes from the fact that on a fleet driven by a single technology, a large amount of the studies does not need to be performed again each time;
- a second effect comes from the fact that on a fleet driven by a single technology, robots and tooling can be largely reused from one site to another.

Such series effects have the same nature than those observed during the construction of the fleet, in terms of studies or of components manufacturing plants.

As an example, for the 900MW fleet, a series effect of approximately 20% is expected on an average 2 units reactor in comparison to a 2 units leading model.

Due to series and pooling series effects in particular, a simple comparison of the average dismantling cost by reactor between the French fleet and other countries' nuclear fleet is not relevant.

However, figures include only very marginally the evolution of productivity and series effect. External audit conducted by the DGEC on the dismantling cost of the operating fleet had considered that series effect taken into account in the estimate was conservative.

The estimate also includes, by caution, an assessment on risks and uncertainties.

Third-party facilities: La Hague (AREVA) and Phénix (CEA)

As the responsibility for the decommissioning of facilities is incumbent on their operator, EDF wished to free itself financially from these operations.

As such, the agreements signed with AREVA in July 2010 and the CEA in late 2008 clarified the financial responsibilities of the parties. Following a cash payment, EDF was released from any obligation to finance the decommissioning of the Phénix facilities, which have been shut down, and the La Hague plant.

1.4.1.1.7 Assets available to cover long-term nuclear commitments (outside the operating cycle)

Dedicated assets have been progressively added since 1999 to cover long-term nuclear commitments (see section 6.1 "EDF's consolidated financial statements", note 47.2 "Content and evaluation of dedicated assets" to the

consolidated financial statements for the year ended 31 December 2016). Article L. 594 of the French Environment Code and its implementing laws defined provisions that are not associated with the operating cycle and must therefore be covered by dedicated assets (see section 6.1 "Consolidated financial statements at 31 December 2016", note 47.5 "Updated cost of long-term nuclear commitments" to the consolidated financial statements for the year ended 31 December 2016).

1.4.1.2 New Nuclear projects

1.4.1.2.1 Organisation

After 2015, which was marked by the establishment of the New Nuclear Projects and Engineering Department, part of EDF group's CAP 2030 strategy, the DIPNN committed in 2016 to its strategic plan "Competitive together for the future of nuclear energy". This project focuses on three areas of transformation:

- being an architect-assembler capable of leading a broad corporate sector;
- controlling the Group's businesses and projects;
- expanding internationally on the basis of the Group's Franco-British projects, to better prepare for the renewal of nuclear power plants in France.

This project was co-created together with all of DIPNN's employees, through dedicated seminars, work undertaken by field teams and collective intelligence devices.

1.4.1.2.2 Update on the Flamanville EPR project

"Architect-assembler" engineering

To complete the Flamanville 3 EPR (European Pressurized water Reactor) project, EDF is performing the architect-assembler role itself; this matches the position adopted by EDF in the development, renovation and decommissioning of its power generation assets and is based on its internal engineering capabilities. This role allows direct control of the design and operation of its power plants, the organisation of development projects, the schedule and costs of construction, its relations with the ASN and the direct integration of operating feedback.

The new project management organisation, as decided in 2015, has been operational since early 2016.

Interactions with the Nuclear Safety Authority (ASN)

The examination of the application for the commissioning, submitted in March 2015, continues with the ASN. The three expert committees mandated by the ASN help bring together all of the technical requirements the EPR must satisfy. By the end of 2016, 90% of the application for commissioning had been examined.

The request for authorisation for a partial commissioning, in order to allow the reception of fuel on site, is also being examined by the ASN.

In addition, as an addendum to its letter from October 2015, EDF sent in May 2016 to the French Ministry of Ecology, Energy and the Sea the support file for the request to extend the deadline for commissioning Flamanville 3 to April 2020, as specified in the building authorisation Decree of 10 April 2007, the initial period of validity being ten years starting from 2007 (see also subsection "Commissioning schedule and budget" hereafter). This file was instructed by the services of this Ministry with the support of the ASN and a draft amending decree is in the process of being finalised.

Equipment manufacturing

At the end of 2016, most of the equipment of the nuclear section, such as the conventional island, has been delivered and installed on site. Moreover, the equipment quality situation for the primary circuit manufactured by AREVA is as follows:

- the higher-than expected carbon levels in the vessel head and bottom have led EDF to assist AREVA NP in the creation of a programme to ensure the operability of the equipment in question in complete safety. The ASN approved its contents in December 2015. The test programme launched in January 2016 is now complete. It is based on more than 1,600 tests and measurements. The final report was submitted to the ASN on 16 December 2016. The ASN has started its examination of the report, most of which will take place in the first half of 2017;
- irregularities discovered in some manufacturing files within the AREVA factory in Le Creusot Forges: in 2016, irregularities were discovered in the manufacturing files within this factory. 12 components of the Flamanville 3 EPR are concerned by the "blocked" files (*i.e.* files certain to contain irregularities). After analysis, EDF considers that these findings do not affect the level of safety expected of the components, and that AREVA is able to submit adequate proof to the ASN without impacting the project schedule. In addition, AREVA NP was asked to thoroughly inspect 100% of production records for the Flamanville 3 components stemming from Le Creusot Forges factory (so-called "not blocked" files). These comprehensive controls were finished by the end of January 2017: the files for 25 components present indications requiring additional action to provide technical and documentary proof, although EDF does not consider that there is any impact on the level of safety expected. In addition, a positional deviation was noted in the forging ingot used for the manufacture of a ferrule for a boiler unit. The principle of a justification programme to demonstrate the aptitude of the part for the service has been decided. Following validation by the ASN, this programme will be implemented, for a total duration of a few months, without affecting the overall project schedule. The summary analysis of the comprehensive review of the Flamanville 3 manufacturing records from the Le Creusot plant was sent to the ASN on 6 February 2017, thus allowing the investigation of all the aforementioned points to be launched.

Progress of on site implementation

The first milestone, corresponding to the finalisation of the primary coolant system erection, was completed on 15 March 2016, in line with the schedule announced in September 2015.

In addition, the following major results were achieved in 2016:

- completion of the main civil engineering work;
- progress of electromechanical erection exceeded 80%, achieved particularly by significantly increasing the work cadences, during the first half of 2016, for approximately 30% compared to 2015. As a result of the learning curve on the part of EDF and its industrial partners for the large-scale implementing of the finishing and pressure testing for the pipes in accordance with nuclear pressure equipment regulations, it became necessary to set up a special organisational structure to further increase work speeds. That structure has been in effect since end 2016, and is expected to step up its efforts during the first quarter of 2017;
- first start-up of the turbine and the alternator, for which results were satisfactory;
- transfer of the control room to EDF teams that will operate the reactor;
- start of plant system basic test with a progress rate of 9% on 31 December 2016.

Construction at the Flamanville 3 site continues at full speed, with nearly 4,400 people working on site. The priorities are now focused on the continuation and finalisation of mechanical erection on the one hand, and the increasing intensity of the basic system tests on the other, in order to launch the system performance test sequence at the end of the first quarter 2017.

To optimise this system performance tests, EDF is currently deploying an innovative project to digitalise the procedures and management of test data, and has strengthened its links to other EPR projects under construction worldwide, especially through the sharing of test results and seconding testing providers on site.

Commissioning schedule and budget

The schedule announced in September 2015 has been confirmed, and it contains the two following key events:

- the beginning of the system performance tests at the end of first quarter 2017, in parallel of finalisation of electromechanical erection;
- the fuel loading and start-up of the reactor at the end of fourth quarter 2018.

The learning phase for the large-scale implementation of pipe finishing and the "leading" nature of the activities yet to be performed have caused EDF to identify a potential delay of a few weeks in the start-up of the reactor, which will not, at this stage, prevent the target of the end of the fourth quarter of 2018 from being met. See also section 2.1.3 "Specific risks related to the Group's nuclear activities" – "Construction of EPRs may encounter problems meeting the implementation schedule or the budgetary envelop or not be completed".

The coupling of the Flamanville 3 EPR to the grid is then scheduled for the second quarter of 2019 and generation at full capacity of rated power, after a gradual ramping-up phase, for the fourth quarter of 2019.

This timetable shows that the project should cost around €10.5 billion¹, as estimated in September 2015.

1.4.1.2.3 Progress on other "New Nuclear" projects

1.4.1.2.3.1 Hinkley Point C EPR

On 21 October 2015, EDF and China General Nuclear Power Corporation (CGN) signed a non-binding Strategic Investment Agreement in London for the continuation of the project for the construction and operation of the proposed Hinkley Point C nuclear power plant in Somerset. The final contracts regarding Hinkley Point C were signed on 29 September 2016 after the Final Investment Decision authorised by the EDF SA Board of Directors on 28 July 2016. EDF holds 66.5% of HPC with the remaining 33.5% held by CGN.

EDF also signed two other agreements with CGN relating to studies on two nuclear construction projects in the United Kingdom: Sizewell C and Bradwell B (see section 1.4.5.1.2.5 "Nuclear New Build business").

1.4.1.2.3.2 Taishan EPR

EDF owns 30% of TNPJVC (Taishan Nuclear Power Joint Venture Company Limited), which was set up to build and operate two EPR nuclear reactors in Taishan, in the province of Guangdong in China. CGN holds a 51% stake and Yudean a 19% stake.

In 2016, unit 1 passed several important milestones in the commissioning schedule, while multiple mass assemblies continued on unit 2. EDF continued to provide technical support to the Taishan project, while simultaneously incorporating feedback from these activities.

1. In 2015 euros, excluding interim interest.

For unit 1, the main achievements in 2016 were as follows:

- January 2016: realisation of cold functional testing. The hydropower test of the primary circuit of the first EPR was successfully carried out and validated by the Chinese safety authority;
- June 2016: completion of trials on the reactor building's pressure vessel;
- October 2016: implementation of the provisional instrumentation for the initial series testing of the vibration of the vessel internals;
- November 2016: start of source changeover tests and hot functional testing.

In regards to unit 2, the turbo generator was turned on in August 2016.

The Taishan EPR project will continue in 2017, with the end of hot functional testing and the loading of the reactor for unit 1, and the end of the assemblies for unit 2, with the aim of starting the system performance testing phase.

Following the timetable review, the commercial operation of the first reactor is scheduled for the second half of 2017, and the second reactor for the first half of 2018.

See also section 2.1.3 "Specific risks related to the Group's nuclear activities" – "Construction of EPRs may encounter problems meeting the implementation schedule or the budgetary envelope or not be completed".

1.4.1.2.3.3 New Model EPR

The "New Model EPR" project (NM EPR), started in early 2015, aims to develop a new basic design for a new type of EPR nuclear reactor.

Designed by EDF and AREVA in an integrated project, the design of this reactor will meet, in line with the EPR, the third-generation safety goals. Its safety will be enhanced by the incorporation of all of the feedback gathered from the EPR. It will also be the first reactor to incorporate from initial design phase the lessons of the Fukushima accident and the resulting new international and French safety standards.

Its competitiveness is of fundamental importance. Three types of levers are implemented to optimise it:

- the incorporation, long before the reactor development phase, of industrial aspects to take full advantage of the nuclear sector's industrial base;
- the transformation of the methods and tools to enhance the effectiveness of the engineering teams and the control of the management of the technical configuration of the reactor during the different phases of its development;
- the optimisation of some of the EPR's technical options.

The New Model EPR is intended to play a role in the renewal of the nuclear fleet currently operating in France and ultimately to expand the French nuclear industry's export offers.

1.4.1.2.3.4 Memoranda of understanding and share transfer agreement between EDF and AREVA

On 30 July 2015, EDF and AREVA SA had signed a non-binding memorandum of understanding that formalised the status of the progress of discussions concerning their contemplated partnership. This memorandum had three sections:

- EDF's acquisition of an exclusive control of AREVA NP. In this regard, EDF would take majority control of AREVA NP (at least 51%) and AREVA

would have a maximum stake of 25% as part of a strategic partnership, with the potential participation of other minority partners;

- the creation of a dedicated company (currently named Nuclear Island Common Engineering), 80% owned by EDF and 20% by AREVA NP, aimed at optimising the design and construction of the nuclear island and command-control of new projects both in France and abroad. The purpose of this company is to improve the preparation and management of projects as well as the export offering of the French industry by improving the coordination of strategic marketing to draw up offers in the upstream project phase, by developing offers that are more competitive and adapted to client needs, and by harmonising and expanding the range of reactors, all while ensuring the continuation of partnerships with the major industrial companies in Japan and China (see also section 1.4.1.2.3.5 "Preparation of the creation of a company dedicated to optimising the design and management of new reactor projects");
- the signing of a strategic and overall industrial partnership, encompassing for example the promotion of integrated offers (fuel assemblies and material) in the case of the sale of new reactors for export, cooperation in the field of decommissioning (methods, tools, expertise, etc.) and in the intermediate storage of spent fuel (joint export offers), further studies into 4th generation reactors (boiler and fuel) and cooperation in R&D.

At its meeting held on 27 January 2016, following due diligence conducted during the second half of 2015, EDF's Board of Directors reviewed the outcome of discussions with AREVA regarding the acquisition by EDF of control of AREVA NP activities.

The Board agreed on the final valuation of the activities to be acquired by EDF, which comes to €2.5 billion for 100% of AREVA NP's equity¹. This amount is likely to be adjusted, firstly, upward or downward depending on the financial statements prepared on the date of completion of the transaction, and secondly, with a possible price earn-out of up to €350 million, subject to the achievement of certain performance objectives measured after the closing date.

A new non-binding agreement was signed between the same parties on 28 July 2016. It took note of the developments having occurred since early 2016, without calling into question the three above-mentioned components, without changes in the valuation, and with a revised possible earn-out of up to €325 million.

The developments since early 2016 are:

- the negative outcome of discussions with TVO on the initial plan foreseen for the total immunisation of EDF against the risks arising from the Olkiluoto 3 (OL3) project, resulting in the development of the following new organisation structure: the creation of New NP, a company of which EDF will acquire the sole control and which will take over the contracts currently held by AREVA NP, excluding the OL3 contract and certain other contracts bearing risks against which EDF intends to protect itself. Thus, the contracts concerning the EPR project at Olkiluoto 3 and the resources necessary for the completion of the project will remain within AREVA NP, within the scope of AREVA SA, as well as certain contracts relating to forged parts in the plant at Le Creusot, notably according to their expiry dates and the risks assessment associated with these contracts, which will have been carried out as part of the ongoing audits;
- AREVA NP remains a wholly-owned subsidiary of AREVA SA, and maintains the current contracts, except for those transferred to New NP. New NP's valuation remains the one validated by EDF for AREVA NP, i.e. €2.5 billion for 100% of the capital;
- the common ambition of AREVA and EDF is to set-up a dedicated company currently called, Nuclear Island Common Engineering (NICE),

1. On a debt-free, cash-free basis.

prior to finalising the acquisition by EDF of the sole control of New NP (see section 1.4.1.2.3.5 "Preparation of the creation of a company dedicated to optimising the design and management of new reactor projects");

- the quality issues that appeared at the AREVA factory in Le Creusot, stemming either from insufficient control of the carbon concentration ("segregation") or from the presence of anomalies in manufacturing tracking records. The new memorandum sets down the principles of immunisation and protection of EDF vis-à-vis the consequences of these anomalies: the non-transfer of expired contracts to New NP, specific compensation and general guarantee, conditions precedent to the completion (planned for end-2017) of the acquisition transaction by EDF for the sole control of New NP, based on the conclusions of the ASN concerning the results of trials relating to the primary circuit at the Flamanville 3 and results of the quality audit launched by AREVA NP in the Le Creusot, Saint-Marcel and Jeumont factories. Thus the contractual obligations related to the discovery of anomalies in the quality control for equipment manufacture at the Creusot plant, and where applicable at the Saint-Marcel and Jeumont plants, will remain guaranteed by AREVA SA, according to the usual mechanisms, with the objective of keeping EDF, in all circumstances, completely unharmed with respect to the risks associated with any anomalies qualified as serious that may be identified. See section 2.1.3 "Specific risks related to the Group's nuclear activities" – "For its nuclear business, the Group depends on a limited number of contractors".

In accordance with the terms of this memorandum, a share transfer agreement was drafted between EDF SA on the one hand, and AREVA SA and AREVA NP on the other hand. It received an opinion from EDF's Central Works Council on 27 October 2016 and from AREVA's Central Works Council on 10 November 2016. It was then approved by the Boards of Directors of AREVA on 10 November 2016 and of EDF on 15 November 2016. The contract was signed by both parties on 15 November 2016.

Completion of the transaction, planned for the second half of 2017, remains subject to:

- obtaining favourable conclusions from the ASN regarding the outcome of the tests on the primary circuit of the reactor at Flamanville 3;
- completion and satisfactory conclusion of the quality audits in the Le Creusot, Saint-Marcel and Jeumont plants;
- clearance from the relevant antitrust authorities.

Meanwhile, AREVA and EDF initiated discussions with strategic investors having expressed interest in purchasing a stake in New NP alongside EDF. The stake acquired by EDF could thus be reduced to a target exclusive controlling stake of at least 51%.

1.4.1.2.3.5 Preparation of the creation of a company dedicated to optimising the design and management of new reactor projects

One of the three sections of the memorandum signed by EDF and AREVA on 30 July 2015 provides for the set-up of a dedicated company, owned 80% by EDF and 20% by AREVA NP, in order to optimise the design and construction of nuclear island projects and command-control of new projects in France and abroad (see section 1.4.1.2.3.4 "Memoranda of understanding and share transfer agreement between EDF and AREVA").

EDF and AREVA NP consider that pooling their engineering expertise in the nuclear islands of new construction projects will ensure the future of the French nuclear industry, and ensure better control and efficiency in the

design and realisation of new projects (in France and abroad), by improving the competitiveness of the French industry as a whole and the sustainability of critical expertise within the sector.

Joining their engineering teams on the new reactor project within this new structure will therefore enable EDF and AREVA NP to:

- improve efficiency by reducing technical and contractual interfaces and the iterations between the EDF and AREVA NP engineering teams;
- create important synergies;
- enhance and sustain the management of expertise and skills;
- optimise feedback between projects.

Progress was made in 2016 in the preparation of the project to establish this new company through:

- the sharing of the industrial need for both EDF and AREVA to implement this common structure in order to significantly improve the current operating mode;
- the setting up of working groups to prepare EDF and AREVA's teams to come together within the future so-called "NICE" (Nuclear Island Common Engineering) entity;
- the definition of the planned scope of activities;
- the definition of the corporate form, the method of governance and the operational modalities of the future NICE structure;
- the creation of a development team (EDF and AREVA), responsible for further reflection and for preparing the presentation of the project in the various employee representative bodies at EDF and AREVA.

The dedicated company is expected to be operational in 2017, at completion of the information and consultation process in association with the employee representative bodies which was initiated on 19 January 2017.

1.4.1.3 Thermal generation in mainland France

EDF's electricity generation from its thermal power plants in mainland France represented approximately 2.8% of its total electricity generation in 2016. During the same period, this fleet had a total installed operating capacity of 9,175MW.

Thermal generation assets have a number of advantages: they are very responsive and flexible (quick to start up and power can be modulated), and they have relatively low investment costs and short construction times.

Thermal generation assets are one of the key components of the energy mix to ensure the balance of generation and consumption in real time by accommodating fluctuations in electricity consumption and renewable energy generation (sun and wind power in particular). Together with some hydropower facilities (lakes, pumped storage plants), they are used to meet mid-merit and peak demand electricity requirements.

1.4.1.3.1 EDF's thermal generation

At 31 December 2016, the thermal generation facilities operated by EDF were of different types, both in terms of fuel and power:

Fuel	Unit capacity (in MW)	Number of units in operation at 31/12/2016	Total capacity (in MW)	Year commissioned	Output (in TWh)	
					At 31/12/2016	At 31/12/2015
Coal-fired	580	3	1,740	in 1983 and 1984	4.1	4.6
	535	1	535	in 1974		
Fuel oil	585	3	1,755	between 1968 and 1975	0.3	0.1
	685	2	1,370	in 1976		
	85	4	340	in 1980 and 1981		
Fuel oil and dual-fuel combustion turbines (gas and fuel oil)	203	1	203	in 1992	0.5	0.1
	134	1	134	in 1996		
	125-129	2	254	in 1998 and 2007		
	185	2	370	in 2010		
	179-182	3	542	in 2008 and 2009		
Combined-cycle gas turbines	427	1	427	in 2011	7.0	2.0
	465	2	930	in 2012 and 2013		
	575 ⁽¹⁾	1	575	in 2016		

(1) The capacity is currently 575MW. Tests of possible increases in capacity with General Electric are contractually scheduled to occur before the summer of 2018 in order to validate the final capacity level.

1.4.1.3.2 Issues relating to thermal generation

Renovation of the coal fleet to meet mid-merit load capacity demand

After having closed, between 2013 and 2015, ten coal-fired units, EDF retains one coal power plant, consisting of three generation plants based on recent technology and located in Le Havre (1 unit) and Cordemais (2 units). A renovation programme for these coal-fired units was just completed in order to improve their reliability and efficiency.

Each of these 600MW coal-fired units benefit from among the lowest fuel costs of all of the thermal generation facilities. Their power, along with the flexibility of their generation, are essential advantages. They are equipped with flue gas desulphurisation and denitrification systems (90% reduction in sulphur dioxide emissions and 80% reduction in nitrogen oxide emissions), as well as dust collectors that trap virtually all the dust. These treatments allow the units to meet the new requirements of environmental regulations beyond 2016.

Reconfiguration of the oil-fired fleet

EDF decided to permanently shut down the thermal plant in Aramon on 1 April 2016; this plant was scarcely used over the past number of years.

EDF also decided in 2016 to permanently shut down the last six oil-fired units (four in Porcheville and two in Cordemais) gradually by 2018.

Modernising the thermal generation fleet with natural gas combined cycle turbines

In 2011, EDF commissioned a first natural gas combined cycle turbine (GCCT) in France on the Blénod site, followed by two combined-cycle turbines in Martigues in 2012 and in 2013. The GCCTs in Martigues are the result of the repowering of former oil-fired units, a part of whose facilities, such as

the steam turbine, the condenser and the water treatment facilities, were reused. The repowering of a unit of this capacity is a first in Europe. The installed capacity of the Martigues site is 930MW and the return is over 50%, markedly higher than the return from coal-fired thermal units, for example. This modernisation of the thermal generation fleet enables EDF to reduce atmospheric emissions of CO₂, nitrogen oxides and sulphur oxides.

On the Bouchain (Nord) site, EDF has built, in partnership with General Electric (GE), a next-generation GCCT, equipped with the new General Electric high-capacity turbine, the "9HA". This combined cycle turbine, with innovative characteristics in terms of capacity (575MW achievable in less than 30 minutes) and return (higher than 60% versus an average return for a standard GCCT of 57 to 58%), offers good environmental performance with CO₂ emissions of on average around 360g/KWh, 55% below those of the old neighbouring coal-fired plant shut down in 2015. It was commissioned in the summer of 2016. Because this is a prototype, it will be tested for two years, and GE will then transfer its ownership to EDF, provided that the tests are conclusive.

Under specific operating conditions, the Bouchain combined cycle turbine generated a record return of 62.22%.

Evolution of the environmental regulatory framework

Today, EDF's thermal power plants are operated within the context of regulations that apply to installations classified for environmental protection purposes (*Installations classées pour la protection de l'environnement* – ICPE), as well as regulations relating to greenhouse gas emissions and a specific regulation for air quality (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety"). EDF set itself the goal of cutting CO₂ emissions in mainland France by 30% (measured in tonnes) between 1990 and 2020, and of cutting SO₂, NO_x and dust emissions by at least 65% between 2005 and 2020 (see section 1.5 "Legislative and regulatory environment").

Thanks to the shutdown of the oldest thermal power plants, the updating of the most recent plants, the implementation of pollution-reducing procedures, the use of low sulphur fuel¹ and lastly the commissioning of natural gas combined cycle turbines, the environmental performance of the thermal fleet in mainland France has improved significantly:

- total CO₂ emissions of the EDF fleet in 2016 came to 6.9 million tonnes², thereby confirming the improvement in the carbon footprint with CO₂ emissions down over 50% since 1990 despite more intensive operations than during the last two years;
- the NO_x and dust emission targets set for 2020 have already been achieved. The objective to reduce emissions of SO₂ was also achieved, thanks to the closure of the oldest coal-fired units (finalised in 2015) and the growing share of CCGT within the thermal generation.

1.4.1.3.3 Generation and technical performance

Thermal generation represented 11.9TWh in 2016, with a sustained operation, mainly during the second half of the year. In particular, the result of this sustained operation for gas combustion turbines is a generation level was higher for a single month, in November 2016 and again in December 2016, than in all of 2015.

In 2016, coal units supplied 4.1TWh, GCCT plants supplied 7.0TWh, oil-fired units 278GWh and combustion turbines 511GWh. Several units reached record operating levels: in particular, close to 6,000 hours for the combined-cycle gas turbine plant at Blénod and 89 hours of continuous operation (gas) for dual-fuel combustion turbines at Montereau.

Minimising unplanned outages is the essential aim for facilities such as thermal plants, used for mid-merit and peak generation. The priority for these means of generation required on a variable basis all year round is to ensure system security by ensuring maximum reliability and availability.

The reliability of the thermal fleet in all its constituent parts was confirmed in 2016 and meets European standards; the Blénod combined-cycle gas turbine is even at the level of the highest European standards, with an unplanned outage rate below 0.1%. The fleet's adaptability to a substantially higher level of operation than initially planned, while at the same time maintaining strong performance, has been demonstrated. The response rate achieved by combustion turbines to requests from optimisation services and from RTE was very good. In a tense balance between supply and demand, the combustion turbines fully played their role in maintaining the system's safety.

The Martigues site, after being hit by a fire in February 2015 (damaging unit 6 with collateral damage to unit 5) could be returned to service in June 2015 (unit 5) and June 2016 (unit 6). Since the units returned to the grid, performance levels have met expectations.

Decommissioning of the existing fleet

EDF has planned all of the decommissioning operations on its thermal fleet units which were shut down or whose shutdown is scheduled. The provisions for these operations have been made in an amount that corresponds to the cost of decommissioning all of the units being operated and the clean-up of the sites (see section 6.1 "Consolidated financial statements at 31 December 2016", note 30 to the consolidated financial statements for the year ended 31 December 2016).

In 2016, EDF continued the decommissioning work on sites that have been definitively shut down. In particular, both coal-fired units at Champagne-sur-Oise were successfully demolished by semi-caving on 10 July 2016.

1.4.1.4 Generation from renewable energies

Renewable energies³ (hydropower, wind, solar, biomass, geothermal, marine energy, etc.) have seen robust growth worldwide.

Hydropower is the number one renewable energy in the world, with a combined installed capacity of 1.2TW in 2015⁴. It has significant prospects for development in certain regions, even though it is close to its maximum operating potential in many developed countries. According to the International Energy Agency (IEA), over the 2014-2020 period, hydropower represents about 20% of new capacity and 26% of additional generation⁵ of electricity based on renewable energy sources.

The combined installed onshore wind capacity totalled 467GW worldwide at the end of 2016, more than 160GW of which in China, 83GW in the US and around 140GW in Europe. In 2016, 55GW of wind energy was commissioned worldwide, including around 22GW in China⁵.

In solar photovoltaic power, total global installed capacity stands at close to 317.7GWp at the end of 2016, of which around 70GWp from new capacity built in 2016⁶. Today, it is largely wind, solar and biomass that are driving growth in renewable energy.

The EDF group is now the leading producer of renewable energies in Europe and specifically the leading supplier of hydropower in the European Union; hydropower represents the Group's most important renewable energy, with an installed capacity of 21.4GW, 239 dams and 436 production sites worldwide. The Group plays a role in the rise of competitive sectors, particularly wind and solar.

Since 2015, the Renewable Energy Division manages and promotes the EDF group's renewable energy activities, namely hydropower and the renewable generation activities. This division also oversees all renewable projects (wind, solar, marine energy, etc.) undertaken by the Group, including those run by the foreign subsidiaries.

The EDF group's commitments in terms of developing renewable energy are described in section 3.1.2 "Corporate responsibility goals".

1. The oil-fired units use fuel with an ultra-low sulphur content (less than 0.4% sulphur).

2. Within the Company's scope (EDF SA, i.e. including IES and excluding PEI), total emissions amounted to 8.2 million tonnes in 2016.

3. Renewable, or "green" energies, are derived from natural resources that are replenished quickly enough to be considered non-depletable in human terms.

4. Source: International Renewable Energy Agency (IRENA), Capacity Statistics 2016.

5. Source: International Energy Agency, World Energy Outlook 2016, scenario "New Policies".

6. Source: Bloomberg New Energy Finance.

NET CAPACITY⁽¹⁾ OF THE GROUP IN RENEWABLE ENERGIES AT THE END OF 2016

<i>(In MW)</i>	Hydropower	Wind	PV	Biomass	Marine	Total
Africa	–	54	–	–	–	54
America	–	3,132	112	40	–	3,284
Asia	428	92	60	–	–	580
Europe	22,216	3,207	472	354	240	26,489
Total installed	22,644	6,486	644	394	240	30,408
Total under construction	204	941	163	–	–	1,308
TOTAL NET CAPACITY	22,848	7,427	807	394	240	31,716

(1) Power generation capacity, in proportion of the share the EDF group held in each asset.

1.4.1.4.1 Hydropower generation in France

The electricity generated by EDF from its fleet of hydropower plants in mainland France in 2016 totalled 42.4TWh, 9.8% of its total electricity output.

1.4.1.4.1.1 EDF's hydropower generation fleet

EDF's hydropower fleet in mainland France comprises 433 plants at the end of 2016:

- approximately 11% of these plants have a unit capacity above 100MW. They account for around 60% of total generation;
- approximately 51% of these plants have a unit capacity under 12MW. They account for around 6% of total generation.

The average age of the fleet is 72 years¹.

	31/12/2016	31/12/2015
Hydropower plants with capacity lower than or equal to 12MW		
Maximum capacity <i>(in MW)</i>	990.2	989.3
Net pumping output <i>(in TWh)</i>	2.5	2.4
Consumption by pumping operations <i>(in GWh)</i>	48.5	32.7
Output including pumping <i>(in TWh)</i>	2.6	2.4
Hydropower plants with capacity greater than 12MW		
Maximum capacity <i>(in MW)</i>	18,965.8	18,939.4
Net pumping output <i>(in TWh)</i>	33.3	29.7
Consumption by pumping operations <i>(in TWh)</i>	6.6	6.8
Output including pumping <i>(in TWh)</i>	39.9	36.5
TOTAL MAXIMUM CAPACITY (IN GW)	20.0	19.9
TOTAL NET PUMPING OUTPUT⁽¹⁾ (IN TWh)	35.8	32.1
TOTAL OUTPUT INCLUDING PUMPING⁽¹⁾ (IN TWh)	42.4	38.9

(1) Corresponds to the sum of the exact values rounded to one decimal place.

Within mainland France, hydropower plants are mainly located in mountainous areas in the Pyrenees, the Alps, the Massif Central and the Jura, as well as on the Rhine. In all, they represent an installed capacity of approximately 20GW (excluding French overseas departments and Corsica), or 21% of EDF's fleet, for an annual generation capability of around 40TWh.

The various hydropower facilities are designed to optimise the use of water resources in the valleys where they are situated. Given the size and variety of its fleet, EDF has facilities able to respond to all types of desired uses, from base to peak generation, and which also offer levers for optimisation due to their flexibility: "run-of-river" plants, like the ones on the Rhine, which have no storage capacity and generate electricity depending on the available water

flow; plants with pondage, thus accessing average-sized reservoirs (smaller than lakes) for occasional use during the week or during the day, to cover peaks in demand; lake plants (seasonal reservoirs) located in mountainous areas (Alps, Massif Central and Pyrenees); pumped-storage plants (commonly known in France as STEPs, from their French acronym), which pump water from a lower reservoir to an upper reservoir during periods of low demand when electricity is also lower in cost, in order to build up reserves used to generate energy at peak times (by releasing the stored water through turbines from the upper reservoir to the lower reservoir); and a tidal power plant on the river Rance which, using the up and down movement of the tides, provides a very regular supply of electricity.

1. Arithmetic mean.

Category	Capacity	Average generation capability over 50 years
Run-of-river	3.6GW	17.2TWh
Lake-supplied	8.8GW	15.8TWh
Pondage	3.1GW	8.8TWh
Pumped-storage	4.2GW	1.1TWh
Tidal	240MW	0.5TWh

1.4.1.4.1.2 Hydropower safety

Hydropower safety comprises all the measures taken when designing and operating hydropower plants to reduce risks and hazards to people and property associated with water and the presence or operation of facilities. Hydropower safety is a constant concern of the highest priority for plant operators (see section 2.2.3.3.1.2 "The hydropower field"). It involves three main activities:

- the management of operational risks, by providing information to users (communication campaigns, information of the employees operating on waterways, hiring "hydro-guides" during the summer months) about changes to water levels or flow fluctuations in downstream waterways;
- the management of facilities during periods of exceptionally high water levels, in order to ensure safety at the facilities and for the surrounding communities;
- measures to address the major risk associated with dam or reservoir failures, through the regular monitoring and maintenance of facilities under the supervision of public authorities, mainly the French regional environment, land use and housing authorities (*Directions Régionales de l'Environnement, de l'Aménagement et du Logement* – DREAL). Among the largest dams, 68 are subject to a specific administrative procedure (*plan particulier d'intervention* – PPI) implemented by the relevant prefectural authority.

EDF performs regular monitoring and maintenance of dams, in particular by means of continuous structural health assessments.

In addition, a safety review is carried out every ten years on each of the 150 large dams, which includes a complete assessment made using underwater equipment or by emptying the reservoir. These operations are carried out under the supervision of public authorities (the DREAL office at the regional level as well as the *Service technique de l'énergie électrique des grands barrages et de l'hydraulique*, and STEGBH, the central French government agency specifically responsible for large dams and hydropower facilities).

Moreover, comprehensive safety studies are a statutory requirement for the owner or operator of a dam: as such, EDF, which has 240 hazard studies covering all works subject to this requirement, delivered in 2016 to the Control Department of the French Government the update of 5 hazard studies and conducted 134 of the 156 safety reviews scheduled by 2018. They consolidate a satisfactory overview of the structures and associated countermeasures¹.

In 2016, the hydropower safety of EDF's fleet remained good with no hydropower safety incident (EISH) classified as "orange" (an incident that placed people in danger, within the meaning of the Decree dated 21 May 2010). 8 EISH classified as "yellow" (incidents reflecting non-compliance without putting anyone in danger) were recorded this year. The key indicators are still at good levels:

- detection of significant (non-serious) events (ESSH level 0) by the local teams is stabilising, with 3,391 events detected;

- the number of incidents with external effects (ESSH level ≥ 1) is low: 19 incidents took place;
- the number of sites downstream of facilities with high sensitivity to risks related to variations in water flow fell from 114 in 2005 to 12 in 2016 (11 in 2015);
- the management of hydropower facilities was properly handled during the floods that occurred this year.

Control of risks associated with the facilities ageing is a major concern in hydropower safety and has been strengthened, and the long-term maintenance policy was updated in 2012. With close to €600 million spent on hydropower safety between 2012 and 2016, EDF devoted a significant portion of the maintenance budget thereto.

Since 2006, the engineering programmes for the safety and performance components of the hydropower fleet in operation have continued with a high level of investment, ensuring the careful management of major safety-related activities and providing them with national visibility. The goal is the technical updating and improved maintenance of the facilities, in order to maintain a high level of hydropower safety and preserve the technical performance of the fleet over the long-term. At the end of 2016, 524 specific systems and measures² are being carried out, down compared to 2015, and are monitored in five priority facility groups: galleries, pipes, dams, penstocks and floodgates.

1.4.1.4.1.3 Performance of the hydropower generation fleet

A highly automated fleet

In order to take advantage of the flexibility of its hydropower generation facilities, for some years now EDF has been initiating ambitious programmes involving automation, remote control of hydropower plants and centralised management of the valleys. Currently, the largest plants in EDF's hydropower fleet, representing just over 15GW, *i.e.*, around 75% of its installed hydropower capacity, are remote-controlled from four control centres able to make adjustments to the plants' operating programmes at any time in order to respond to the needs of the electrical system and to economic opportunities arising on the electricity market.

Technical performance of the fleet and hydropower conditions in 2016

Hydropower generation may witness substantial variations from one year to the next, depending on climatic fluctuations in water resources. Hydropower generation in 2016 was good despite unfavourable hydrological conditions.

Hydropower electricity generation before the deduction of the power needed to operate pumped-storage plants was 42.4TWh in mainland France and 35.8TWh net of consumption by pumped storage.

The 2016 generation indicators show a highly satisfactory level of performance, with a rate of internal loss³ that is historically low at 4.5% (5.2% in 2015). The overall availability of the hydropower fleet, *i.e.* the

1. For further details, see the 2016 report of the Inspector of Hydropower Safety, available on EDF's website.

2. A specific system or measure is a temporary measure to prepare an acceptable level of security, performance and individual safety.

3. Internal loss is the energy from flows that do not pass through turbines which were not stored. The rate of internal loss is obtained by dividing the internal loss by the generation performed during the year, and then adding the internal loss.

percentage of time over the year during which the power plants are available at full capacity, was 99.32% in 2016 compared with 99.25% in 2015. Unavailability of EDF's hydropower fleet is 15.8% for servicing and maintenance work on the assets (planned unavailability) done during maintenance of facilities, and 4.0% for extensions of work and breakdowns (unplanned unavailability).

In 2011, EDF also began an ambitious modernisation project to improve the industrial performance of its hydropower fleet, for an overall amount of €₂₀₁₀840 million by 2021. This project, known as "RenouvEau", aims to modernise the maintenance and operation of the hydropower fleet, specifically via the renovation of electrical facilities, control monitoring and computerised management, maintenance and operating tools, in order to improve the security, operating performance and competitiveness of the hydropower fleet. The full roll-out of the project will end before 2020.

1.4.1.4.1.4 Hydropower generation issues

The hydropower sector is currently working to address the following issues: implementation of the Energy Transition for Green Growth Law, managing access to water, and development.

Concessions renewal

Hydropower generation facilities are operated through concessions granted by the State for facilities exceeding or equal to 4.5MW and under prefectural authorisation for facilities under 4.5MW (see section 1.5.6.2.4 "Regulations applicable to hydropower facilities").

EDF currently holds the majority of the hydropower concessions in France. Concessions have an initial term of 75 years, pursuant to the French Law of 16 October 1919 relating to hydropower use. The majority of concessions expired before 2012 were renewed for terms of 30 to 50 years. The Law on the Energy Transition for Green Growth of 17 August 2015 and the Decree of 27 April 2016 concerning hydropower concessions set down a new statutory and regulatory framework in which hydropower is included.

A set of legal texts supplements this framework, concerning the attribution and/or performance of hydropower concession contracts: for example, the Order of 29 January 2016 relating to concession contracts and its implementing Decree of 1 February 2016, which define together the general framework for competitive bidding, the Decree of 27 May 2016 relating to purchase obligations and additional compensation, which may apply to certain hydropower facilities, the Orders of 3 August 2016 relating to the environmental assessment of projects and procedures for information of the public and public participation, the Law of 7 October 2016 for a Digital Republic, etc. (see section 1.5 "Legislative and regulatory environment").

Under the current regulation, the former concession holder does not receive any compensation if an expiring concession is not renewed. Article L. 521-15 of the French Energy Code enacted by the amended Finance Act for 2006 provides for the reimbursement of unamortised expenses related to modernisation works or to works that enable the expansion of generation capability, provided that these works were carried out during the second half of the concession. However, if a concession is terminated by anticipation by the French government, the operator receives compensation. This compensation from the government is intended to offset the shortfall for the outgoing operator due to the early termination of the operation of the concession, as provided by the concession specifications.

In this context, for some years EDF has prepared itself to submit its best offer for each concession, combining improved energy efficiency, attention to aquatic environments, compensation of the government and municipalities through fees and regional development, while ensuring the safety and security of operations.

The European Commission (EC) initiated proceedings against the French State regarding hydropower concessions in France, based on Article 106 § 1 of the Treaty on the Functioning of the European Union (TFEU) read in conjunction with Article 102 of the same treaty. The European Commission therefore sent a formal notice to the French state on 22 October 2015, stating that it considered the fact that most hydropower concessions in France are attributed to and reserved for EDF as a violation of the above articles, since these measures reinforced EDF's dominant position on the French retail electricity markets. The State responded to this formal notice, beginning a series of submissions and responses by the French State and the EC, which in no way prejudices the latter's final decision. As the chief interested party, EDF received a copy of the formal notice and sent its observations to the EC on 4 January 2016, firmly contesting the EC's analysis and the grounds for this analysis. During 2016, EDF was associated with certain discussions between the State and the EC, notably to provide technical details on the functioning of the French market and thus move towards an agreement. Such discussions should continue in 2017, until closure of the case by the EC.

Managing access to water

Water reservoirs held by EDF's 239 large dams in France enable the storage of 7.5 billion cubic metres of water, corresponding to 75% of national surface storage reserves.

The hydropower facilities have positive effects on both economic development and the environment, and EDF applies a proactive management policy in relation to water resources, in liaison with various water stakeholders. Agreements are entered into with local elected officials, farmers, fishermen, managers of tourist sites and manufacturers (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety").

The Law of 30 December 2006 on Water and Aquatic Environments contains provisions relating to the management of water resources (in particular, the benefits of reserved flows¹ and the flexibility of hydropower plant operations). These provisions were supplemented by the statute on the reconquest of biodiversity, nature and landscapes of 8 August 2016. EDF considers that the medium-term consequences of these provisions for its hydropower activities can be controlled (see section 1.5 "Legislative and regulatory environment"). The EDF group nevertheless remains vigilant concerning the local implementation procedures and forthcoming developments of this regulation, and calls for more coherent public policies on water, energy and the environment.

Development

Currently, 95% of France's hydropower potential is being used. EDF is committed to developing its hydropower activities, through the study and realisation of new profitable projects, in particular:

- developing reserved-flow turbines. The purpose is to equip a certain number of dams in order to recover part of the energy associated with these minimum regulatory flows:
 - a new plant was inaugurated on 20 October 2016 near the Kembs dam on the Rhine river, thereby adding 8MW in new capacity and a generation capacity of 28GWh,
 - in 2016, four sets were being installed on the facilities in Mancières, Chavaroché, l'Escaie and Aigueblanche, thereby adding 2.3MW to the 3.3MW already commissioned in 2015,
 - new projects are being studied with phased commissioning before 2020 ;

1. Minimum flow maintained downstream of dams to protect aquatic life.

- increasing the potential of energy transfer by pumped-storage hydropower plants in France (STEPS). The Decree of 17 June 2013 authorised EDF to build a new 240MW turbine generator set on the STEP site at La Coche in Savoie. This Pelton set, construction of which began in 2016, will increase the capacity of the existing facility by 20% and will generate approximately an additional 100GWh every year;
- looking into the possibilities for increasing the capacity of existing hydropower plants, in particular those detailed in Article L. 511-6 of the French Energy Code enacted by the Law of 13 July 2005 setting out the guidelines for the energy policy, to contribute to the development of leading-edge means.

This provision having been repealed with effect on 1 April 2016 by Order no. 2016-65 of 29 January 2016 on concession contracts, several projects were submitted before this date, in order to preserve EDF's option to increase the capacity of the relevant power plants, in particular for the facilities in Saussaz-Hermillon, Salelles, Vinon, Manosque Sainte-Tulle II, Peyrat le Château.

Excess output is in the process of being achieved for the La Bâthie plant to replace the six generation sets for an additional capacity of 50MW. At end-2016, three sets were put in place;

- adapting existing facilities (modernisation, optimising generation, etc.) as part of concession renewals. Accordingly, in the context of renewing the Middle Romanche concession and in line with the decrees published on 31 December 2010, EDF has begun work to replace the six small existing plants with the construction of a new subterranean plant (Romanche-Gavet plant) with a capacity of 93MW and generation capability of 560GWh, or 155GWh more than the existing plants;
- developing "small-scale" hydropower plants (with capacity under 12MW). One of the aims is to develop small-scale hydropower by:
 - forging partnerships for project development,
 - optimising and increasing the generation capacity of the existing fleet with the return to service in 2016 of several facilities after an important programme of renovations like Le Bazacle, Notre-Dame-de-Briançon, Mescla Plan-du-Var and, in the SHEMA fleet, the Upper Mayenne Fourmondrière,
 - the response to the call for tenders for the development of micro and small hydropower launched on 26 April 2016 for a total budget of 60MW. The EDF group submitted different response files at the end of 2016. The winners will be announced in the first half of 2017, and must commission their facilities within a four to five year-period.

EDF has also strengthened the range of initiatives pursued by its entities in support of regional and local development. This approach is reflected in the establishment of the "One River, One Territory" development programme, which had opened seven agencies around France by the end of 2016.

1.4.1.4.2 New renewable energies

1.4.1.4.2.1 Wind power

A wind turbine uses the action of the wind to drive rotor blades connected to an electrical generator. There are various categories:

- onshore wind power: this is a proven and increasingly competitive sector which is now close to competing with, if not matching, traditional sectors in certain areas. It benefits from economic incentives in various countries, although an increasing number of projects are developed without a

financial support mechanism (see section 1.5.3 "Electricity market legislation"). On average, the rated capacity of onshore wind turbines installed worldwide is more than 2MW, a figure which is increasing steadily. The subsidiary responsible for developing wind power within the Group is EDF Énergies Nouvelles. The subsidiaries EDF Luminus and Edison also have wind farms in service. The EDF group generated 11.7TWh of wind-based electricity in 2016;

- offshore wind power: a less mature, high-growth sector, it currently requires a higher initial investment and is more expensive to connect to the grid than onshore wind power. Offshore operation and maintenance are also more difficult. The advantages of this sector are the higher rated capacity of each wind turbine (typically over 5MW) and increased productivity due to more reliable winds. The sector is on a learning curve that will enable it to reduce the cost differential with onshore wind generation. The EDF group has decided to ramp up its investment in offshore wind generation, which offers interesting development prospects, at least in two of the Group's key countries: France and the United Kingdom.

1.4.1.4.2.2 Solar photovoltaic power

The operating principle of solar photovoltaic power is to convert sunlight directly into electricity. Photovoltaic solar power is used in two ways: it can either be connected to the grid, or it can generate electricity at isolated sites. Grid-connected photovoltaic systems have witnessed steady growth around the world in two markets: ground-based solar farms and rooftop installations on buildings and homes. In France, the connected fleet exceeded 7GW, despite a significant drop in connections in 2016 (449MW for the first three quarters, against nearly 800MW over the same period in 2015).

The cost of generating solar power has fallen considerably in recent years. However, there is still considerable room for improvement, especially in the field of innovation and enhanced industrial processes. EDF R&D also conducts research on photovoltaic technology at its Chatou site, under the aegis of the French Institute for Photovoltaic Power Research and Development (IRDEP), established in partnership with CNRS (National Centre for Scientific Research) and ENSCP (Paris National School of Chemistry).

1.4.1.4.2.3 Biomass and biogas

Technologies based on biomass mainly consists of burning certain types of waste, particularly from the timber and farming industries, or exploiting woodfuel forests, to produce heat or electricity.

Biofuels can come from a wide range of sources. There are three different energy streams: combustion plants for plant matter (wood, agricultural waste) or animal matter; biogas generation plants (gas generated from the fermentation of organic animal or plant matter); household waste incineration plants.

Lastly, through its holdings, the Group owns shares in France (notably through its subsidiary Dalkia, see section 1.4.6.1.1 "Dalkia"), and abroad in several dozen heating networks and small-scale, mainly wood-fired generating plants.

1.4.1.4.2.4 Geothermal energy

The temperature of the rocks in the earth's crust increases with depth (3°C on average every 100 metres). In some regions, geothermal energy reaches the surface in the form of hot springs, water or steam. The hot water is used directly in the form of heat: central heating in homes or heating of greenhouses.

Steam extracted from the ground is also used to generate electricity: as in a classic thermal power station, it drives a turbine. It is also possible to use hot and dry rocks as a source of electricity production from steam. To develop this type of energy, EDF has joined forces with several partners (including ÉS and German energy companies) as part of a European consortium that develops and operates a prototype geothermal power plant in the hot, naturally fractured crystalline rock around Soultz in Alsace (see section 1.4.4.4 "ÉS").

France also has high-temperature resources located in its overseas territories. The EDF group is present in this activity mainly through its minority stake in the company Géothermie Bouillante in Guadeloupe.

1.4.1.4.2.5 Other technologies

Renewable energies cover a wide range of sectors and technologies. To prepare for the future, EDF Énergies Nouvelles is responsible within the EDF group for identifying promising sectors and, with the support of the Group's R&D teams or industrial partners, contributes to the emergence of new technologies. Along with so-called concentrated solar power (see section 1.4.1.4.2.2 "Solar photovoltaic power") and energy storage, marine energy is another area the Group is exploring in depth.

Two marine energy projects are currently under development:

- tidal turbines, which are underwater turbines harnessing the energy of tidal currents. EDF has built a prototype tidal current turbine farm on the Paimpol-Bréhat site in the Côtes-d'Armor department, whose implementation has been postponed. EDF Énergies Nouvelles, in partnership with DCNS, Europe's leading manufacturer of naval vessels, is working on the "Normandie Hydro" project, a larger-capacity tidal current turbine farm in the Raz Blanchard, off the Cotentin peninsula in Normandy. The public enquiry has started on this project;
- floating offshore wind turbines: on 3 November 2016 the French Government announced that the Provence Grand Large project, led by EDF Énergies Nouvelles, won the "Floating Wind Farms" call for projects initiated by the ADEME in August 2015. The project, located 17 kilometers off Napoleon Beach at Port-Saint-Louis-du-Rhône, foresees the construction of three 8MW Siemens turbines.

1.4.1.4.3 EDF Énergies Nouvelles

The EDF group's involvement in other renewable energies is undertaken mainly by EDF Énergies Nouvelles (EDF EN), a wholly-owned subsidiary. The companies in the EDF EN group had a combined 3,108 employees at 31 December 2016.

EDF EN has the expertise required to ensure EDF's development in renewable energies, particularly in the fields of wind and photovoltaic solar power and electricity storage. The increase in wind and solar net installed capacity is expected to amount to c.30% by 2020, and the project portfolio at the end of 2016 represents 18.5GW, of which 16.8GW relate to projects excluding capacity under construction. The Company is one of the major players in electricity generation from renewables particularly in the major regions in which it is based, namely, North America and western and southern Europe.

EDF EN generates electricity from renewable energy sources and is involved in every stage of the value chain. It operates upstream, in project development, as well as in the construction of power plants and their operation and maintenance. Each of these activities may be conducted on its own account or on behalf of third parties.

As part of its project development activities, the Group is also involved in the Development and Sale of Structured Assets (an activity referred to as "DSSA"), which consists of selling projects it has built, in whole or in part, to third parties interested in such infrastructure assets. With regard to DSSA, the net capacity sold in 2016 amounted to 971MW.

Alongside development focussing on wind and photovoltaic solar power (which represent around 96.7% of its net installed capacity), EDF EN is also present in other renewable energy segments, primarily marine energy and electricity storage. Lastly, EDF EN is also present in the decentralised renewable energy sector (rooftop solar power) targeting individuals and corporate customers. Around 85% of revenues generated by assets consolidated under the full consolidation method are not exposed to the market risk, thanks to long-term contracts or other supporting mechanisms to renewable energies. Long-term contracts have an average remaining term of approximately 14 years¹.

Historically, EDF EN primarily developed in two geographical regions: Europe and North America (USA, Canada and Mexico).

Since 2012, the Group has also become established in new countries with significant potential for renewables development, such as South Africa, Israel, India, Chile, Brazil and China.

Continuing its growth in Asia, EDF EN opened itself up to new perspectives in 2016 with its entry into China and strengthened its presence in India with wind power projects. At 31 December 2016, EDF EN had a gross installed capacity of 9,613.5MW, a net installed capacity of 6,262.9MW and a gross capacity under construction of 1,780.4MW.

1. According to estimates at 31 December 2016 of revenues generated by assets consolidated under the full consolidation method.

INSTALLED CAPACITY BY SEGMENT AND BY COUNTRY

(in MW)	At 31/12/2016		At 31/12/2015	
	Gross ⁽¹⁾	Net ⁽²⁾	Gross ⁽¹⁾	Net ⁽²⁾
Wind power				
United States	3,235.5	2,426.0	2,818.2	2,233.4
France	1,104.3	817.9	1,040.4	754.0
United Kingdom ⁽³⁾	656.4	241.5	589.7	208.1
Turkey	649.8	264.5	612.8	250.7
Portugal	534.7	186.7	507.0	314.1
Canada	500.2	476.2	589.7	565.7
Mexico	391.5	229.5	391.5	229.5
Italy	384.4	264.9	440.4	246.6
Belgium ⁽⁴⁾	325.2	26.9	325.2	29.7
Greece	264.5	238.2	384.3	358.0
China	174.0	66.4	–	–
South Africa	107.6	54.2	104.1	50.0
Poland	106.0	106.0	106.0	106.0
India	52.0	26.0	–	–
Denmark	6.0	6.0	–	–
Germany	3.0	3.0	3.0	3.0
Total wind power⁽⁵⁾	8,495.1	5,433.8	7,912.3	5,348.8
Solar power				
France	209.2	153.1	209.2	153.1
United States	160.3	88.7	160.3	88.7
Decentralised energy (France)	81.9	53.8	86.8	58.3
Israel	158.5	108.7	108.5	66.2
India	120.0	60.0	180.5	46.9
Italy	76.9	74.3	79.5	76.8
Spain	57.4	46.9	57.4	46.9
Canada	23.4	23.4	23.4	23.4
Greece	12.1	12.1	12.1	12.1
Total solar power⁽⁵⁾	899.7	620.9	917.6	572.4
Other segments				
Hydropower	62.8	60.0	77.2	74.4
Biogas	70.0	70.0	51.0	51.0
Biomass/Cogeneration	66.0	58.2	85.2	64.9
Storage	20.0	20.0	20.0	20.0
Total other segments⁽⁵⁾	218.8	208.2	233.4	210.3
TOTAL⁽⁵⁾	9,613.5	6,262.9	9,063.3	6,131.5

(1) Gross capacity: total capacity of the facilities in which EDF EN has a stake.

(2) Net capacity: capacity corresponding to EDF EN's stake.

(3) EDF EN owns 50% of EDF Energy Renewables (the other 50% is owned by EDF Energy).

(4) MW in offshore wind exclusively.

(5) Corresponds to the sum of the exact values rounded to one decimal place.

At 31 December 2016, the weighted average of the age of EDF Énergies Nouvelles' fully consolidated fleet, taking into account all the branches and locations, came to 5.1 years. In 2016, the electricity output from this fleet amounted to 11,326GWh. The load factor reached at end 2016 31% in onshore wind power generation and 16% in solar power generation.

Wind power

Onshore wind power

EDF EN actively pursued growth in onshore wind energy in 2016 by establishing itself in new key geographical areas and increased its wind generation capacity by 576.8MW gross, bringing its total operating capacity of onshore wind energy to 8,101.9MW gross at end-2016.

Onshore wind farms with a gross capacity of 988.5MW were commissioned in 2016, onshore wind farms under construction represented a gross capacity of 1,179.3MW at 31 December 2016.

As part of the activity of development-sale of structured assets, 2016 was marked by significant disposals, in particular in the first half of the year, totalling 899.2MW of onshore wind power disposed of mainly in Europe and North America.

France

2016 was marked in France by the commissioning of the second unit of the *Ensemble éolien catalan* facility (Pézilla wind farm), the most powerful wind farm in France with an installed capacity of 96MW. EDF EN thereby reached a gross capacity of 1,104.3MW in installed wind power in France at 31 December 2016, in addition to 194.9MW in onshore wind currently under construction.

United Kingdom

EDF Energy Renewables (50/50 joint venture with EDF Energy) operated a total gross capacity of MW of wind power at 594.4MW end-2016 (a net capacity of 210.5MW).

In 2016, EDF Energy Renewables commissioned the Pearie Law (19.2MW) and Corriemoille (47.5MW) wind farms. The wind farms in Scotland at Dorenell (177MW) and Beckburn (31MW) are currently under construction.

Portugal

The extensions of the Ventominho (additional 23MW), Espiga and Arga (an additional 4.7MW) fleets in Portugal were commissioned in June 2016. To date, EDF EN Portugal operates 534.7 gross MW of wind capacity in the country, jointly held by EDF Énergies Nouvelles, Eolverde and DST.

Turkey

In 2016, EDF Énergies Nouvelles commissioned the Poyraz 2 (12MW) and Seyitali 3 (4MW) wind farms and began construction of the Samurlu 3 (9.4MW) wind farm. To date, EDF EN has installed 649.8MW in gross capacity in the country.

South Africa

In South Africa, EDF EN has built and is operating three wind farms following its successful bid in the government's call for tenders representing a total gross installed capacity of 107.6MW.

United States

The Group operates in the United States through EDF Renewable Energy (EDF RE), an independent renewable energy producer that is wholly owned by EDF EN.

At the end of 2016, EDF RE reached an installed capacity of 3,235.5MW gross (or 2,426.0MW net) in onshore wind.

Over the year, EDF RE commissioned in the United States the wind farms in Salt Fork (174MW), the second unit in Milo (31.7MW), Kelly Creek

(184MW), Tyler Bluff (125.6MW) and Great Western (225MW) for a total of 740.2MW. In addition, 547.6MW were sold (including the Salt Fork and Tyler Bluff wind farms and 50% of the Slate Creek (150MW), Roosevelt (250MW) and Milo (49.7MW) wind farms).

Canada

At end-2016, the Group's total gross installed wind power capacity in Canada was 500.2MW (or 476.2MW net).

The Nicolas Riou 224.5MW project, located in Quebec in the Lower St. Lawrence region, awarded following a call for tender in 2015, is under construction.

EDF EN Canada also won, as part of a wind and solar power call for tenders in Ontario, three contracts for the supply of electricity over 20 years for a total of 82MW. The generated electricity will come from the Romney wind farm project (60MW), located in the south-west of the Canadian province, and from the solar power plants in Pendleton (12MW) and Barlow (10MW) located in eastern Ontario. These projects, which remain to be constructed, involve local communities (First Nations).

Mexico

As part of a governmental call for tenders, the Gunaa Sicarú wind project (252MW) will be located in the Mexican state of Oaxaca.

China

2016 was marked by the acquisition of UPC Asia Wind Management (AWM), which develops and builds wind projects in China. EDF Énergies Nouvelles now holds 80% of UPC AWM. During the year, 174MW were included in the project scope, and 49.5MW are currently under construction.

India

In India, EDF Énergies Nouvelles is moving into onshore wind energy by acquiring a 50% stake in SITAC Wind Management and Development, an Indian wind energy company. At the end of 2016, three wind farms were being built (G1.2 (64MW), G2 (26MW) and G4 (22MW)), and two wind farms have been commissioned (G3 (26MW) and G5 (26MW)). Each of them is subject to a 25 year-term power sales contract, signed with GUVNL, a local electricity distribution company.

Brazil

EDF EN Do Brasil is currently building the Ventos de Bahia I wind farm (66MW), located in the state of Bahia.

Moreover, the company is continuing the construction of its Ventos de Bahia II project, for which a long-term electricity supply contract of 117MW over 20 years was won in late 2015, as part of a federal reserve auction. Construction should begin in 2017.

Chile

EDF EN Chile started the construction of its first wind farm, Cabo Leones 1, for a capacity of 115MW gross. This project, for which financial closure has just been completed, won a purchase contract following a multi-energy auction organised by the Chilean government in October 2015. Jointly held on the basis of an equal shareholding split between EDF Énergies Nouvelles and the Spanish developer of renewable energy facilities Iberoeolica, it is located on the coast in the region of Atacama, in the north of Chile.

Morocco

In Morocco, EDF Énergies Nouvelles is continuing the development of the Taza wind farm (150MW), for which construction should begin in 2017.

Offshore wind power

Offshore wind power will be a growth driver over the next few years, particularly in France and the United Kingdom. In France, for the three projects won in 2012 following the call for tenders launched by the State,

namely the offshore wind farms in Fécamp, Saint-Nazaire and Calvados, with a total capacity of 1,428MW, all the authorisation applications were filed in October 2014, in accordance with the specifications of the call for tender, and a favourable opinion was issued by the commissions of public inquiry for these three projects. However, appeals were filed on each of the three wind farms, pushing back the initially planned dates for the investment decision. In 2016, a partnership with the Canadian producer Enbridge, was signed to develop, build and operate the three 50-50 jointly-controlled wind farms. This partnership replaces the one concluded with Dong Energy which wanted to limit the number of countries in which it is present and decided not to invest in France.

In 2016, in the United Kingdom, EDF EN launched the construction of the offshore wind farm at Blyth, in north-east England. Ground work on the first 41.5MW unit has started, and installation of the offshore facility is scheduled for 2017.

Photovoltaic solar power

EDF EN pursued growth in solar photovoltaics, its second area of growth. At end-2016, installed solar capacity totalled 899.7MWp gross (620.9MWp net), an increase of 48.5MWp net from end-2015. EDF EN also has a portfolio of solar projects under construction comprising 547.5MWp gross.

North America

A long-term electricity supply contract was signed with Southern California Edison, a local power company, for the future solar power plant in Valentine, with a capacity of 111.2MW, to be built in California. It will be adjacent to the Catalina photovoltaic plant (143.2MWp), commissioned in its entirety in 2013. In North America, the Group has a total gross photovoltaic solar power capacity of 183.7MWp.

India

In 2016, EDF Énergies Nouvelles commissioned 132MWp in solar power capacity in the states of Uttar Pradesh and Telangana, with the commissioning of the photovoltaic plants Telangana 1 (96MWp) and Uttar Pradesh 1 (36MWp). Following the end of the partnership with ACME Solar because of strategic differences, EDF EN has retained 120MW in a 50/50 partnership with EREN and sold the rest of its solar assets to ACME Cleantech. At the end of 2016, a gross capacity of 60MW was in construction.

Israel

EDF EN Israel commissioned the Zmorot solar power plant with an installed capacity of 50MWp and also launched the construction of the photovoltaic project "White-Ashalim" (35MW). The Group operates 158.5MWp of installed solar capacity in Israel.

Chile

In 2016, EDF EN Chile continued building the Bolero (Laberinto) photovoltaic plant, located in the Atacama Desert with a capacity of 146MWp inaugurated on 1 December 2016. The EDF group has also continued its expansion into photovoltaic power in Chile with the beginning of the construction of the Santiago Solar project (115MWp). Located in the north of the Chilean capital, the Santiago Solar power plant will be owned equally by EDF Énergies Nouvelles and Andes Mining Energy (AME), a local developer. Part of the output of the project will be sold through a 15 year-electricity purchase contract, signed with around twenty distributors. The rest will be sold on the market.

Brazil

EDF Énergies Nouvelles has invested in solar energy in Brazil through the acquisition of 80% of the Pirapora I project (191MWp) in the south-east of the country, from Canadian Solar Inc., a developer and manufacturer of photovoltaic panels. The future plant will be subject to a 20 year-power supply contract won in an auction.

Mexico

In Mexico, the Group also entered the solar power market by winning the Bluemex project, with a capacity of 90MWp, as part of a national tender. Located in the state of Sonora, the future plant, which is still to be built, will be made up of bifacial photovoltaic cells and its output will be sold at a fixed rate over a period of 15 years.

Operating & Maintenance

As an integrated operator, EDF EN operates and maintains most of its own wind and solar facilities. This activity has grown significantly and is also carried out on behalf of third parties. Worldwide, EDF EN operated 13.5GW at end December 2016 in ten countries, and expects O&M activities to grow by approximately 25% by 2020. In addition, EDF EN is the leading operation-maintenance company in North America through its subsidiary EDF Renewable Energy Services, managing close to 10GW. Its position in Europe has been enhanced, exceeding 3.5GW at end-2016. Maintained capabilities are stable overall compared to 2015.

The growth in this activity is driven by the commissioning of new wind farms and by taking over wind farms operated by turbine manufacturers whose contracts, under the warranty, ended.

In 2016, an antenna for EDF EN Services Belgium was opened in Belgium under a partnership between EDF EN and EDF Luminus.

Decentralised Energy

EDF Énergies Nouvelles Réparties (EDF ENR) is wholly owned by EDF EN. EDF ENR is now an integrated player in decentralised photovoltaic solar power generation, involved in the design, build, operation and maintenance of rooftop installations. EDF ENR Solaire, a wholly owned subsidiary, markets and installs photovoltaic solar power solutions in France, with more than 14,000 residential customers and over 900 projects delivered to business customers and local authorities.

EDF ENR also generates around 26MW of clean energy from more than 176 rooftop photovoltaic plants that it owns in mainland France.

In addition, EDF ENR is present in the upstream segment. The company owns 100% of EDF ENR PWT (Photowatt brand), which designs and manufactures photovoltaic modules. EDF ENR PWT operates in a difficult market characterised by strong competition and continually falling module prices. Faced with this situation, a proactive action plan was implemented to improve the product offering of EDF ENR PWT, with a view to continually improving the performance of modules that have a low carbon footprint.

Lastly, EDF ENR is the controlling shareholder of EDF Store & Forecast (51% owned by EDF ENR and 49% by EDEV). EDF Store & Forecast, founded in March 2014, markets software solutions to forecast, plan and optimise automatic control of renewable energy generation and storage.

EDF Énergies Nouvelles, through its American subsidiary EDF Renewable Energy (EDF RE), signed an agreement for the acquisition of Global Resource Options, Inc. (groSolar), specialised in the installation and sale of photovoltaic plants for communities, businesses and industrial operators, and continues to expand in renewable energies in the United States.

Storage sector

In a context marked by the strong growth of renewable energy generation and by the closure of large-scale electrical facilities, battery storage technology helps smooth out the generation of electricity of the national grid. The storage system can be activated on the grid in order to respond quickly to fluctuations. In this context, through its subsidiaries, EDF Énergies Nouvelles develops innovative storage systems in the US, the United Kingdom and French Guyana.

In 2015, EDF Énergies Nouvelles announced the commissioning by its North American subsidiary EDF Renewable Energy of an innovative storage system that combines an energy storage battery and monitoring software. The McHenry facility provides nearly 20MW of capacity (40MW of dynamic capacity) and helps monitor an energy reserve to stabilise the frequency of the electricity grid at a local level.

In 2016, EDF Energy Renewables won a contract for a battery storage system with a capacity of 49MW at West Burton in Nottinghamshire, UK. This facility will be part of the frequency control system, with a total capacity of 200MW, which will be deployed throughout the country. The objective is to improve the stability of the national electricity grid.

Finally, the Toucan photovoltaic plant (5MWp) in French Guyana was commissioned in 2014. It is equipped with an innovative system to monitor its electrical equipment. This solar power plant with energy storage is one of the first of its kind both in France and worldwide.

1.4.2 SALES AND SUPPLY ACTIVITIES

1.4.2.1 Presentation of the market in France

1.4.2.1.1 Demand

Domestic electricity consumption in France (including Corsica) for the 2016 fiscal year stood at 482.9TWh¹, up by 1.5% in comparison with 2015. After adjustment of the weather impact, it was stable.

1.4.2.1.2 Competition

Since 1 July 2007, the opening up of the French market for electricity and gas is complete: each customer can choose his energy supplier. They may opt at any time, and without advance notice, for an offer at market price from the supplier of their choice.

Among the electricity suppliers on the French market, the main competitors of EDF are Engie, E.ON (Uniper, SNET), Enel and Direct Énergie. In the gas market and in the corporate and local authority customer segment, the other major gas suppliers are Tégaz, Eni, Gaz Natural, Gazprom, E.ON (Uniper, SNET) and Antargaz. Lastly, on the gas market and in the retail customer segment, one also finds the suppliers Engie, Direct Énergie and Eni.

As of 30 September 2016, according to the CRE², the electricity market shares in terms of sites of alternative suppliers, *i.e.* excluding historical suppliers, were 13.2% in the residential market, and 17% in the non-residential market, and a gas market share, in number of sites, respectively of 22.1% and 38.1%.

The 2010 NOME Law established certain rules for the supply of electricity and gas, the main provisions of which, codified today in the Energy Code, are the following:

- regulated electricity and gas tariffs remained partially unchanged under the conditions described for electricity in section 1.4.2.1.3 "Regulated electricity sales tariff contracts" below;
- regulated access to historic nuclear power (ARENH) was put into place to the benefit of EDF's competing electricity suppliers and distribution and transmission network operators (see section 1.4.3.3 "Regulated access to historic nuclear power (*Accès Régulé à l'Énergie Nucléaire Historique*, or ARENH)").

In order to supply their customers, the electricity alternative suppliers of EDF gained access in 2016 to their own generation capacities as well as to the wholesale electricity market. No ARENH volumes were purchased by alternative suppliers in 2016. At the November 2016 application process, alternative providers purchased 82.2TWh for 2017.

1.4.2.1.3 Regulated electricity sales tariff contracts

Access to regulated electricity tariffs

Since the NOME Law entered into force in 2011, the situation for electricity, by category of customer, is as follows:

- domestic and non-domestic final consumers who have subscribed power for their site(s) not exceeding 36kVA: these customers benefit from regulated sales tariffs. They can switch back and forth between regulated tariffs and market offers, without a legal time limit;
- domestic and non-domestic final consumers who have subscribed power for their site(s) exceeding 36kVA: since 1 January 2016, there are no longer any regulated sales tariffs for these sites;
- domestic and non-domestic final consumers for their site(s) located in areas not connected to the continental metropolitan network: these customers have the right to regulated sales tariffs.

Moreover, as part of its public service missions, EDF has, since 1 January 2005, been offering the electricity basic necessity tariff (*tarif de première nécessité*, or TPN), for which the eligibility criteria were altered in 2013 to open it up to more consumers and enable all electricity suppliers to offer it. The Law relating to the Energy Transition for Green Growth comprises certain provisions to combat energy poverty, with the practical details regarding implementation being left to decrees and orders:

- implementation of an energy cheque, trialled from 2016 onwards in four departments (Ardèche, Aveyron, Côtes-d'Armor and Pas-de-Calais), with its generalisation scheduled for 1 January 2018, as a replacement for the TPN;
- enabling the remote display of electricity consumption.

Changes to the method of setting the regulated tariffs for electricity

Until the tariff change on 1 August 2015, the Regulated Sales Tariffs (TRV) were fixed by ministerial order and published in the Official Journal, based on an opinion from the Energy Regulation Commission (CRE) and the *Conseil supérieur de l'énergie* (CSE).

This governance evolved on 8 December 2015 in accordance with the NOME Law (Article 4-1 VII transcribed into the Energy Code (L. 337-4, L. 337-13)). Henceforward, the CRE is responsible for notifying the ministries in charge of the economy and energy of its justified proposals for regulated sales tariffs for electricity. If there is no opposition to the latter before a deadline of three months, such proposals are deemed to have been approved.

It was in accordance with this procedure that, on 1 August 2016, the tax-exclusive reduction in the TRV was on average -0.5% for the residential blue tariffs and -1.5% for the business blue tariffs, in accordance with the decision of 28 July 2016. This change was not identical within each tariff colour; it was modulated by option in order to better cover the costs of each one of them. The TRV (exclusive of taxes) for electricity were fixed in accordance with the proposal from the CRE dated 13 July 2016.

1. Source: 2016 electricity report published by RTE.

2. Source: Energy Regulation Commission (CRE); data at 30 September 2016.

1.4.2.1.4 Electricity supply contracts

In France, customers are free to leave the regulated sales tariffs at any time and without advance notice for an offer proposed by any other supplier.

With the exception of customers directly connected to the transmission network, who must sign separate supply and delivery contracts, all other customers may enter into a single contract with the supplier of their choice for their electricity supply and transit.

Decision by the Court of Appeal of Paris (gas) and the Council of State (electricity)

The Paris Appeal court, in a decision dated 2 June 2016, ruled that the company GRDF (gas distributor) has to "bear, at least in part, the cost of management of the services provided by the suppliers" of gas. It also enjoined GRDF to conclude an amendment to the contract for access to the distribution network (CAD) providing for the payment to Direct Énergie and ENI, the plaintiff companies, of an "equitable and proportionate remuneration with regard to the costs avoided by the public distribution network operator (GRD)". In addition, it enjoined GRDF to pay, on a retroactive basis, to Direct Énergie, a remuneration with effect from the date of signature of the CAD, i.e. 21 June 2005.

On the basis of this decision and in accordance with the principle of non-discrimination, EDF pursued GRDF to obtain remuneration for the services carried out on behalf of the gas network operator, with effect from the signature of the CAD.

This decision covering gas was accompanied, on 13 July 2016, in the area of electricity by the cancellation by the Council of State of the deliberation by the CRE dated 10 December 2014, which rejected the request by Engie to withdraw the deliberation of the CRE dated 26 July 2012 relating to the management of customers with a single joint contract, and which had put in place an asymmetric regulation mechanism.

The Council of State considered that the remuneration of the suppliers for the customer management tasks carried out on behalf of the network operators of the electricity or gas distribution networks could not legally be transitional and limited to certain suppliers.

The potential consequences of this decision, which opens up the right to request remuneration by the electricity suppliers, are being analysed by the Group.

The CRE initiated an external study to assess the costs related to the customer administration services performed by the suppliers on behalf of GRD for clients under a single contract.

Following a decision dated 12 January 2017, the CRE published the final report on this study. This decision repeals the decisions concerning the communications of 26 July 2012 and 3 May 2016 related to the compensation by Enedis of Direct Énergie. Lastly, this decision specifies that the procedures for the supplier commission system will be the subject to a public consultation in the 1st quarter of 2017, which, concerning gas, will be prior to the opinion that the CRE will issue to respond to the request from CoRDIS and, concerning electricity, to the decision to be made on this point as scheduled in decision TURPE 5 HTA-BT7. The CRE plans to issue this opinion and make this decision in the 2nd quarter of 2017.

See section 2.4.2 "Legal proceedings concerning EDF's subsidiaries and holdings".

1.4.2.2 The Customer Division

EDF's sales and supply activities in France (excluding overseas departments and Corsica) are managed by the Customer Division.

1.4.2.2.1 Presentation and supply strategy

In France, EDF markets energy and services to nearly 26.2 million customer accounts (excluding overseas departments and Corsica), or almost 31.9 million sites.

On the electricity market, EDF's sales in 2016 were close to 320TWh, which represents a market share of 70%.

EDF provides gas supply to all types of customers. In 2016, EDF marketed 27.7TWh of gas (compared with 22.6TWh in 2015), which represented a market share of 5.7%, to more than 1.3 million customers. At the end of 2016, EDF was supplying gas to more than 1.2 million residential customers (in comparison with 1.1 million at end-2015).

In addition to electricity and gas supply offers, EDF assists its customers in their actions and their investments in energy efficiency and decentralised production. Furthermore, in order to meet the expectations of its customers and to assist them with the digital revolution in progress, EDF has undertaken a vast programme of digitalisation of its offers and customer relations. The Group intends to be an innovative player in energy, at the service of and listening to its customers. It also intends, in relation to its residential customers, to combine "sustainable well-being at home" with an economic and societal promise.

For example, residential customers can thereby participate in the e.quilibre programme to be assisted with their actions aimed at reducing their energy consumption.

The launch of Sowe, which is based on connected objects at home, should also enlarge the Group's range of offers for residential customers. For its business and local government customers, the Group is reinforcing its offers related to remote monitoring, remote analysis and management of energy uses.

This initiative is aligned with the objectives of the Law on the Scheduling and Orientation of the Energy Policy of 13 July 2005, and of the Grenelle 2 Law of 12 July 2010 (see section 1.5.6.1 "Basic regulations applicable to the environment, health, hygiene and safety"), as well as the governmental objectives of housing thermal renovation.

Implemented in 2006, the energy savings certificates (CEEs) scheme evolved on 1 January 2015 in order, in particular, to contribute to the achievement of the objectives fixed by the directive of 25 October 2012 relating to energy efficiency: the national obligation for the third period (2015-2017) is fixed at 700TWhc, doubled in comparison with the second period. A reinforcement of the mechanism is announced for early 2017, with a national objective for energy savings for the years 2018 to 2020 which could approximately amount to 1,600TWhc, of which 400TWhc in favour of households in a situation of energy poverty.

Moreover, EDF is positioning itself as a major player in energy transition by its visible and sustainable territorial action. EDF is engaging in the promotion of future intelligent electricity systems. Hence, it is experimenting with service offers by participating in the design and operation of innovative electrical solution demonstrators, alongside the principal players, local governments, equipment manufacturers, telecommunication operators, industrialists and academics in various territories.

The EDF group wants to be the reference partner for territories in the energy transition, and accompany them with their energy efficiency projects for the production of local renewable energies as well as the eco-district development projects. It is also involved in the development of electric mobility via its subsidiary Sodemob.

1.4.2.2.2 Activity by customer category

1.4.2.2.2.1 Residential customers

At the end of December 2016, EDF had 26.6 million residential electricity sites and more than 1.2 million gas customers in France. For fiscal year 2016, the volume of its sales totalled 133.9TWh of electricity and 12.7TWh of natural gas.

EDF wants to be the partner for sustainable well-being at home. This positioning reflects the importance for EDF of assisting its customers with their comfort and energy savings. After contacting EDF, nine out of ten customers are satisfied with the response, whatever the channel through which or the reason why they contacted the company. The customer experience offered, underpinned by ongoing innovation, is both digital and very human. There are now over 12 million active customer accounts with close to 5,000 advisers to serve them.

Energy supply

EDF supplies electricity at the regulated sales tariff and also as part of market offerings.

EDF also supplies 1.2 million customers with natural gas as part of market offerings. In July 2016, the "Gas Advantage" offer was launched on the market: a price per kilowatt-hour (excluding taxes) fixed for four years, with a possibility of reductions depending on the price of the regulated sales tariff for gas, up to a maximum of 7% of reduction over four years.

Functionality and services

In 2016, the e.quilibre online solution evolved: a new design and simplified browsing to assist retail customers to better understand and reduce their energy consumption. e.quilibre is accessible immediately for customers who have a customer account or downloaded the EDF & Moi application, and has been enriched with new functionalities such as consumption alerts for Linky customers. It is also possible to link a connected thermostat or weather station to e.quilibre, and to estimate potential savings by reducing the temperature of the central heating for example.

As for the EDF & Moi application, it has been redesigned in order to communicate more simply with the customer concerning his energy budget in euros, or even concerning a current comparison with the amount paid in the previous year. It also incorporates the main functionalities of e.quilibre. More than three million EDF & Moi applications have been downloaded.

More than 90 million visits were made on the website dedicated to the Residential customers and to the EDF & Moi apps. The website particulier.edf.fr has been rebuilt to reinforce positioning of EDF as a partner for sustainable well-being at home and to smooth the customers' online experience.

EDF also offers advice on energy saving on its edf.fr website, and has a network of almost 3,100 "EDF Home Solutions Partners" to assist retail customers with the energy renovation of their homes. Customers can also access financing solutions from EDF's financial partner (Domofinance) to see through these plans.

In 2016, EDF renewed its range of assistance and insurance with the launch of two new services: Assurénergie, which allows customers to benefit from a flat rate reimbursement to enable them to pay their energy bills in the event of difficulties (loss of employment, inability to work, hospitalisation, invalidity or death) and *Solution Dépannage Confiance* (plus Plumbing option), which guarantees customers a rapid breakdown service for their home electricity, gas and/or plumbing installations.

In March 2016, EDF launched EDF Pulse&You, a digital collaborative platform for co-construction with customers and start-ups. More than 4,000 web users are participating in the development of innovative projects, in the form of projects to be tested.

Earning of energy savings certificates (CEE)

Where Residential customers are concerned, the production of the CEE results from the energy renovation of the home, essentially based on a network of "EDF Home Solutions Partners" (see also section 1.5.6.1 "General regulations that are applicable to the environment, health, safety and security").

Solidarity policy

Solidarity is a core value of EDF, which has been pursuing a policy dedicated to economically disadvantaged customers for close to 30 years (see sections 3.2.4.2 "Fragile populations: vulnerable customers" and 3.2.4.3 "Fragile populations: access to energy").

1.4.2.2.2.2 Corporate and business customers

EDF, operating under the EDF Entreprises brand, has 1.6 million corporate and business customers. For 2016, electricity sales were 154.4TWh at the regulated sales tariff or at market prices, and sales of natural gas were 12.7TWh, up by nearly 20% compared to 2015.

EDF Entreprises supports businesses and professionals so as to contribute to their energy performance, in particular by helping them reduce their energy bills and participate in the energy transition. This action is at the core of the EDF group's strategy, which favours in particular the development of energy services.

The range of offers

EDF Entreprises provides businesses and professionals with competitive tailor-made electricity and gas supply offers. Offers are varied depending on customer expectations and consumption patterns.

The electricity offers provided by EDF Entreprises enable small businesses, very small businesses and professionals to optimise their energy supply through simple contractual arrangements. They allow customers that consume more to choose the length of their commitment at the offered prices, depending on their needs in terms of budget visibility. Lastly, EDF Entreprises is able to tailor solutions for the heaviest users depending on the structure of their consumption.

EDF Entreprises, through the structure of its offers, encourages its customers to optimise consumption having regard to generation costs, by offering different prices at peak and off-peak hours, and even summer and winter prices for heavier users. For large customers with greater control over their consumption, EDF Entreprises offers to reward their ability to shed load on peak winter days, even including in certain instances remote management solutions.

EDF Entreprises allows all customers to choose electricity from renewable sources to cover their consumption, with a view to contributing to the energy transition. For small and medium sized enterprises and professionals, it involves a specific offer, the renewable energy contract, which guarantees that 100% of their consumption will come from electricity generated from renewable energy sources in France and facilitates their communication with their own customers regarding their commitment. In addition, for every megawatt-hour billed, EDF will contribute one euro to fund renewable energy research projects or to develop new renewable energy electricity generation units. For larger customers, it involves an option that allows them to decide themselves what proportion of their consumption will come from guaranteed sources, between 20% and 100%.

EDF Entreprises has a diversified range of services intended for all its electricity and gas customers, whether small companies or large industrial customers: online consumption monitoring, electronic invoices, assistance and troubleshooting, advice (optimisation of subscribed power, efficiency and reduction of energy expenses, etc.), in particular for customers who want to use an energy management system.

In order to always be as close as possible to the various expectations of its customers, EDF has put into place offers dedicated to large customers, not only with tailor-made electricity and gas supply offers and offers that reward customers that can shed load, but also support controlling their energy consumption and their CO₂ emissions as well as CO₂ trading for businesses subject to the national quota allocation plan (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety").

Lastly, in order to assist its customers with the energy transition, EDF Entreprises gets involved into the promotion of eco-gestures by means of awareness-raising campaigns. In addition, EDF Entreprises carries out energy audits for its customers in order to help them better identify the possible energy savings. The EDF Entreprises's certified teams assist their customers with the implementation of energy management systems (ISO 50001).

Customer satisfaction

EDF Entreprises includes in its goals the satisfaction of its customers, to whom it listens and surveys on a regular basis both in terms of how offers match needs, the monitoring of requests, and the information and advice offered. In 2016, 79% of all the customers were very or fairly satisfied on average.

1.4.2.2.3 Local authorities, low-income housing agencies, Local Distribution Companies (LDCs) and public service providers

Against the background of regional reform and the energy transition, EDF offers customised solutions for local authorities and public institutions with decentralised decision-making powers (hospitals, universities and major graduate schools, chambers of commerce and industry, CROUS student service centres, ports and airports).

The EDF group is active for these customers in five areas:

- as a competitive market operator:
 - the supply of electricity and gas at market price, responding to their energy problems (proposal of offers and solutions adapted to the needs described in calls for tender),
 - the development of offers and services in terms of energy transition: local climate plans, eco-districts, local generation, street lighting, electric mobility, energy efficiency of buildings, etc.;
- with respect to its public service missions:
 - the signature of concession contracts for the "supply" part,
 - the supply of electricity at the regulated sales tariff,
 - the fight against energy poverty.

EDF thus manages more than 52,000 customers on this market, for an annual consumption of 22.3TWh, and for an annual natural gas consumption of 2.3TWh, up by nearly 65%. This is in addition to the 9.3TWh of electricity sold to Local Distribution Companies (ELD) in 2016.

In 2016, the overall level of satisfaction with EDF Collectivités was 87%.

Controlling energy

Agreements have been signed with local governments, covering the implementation of the energy transition in their regions. In addition, certain communities are in effect self-endowed with competence in the area of energy, and arrange specific actions in their region in matters concerning control of energy demand and renewable energies. A "Load Amount" device for social-housing lessors aims to improve the energy efficiency of social housing, and makes it possible for EDF to issue energy savings certificates. In 2016, over 173,000 social housing units were helped, more than 162,700 of which were for renovation work.

1.4.2.2.3 For sustainable cities and regions

Energy developments for cities and regions is now naturally associated with sustainable development objectives: environmental impact, local economic activity and poverty constitute major preoccupations for local governments (see section 3.2.1.2.3 "Helping customers consume less, more efficiently").

1.4.2.2.4 Public electricity distribution concessions at regulated tariffs

Concessions hereby referred to cover two distinct public service missions:

- the development and operation of public distribution networks, which are the responsibility of Enedis in mainland France, excluding ELD (see section 1.4.4.2 "Distribution – Enedis") and of EDF in the non-interconnected areas;
- the supply of electricity to customers benefiting from regulated sales tariffs connected to the public distribution networks throughout the territory of the concession, under the responsibility of EDF for continental metropolitan France, excluding the LDCs, as well as for the ZNIs. This mission is carried out in compliance with the commitments of the concession specifications and general terms and conditions of sale (subscription terms, payment and delivery terms, contractualisation, etc.).

Each concession contract in continental metropolitan France is co-signed by EDF, Enedis and the licensing authority, and concerns a municipality or a grouping of municipalities. These public service missions are executed in the framework of 524 concession contracts, 50 of which are at departmental level.

Over the period 2014-2016, around twenty concession contracts were negotiated and signed, in particular with the Seine-et-Marne and Vaucluse energy consortia, the Douais municipal association and the cities of Melun, Tours and Toulon. An amendment to its concession contract was signed on 14 April 2016 with the Sipperec syndicate, which gathers more than 100 local authorities in the greater Paris area, which notably extends the concession by 10 years. Some 30 concession contracts will expire in 2017 and in 2018. An organisation and tools have been put into place, particularly in order to renew the concession contracts, mobilise both national and regional competences, develop the expertise of EDF's contacts in the contracting authorities, draw up each year the concession activity reports (CRAC) and respond to inspection requests from the granting authorities.

The coming year will be particularly marked by the implementation of Decree no. 2016-496 dated 21 April 2016 relating to the annual activity report by electricity concessions provided for in Article L. 2224-31 of the French Local Authorities Code, and by the finalisation of work relating to the drafting of a new national draft concession contract model carried out with the national representative organisations of the granting authorities.

An agreement was signed on 29 June 2016 with the France Urbaine association covering the prospects for changes in concession contracts for the public service of the supply at regulated sales tariffs and the public distribution of electricity in urban areas. This agreement enabled the signatory parties to share the fundamentals of the framework for concessions and to outline the principal changes to it. The national agreement, as well as the discussions between the concessionaire and several cities and urban communities, are witness to the desire of the urban grantor local governments to fully exercise the competencies which successive laws have attributed to them in terms of energy.

1.4.3 OPTIMISATION AND TRADING ACTIVITIES

1.4.3.1 Role and activities of the Upstream/ Downstream Optimisation & Trading Division (DOAAT)

The DOAAT is responsible for managing the balance of EDF's upstream/downstream electricity portfolio, optimising and securing the electricity gross margin created by this portfolio, as well as managing the associated physical and financial risks.

Management of electricity supply/demand can be broken down to real-time, within the framework set by the policies of extreme risk (volume risks) and of price risks, developed pursuant to the directives of the Group Risk Control Department, and validated by its Executive Committee (see section 2.1.2 "Risks associated to the Group's activities"). Climate variations affect this management. Hence, a fall in temperature of 1°C in winter leads to a rise in electricity consumption in France of the order of 2,400MW¹ and EDF's portfolio bears a large part of these changes. Furthermore, the amplitude of hydroelectric production in the EDF scope, between one extreme year and another, can amount to around 20 TW hours. The DOAAT ensures that it has, in all time-frames, sufficient power margins in order to enable it to meet its commitments in nearly all situations. To do this, it manages a set of leveraged actions: scheduling of maintenance operations of generation means (in particular nuclear), management of inventory (fossil fuels, hydro-electric reserves and customer load shedding), purchases and sales in wholesale markets via EDF Trading, which is in charge of market access on behalf of DOAAT (see section 1.4.6.3 "Optimisation and trading: EDF Trading"). DOAAT also manages the exposure of EDF's upstream/downstream portfolio to price variations in the energy wholesale markets (electricity, gas, coal, petroleum products) and in the CO₂ emissions licensing market, with the assistance of EDF Trading.

With respect to RTE, DOAAT plays the role of "balance responsible entity" on EDF's perimeter in mainland France. In this regard, EDF is committed to financially compensate RTE in the case of a deviation onto its balance group. The optimisation consists of offering RTE an offer schedule that is balanced with the demand, which makes it possible to minimise the supply cost of EDF's contractual commitments.

1.4.3.2 Long-term electricity purchase and sales contracts

EDF maintains commercial relations through energy purchase or sales contracts with European operators.

These contracts are of many types, and confer:

- rights to the energy produced by facilities, primarily nuclear, in which the counterparties hold a participating interest over the duration of the exploitation of the facility (see section 1.4.1.1.1 "EDF's nuclear fleet" – "Generation allocation contracts");
- drawing rights for totally or partially guaranteed electrical power, for a duration generally comprised between 15 and 25 years.

1.4.3.3 Regulated access to historic nuclear power (Accès Régulé à l'Énergie Nucléaire Historique, or ARENH)

Operational since 1 July 2011, the ARENH mechanism entitles alternative suppliers to buy electricity from EDF to supply their customers, once they

have signed a framework agreement, at a regulated price and at volumes determined by the Energy Regulation Commission (CRE). This mechanism can also be accessed by network operators for their losses. The CRE is responsible for managing the mechanism and for calculating entitlements of which it notifies the co-contracting parties. Thus, suppliers wishing to exercise their right to access the ARENH submit a request to the CRE, sending it forecasts of their customers' consumption. The detailed forecasts, along with the entitlements calculated for each supplier, are only known to the CRE and the supplier. The payments are managed by the Caisse des Dépôts.

The price of the ARENH, determined by the minister of energy and the Minister for the economy, upon proposal by the CRE, has been maintained at €42/MWh since 17 May 2011. It is deemed to include the capacity certificates introduced in 2017.

The order of 14 November 2016 is amending the ARENH framework-agreement, particularly in order to incorporate provisions related to the implementation of the capacity mechanism and to frame the conditions for early termination by suppliers. The revised framework-agreement restricts the use of such unilateral termination faculty by making it applicable only in cases when the price of the ARENH is modified by more than 2%, when the framework-agreement is substantially modified or when changes in the regulations relating to the ARENH substantially and unfavourably affect the balance of the procurement terms for the Buyer.

Furthermore, the minister of energy communicated, to the CRE, in a letter dated 2 November 2016, his intention to "begin a review of the regulatory part of the French Energy Code, in order to clarify the application of the so-called 'monotony' clause" (clause that specifies the implementation of the principle of annuality of the ARENH product). In application of Article L. 336-10 of the French Energy Code, the CRE was requested by the Minister on 15 November 2016 to provide an opinion on the draft decree to the French Council of State and, by decision dated 19 January 2017, gave a favourable opinion.

1.4.3.4 Balance group dedicated to the Purchase Obligations and selling on the wholesale market

EDF is a mandatory purchaser of the electricity generated by the generation facilities the government wishes to support and develop (renewable energy sources and energy efficient cogeneration). By law (Article L. 121 of the Energy Code), the additional costs stemming from this obligation are offset for EDF on the basis of an electricity market benchmark price (concept of "avoided cost"). From 1 January 2017, the costs of managing these contracts have also been offset.

At its meeting of 9 October 2012 concerning the costs for 2011, the CRE indicated that: "In theory, the avoided cost should be reduced by the imbalance costs borne by EDF due to the unpredictable nature of a portion of the generation covered by the purchase obligation. Such imbalances, which were negligible in past years compared with consumption-related imbalances, are becoming more significant."

With the development of renewable energies, the cost generated by the difference between anticipated generation and actual generation has become significant. As a result, at its meeting of 16 December 2014, the CRE changed the formula for calculating EDF's avoided costs to include such imbalance costs. In order to make objective and independently identify such imbalances, the CRE asked EDF to establish a dedicated balance group.

A balance perimeter dedicated to the facilities subject to a Purchase Obligation contract was put in place on 1 July 2015. The DOAAT now organises the sale of the energy produced by the installations under Purchase Obligation contracts directly on the energy markets, which makes the management of this perimeter completely independent of that of the EDF portfolio. Thus, since 4 November 2015, electricity volumes under Purchase Obligations that can be forecast over the short-term (one day for the next, known as the "random component of the Purchase Obligations") are sold

1. Source: RTE.

on EPEX Spot. As for the volumes which are foreseeable over the long term (share of the Purchase Obligations referred to as "quasi certain"), since January 2016 they have been sold via transparent and non-discriminatory requests for bids.

1.4.3.5 Capacity mechanism

Articles L. 335-1 *et seq* of the Energy Code, originating from the NOME Law, institute the obligation for each electricity supplier to contribute, in continental metropolitan France, to the security of electricity supply, in compliance with a default criterion set by the government. For this purpose, each supplier must acquire capacity guarantees corresponding to its obligation, calculated by reference to the power and energy consumption of its customers during a peak period defined by RTE.

To comply with this obligation, each supplier must therefore get capacity guarantees from producers, which must certify all their means of generation, or from demand response managers.

On 8 November 2016, the European Commission gave its authorisation for the implementation, on 1 January 2017, of the French mechanism.

An initial market session, managed by EPEX Spot, took place on 15 December 2016 in order to exchange capacity relating to 2017. The price was established at €10/kW, given that the ceiling fixed by the government was €20/kW. For 2017, this €10/kW constitutes the market reference price. Once up and running, it is planned to hold several market sessions beginning four years before the year of delivery and ending two years thereafter, in order to exchange capacity.

Over-the-counter transactions remain possible. Similarly, for integrated players such as EDF, which possess capacities as producers and have an obligation as vendors, internal capacity transfers are authorised in order to cover their obligations. They will be made at the market price.

The DOAAT, in charge of the management of this new system, proceeded with the certification of all the EDF means of production in France for the next few years and the contractual demand response capacities with the customers. If necessary, these certifications will be the subject to regular rebalancing, either upwards or downwards. Similarly, the DOAAT will proceed with the certification and the necessary rebalancing of the means of production subject to purchase obligations (OA) and sale obligations on the market for associated capacity guarantees.

As on the Energy market, the sales/purchases of capacity organised by EPEX Spot, managed by the DOAAT on behalf of EDF, are carried out via EDF Trading.

1.4.4 REGULATED ACTIVITIES IN FRANCE

The transmission and distribution of electricity in mainland France are regulated activities. They are carried out by RTE and by Enedis, subsidiaries which are managed with complete independence, within the meaning of the provisions of the French Energy Code.

1.4.4.1 Transmission – Réseau de Transport d'Électricité (RTE)

Created on 1 July 2000 and a subsidiary since 1 September 2005, the Electricity Transmission Network (RTE) is the owner and operator of the French electricity transmission network, which it operates, maintains and develops. With over 100,000 kilometres of high and extra high voltage circuits and 50 cross-border lines, this is Europe's largest network. Its geographical location places it at the core of the European electricity market. RTE guarantees the correct operation and safety of the electricity system, and provides free and fair access to all the network users. The company also pays special attention to supporting the development of renewable sources

of energy in France and their integration into the electricity system, which requires the development of the transmission network and interconnections.

On 14 December 2016, EDF, the Caisse des Dépôts and CNP Assurances signed a binding agreement for the acquisition by the Caisse des Dépôts and CNP Assurances of 49.9% of the capital of Réseau de Transport d'Électricité (RTE). The effective completion of the transaction is likely to occur during 2017, after notably the issue of the necessary regulatory authorisations (controls on mergers, etc.). The scheme adopted led EDF to transfer, on 23 December 2016, the entirety of the shares in RTE to a new business, at this stage named C25.

RTE is indirectly wholly-owned by EDF at 31 December 2016, and due to its specific conditions of governance (see section 1.4.4.1.1 "Organisation of RTE"), RTE was not fully consolidated by the Group, but rather consolidated using the equity method. It should be noted that 75.93% of shares from the new business mentioned above were allocated to the portfolio of dedicated assets in order to cover its long-term nuclear commitments.

1.4.4.1.1 Organisation of RTE

RTE is a public limited company (*société anonyme*) with an Executive Board and Supervisory Board.

RTE's Supervisory Board is comprised of twelve members appointed for five years:

- eight members appointed by the Shareholders' Meeting:
 - four government representatives, including the State as a legal entity, represented by an individual,
 - four representatives of the shareholder;
- four members elected by the staff.

A Government Commissioner was also appointed and attends Supervisory Board meetings in a consultative capacity.

RTE's Executive Board is made up of five members, who perform their work under the supervision of the Supervisory Board, within the limits fixed by the French Energy Code and RTE's articles of association. After the consent of the Energy Minister, the Supervisory Board appoints the Chairman of the Executive Board and upon the latter's proposal, it appoints the other members of the Executive Board.

1.4.4.1.2 RTE's activities

In France, RTE manages the public transmission network and carries out its missions under the conditions set out in model specifications approved by applicable decree until 2051. In accordance with the French Energy Code, transmission network operators must be certified according to a process associating the CRE and the European Commission, which aims to ensure that the entity concerned fulfils the conditions of independence set out by this Code. RTE obtained certification from the CRE in 2012 as an ITO (Independent Transmission Operator).

Thus RTE manages the transmission infrastructure, guarantees access to the transmission network and manages energy flows.

RTE has to face various challenges in its mission as operator of the electricity transmission network: integration of the European market, extensive restructuring of the generation fleet, societal changes reinforcing the constraints of integrating new infrastructure of general interest and maintenance of its industrial facilities for meeting the requirements of customers and the community.

As part of the transparency sought by RTE, the *éCO₂mix* application, launched in 2011 and publishing data relating to the consumption and production of electricity over the whole of France, is seeing increasing success, with 10 million consultations *per annum* and direct access to 15 million data-points, which bears witness to the general public's interest in energy issues. This application contributes to better informing all citizens and to raising their awareness of the challenges of the new energy policies.

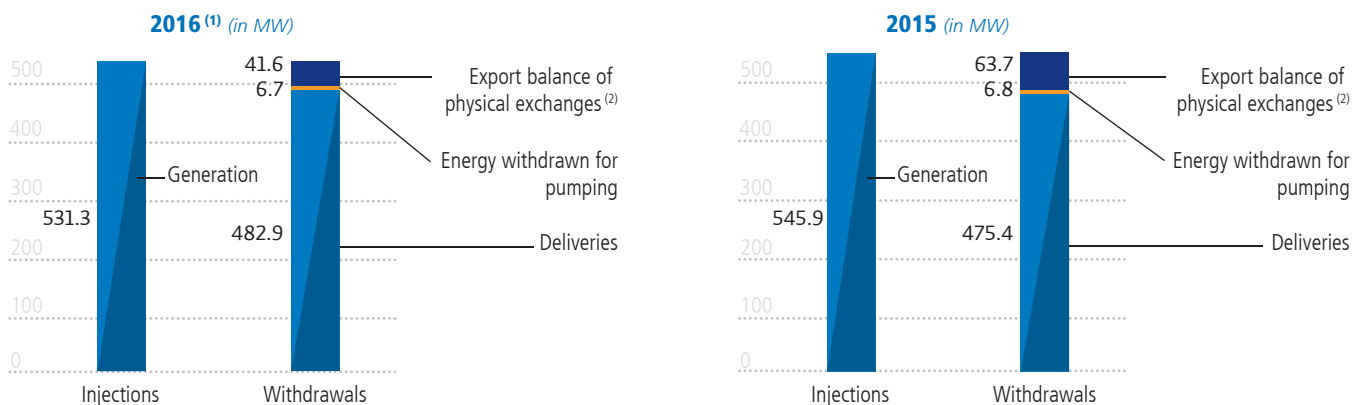
1.4.4.1.2.1 Energy balance

2016 summary

Whilst 2015 was a year of hot weather, the average temperature in 2016 was 0.5°C less than the reference temperature. Accordingly, gross consumption in mainland France settled at 482.9TWh, a 1.45% increase on 2015.

The peak annual electricity consumption occurred during a cold spell with 88.6GW on 18 January 2016, similar to levels in 2011 and 2013. Although the 2012 thermal regulations will moderate future temperature sensitivity, the sensitivity of consumption to temperature remains around 2400MW/°C in winter.

SIMPLIFIED ENERGY FLOWS ON THE RTE NETWORK (IN TWh)



(1) Provisional data (the final data on electricity generation for 2016 will be available on RTE's website in July 2017: www.rte-france.com).

(2) Including water rights and exchanges via distribution network.

Renewable energies continue to grow in order to foster the energy transition

The installed wind turbine capacity amounted to 11,670MW at 31 December 2016. Wind turbine production is marking time after the growth seen for several years, with a slight reduction of -1.8% (to 20.7TWh) in comparison with 2015. The poor wind conditions in September and December sharply impacted generation. A new maximum hourly wind turbine production rate was however achieved on 20 November 2016 at 4 a.m., with a power output of 8,632MW, which corresponds to an associated load factor of 75.2%, whilst daily generation achieved its absolute maximum on 8 February 2016 (at 192GWh).

In 2016, 576MW of solar capacity was connected in mainland France, raising installed solar capacity to 6,772MW. For its part, solar generation benefited from the increase in this capacity as well as from favourable weather conditions with an increase of 11.3% in its generation in comparison with 2015.

The French balance of trade showed lower exports at the end of the year

The French balance of trade amounted to 39.1TWh. This is the lowest since 2010, with a fall in exports throughout the second half-year. The results for December even showed a slight level of imports which had not happened since February 2012. The new Baixas – Santa Llogaia interconnection, which has gradually been put into commercial operation since 5 October 2015, increases the transit capacities with Spain. France's trade surplus with Spain was 7.8TWh.

France continues to have a trade surplus with Switzerland (10.1TWh).

Adjusted for climate factors and 29 February, consumption outside the energy sector, which had been stable for three years, fell a modest 0.56% to 473TWh.

Industrial consumption, excluding 29 February and energy, is similar to last year at 66.6TWh, masking varying trends across sectors.

Equivalent outage time is an indicator used to measure the quality of supply of electricity by RTE. In 2016, equivalent outage time was 2mn 54s excluding exceptional events. This result, although above the 2mn 24s threshold set by regulatory incentives, confirms the measures put in place by RTE to improve the quality of supply of electricity to its customers.

The trade surplus was 16.5TWh with Italy and 10TWh with the United Kingdom. New interconnection projects are in particular being planned on these two borders.

For the first time, France has become a net importer from the Central West Europe region, with a trade deficit of 5.3TWh (against a trade surplus of 6.7TWh in 2015): this is explained by the reduced availability of the French nuclear fleet.

1.4.4.1.2.2 Maintenance of the transmission infrastructure

RTE manages the assets of the transmission network through daily maintenance, emergency repairs and replacement of structures that are at the end of their useful life or are damaged.

Following the storms of 1999, RTE implemented a mechanical safety programme, which is now almost complete. Overall, from now until the end of the programme in 2017, RTE should have dedicated a total of €2.4 billion to making its network mechanically secure at an average expense of around €160 million a year. This programme concerns 45,000 kilometres of aerial lines of the RTE network.

1.4.4.1.2.3 Development and completion of new capital investments

Furthermore, RTE continues to develop and renew the network. The projects studied and implemented fall within the dynamics of the growing need to meet the challenges of energy transition. RTE draws up an annual investment programme that is submitted to the CRE. In 2016, RTE's total investments within the scope regulated by the CRE amounted to €1,519 million. The principal investments concerned the commissioning of the 400kV Charleville-

Reims line, the continuation of construction work on the French side of the direct current line between France and Italy passing through the Fréjus safety tunnel, the restructuring of the 225kV network in Haute Durance, the "2 Loires" project to rebuild the 225kV line between Auvergne, the Rhône Valley and the Massif Central, and the reinforcement of central Brittany. Sixty percent of investments have been carried out on existing works.

Out of a concern to best optimise the existing assets and to limit the impact of its construction works in the regions as much as possible, RTE dedicates approximately two thirds of its capital investments to the adaptation of existing structures.

RTE's 2017 investment programme approved by the regulator amounts to €1,525 million. The 2017 investment programme concerns the continuation of significant investment in developing and renewing the network, as well as developing and updating the IT systems, in particular in light of the changing environment associated with the energy transition and European market integration.

RTE's investments are also made in a context of growing needs for meeting the challenges of maintaining the power supply security level, acceptance of new generation means (including intermittent renewable sources of energy), integration of European electricity markets and gradual increase in the need to renew infrastructures.

In 2016, the Regulated Assets Base (RAB) increased by €378 million, up from €13,220 million as at 1 January 2016 to €13,598 million as at 1 January 2017¹. As a reminder, the RAB is remunerated by the tariff at the weighted average cost of capital of 7.25% before tax over the period of the TURPE 4 (the remuneration of the RAB will be at the rate of 6.125% before tax on the TURPE 5). It represents RTE's industrial assets, after deduction of investment subsidies, and is calculated excluding property, plant and equipment in progress (which until the end of 2012 were remunerated at 4.8% by the TURPE 3 tariff, then at 4.6% for the period from 2013-2016 in accordance with the CRE's pricing decision of April 2013, and which will be remunerated at 3.7% from 2017 in accordance with the TURPE 5 decision of 17 November 2016).

1.4.4.1.2.4 Operation of the electricity system

Management of the electricity system

RTE manages the flows on the transmission network in real time, and makes use of the resources available to it through the adjustment mechanism to ensure the balance between supply and demand in real time. The cost corresponding to the adjustments made by RTE and due to the negative differences between the projected flows and those already realised is passed on to the "Balance responsible entities" (producers, traders, suppliers, etc.)

in proportion to their difference. In the case of a positive difference, RTE compensates the balance responsible entities financially.

Management of the interconnections

RTE manages access to international interconnections in collaboration with the neighbouring European transmission network operators. These interconnections make it possible to ensure the transit of energy from one country to another and the operating safety of the electricity transmission networks, to develop the European electricity market, by enabling an electricity supplier to sell its energy to a customer in another European Union country, by taking advantage of the differences in the timing of peak load on either side of the border, and to better pool the means of generation at the European level.

Network coordination in Europe

In December 2008, RTE and ELIA² created a common company named Coreso, which aims to coordinate the operation of electricity networks comprising France and Belgium. The creation of Coreso fulfils the need of reinforcing the operational coordination between transmission network operators (TNO) expressed both by the European Commission and by the players of the electricity market. Coreso must allow better integration at the regional level of generation from renewable sources and guarantee secure management of rising cross-border flows.

National Grid, the British network operator, Terna and 50 Hertz, transmission network operators in Italy and Northern and Eastern Germany, REN, the Portuguese network operator, and recently REE, the Spanish network operator, joined Coreso.

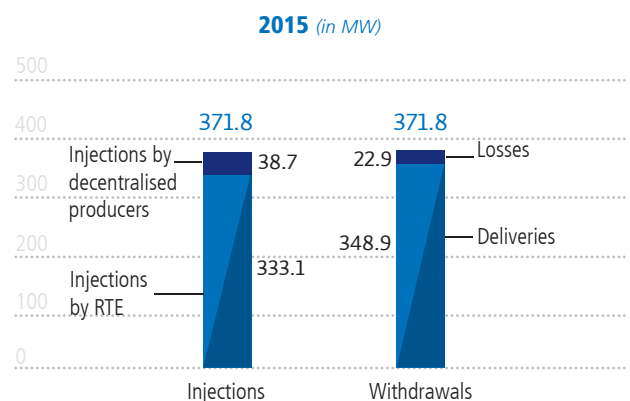
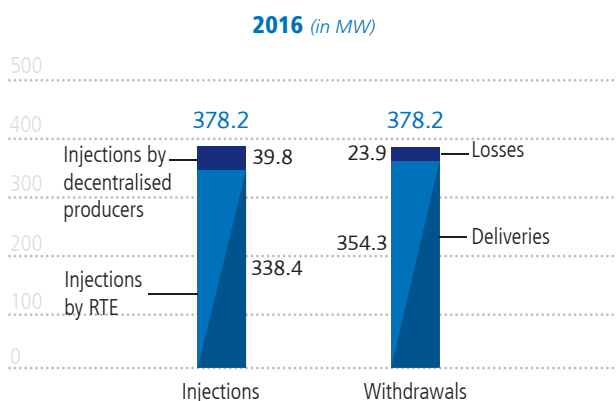
1.4.4.2 Distribution – Enedis

Enedis' main objective is to operate and develop the public electricity distribution network, guaranteeing its security and safety, and overseeing the balance of electricity flows at all times. Enedis, a wholly-owned EDF subsidiary in charge of the distribution business, has been operational since 1 January 2008. Initially called ERDF, it changed its name to Enedis on 1 June 2016. Enedis services around 95% of the continental metropolitan population. The remaining 5% are provided by Local Distribution Companies (LDCs).

In 2016, Enedis distributed electricity to more than 35.9 million customers (points of delivery) and provided for the injection from 359,000 production sites in mainland France, thanks to a network of approximately 1.35 million kilometres.

At 31 December 2016, Enedis employed 38,742 people.

ELECTRICITY VOLUMES ON THE ENEDIS NETWORK



1. Amounts still to be confirmed by the CRE, calculated on the basis of what has been realised.
2. Elia is the Belgian high voltage electricity transmission network operator (30,000 to 380,000 volts).

Electrical losses are inherent to the functioning of the distribution network and mainly result from physical effects which are directly dependent on the amount of electricity delivered. Enedis must compensate these losses to complete the amount of energy delivered to the final customers. In 2016, losses amounted to 23.9TWh, *i.e.* a rate of 6.3% of electricity injected into the network. The cost for Enedis of the compensation of the losses was €1,068 million in 2016. To compensate these losses, Enedis buys the corresponding electricity from the wholesale market, either through organised market platforms, or through calls for tender open to around 20 qualified suppliers. Since 2014, Enedis can benefit from ARENH deliveries for its electricity purchases to offset its losses, up to around 2.7TWh in 2016.

Technical specifications: the distribution network Enedis is the concession holder of (see section 1.4.4.2.2 "Distribution activities") is, at 31 December 2016, made up of around:

- 635,614 kilometres of A-type high-voltage (HVA) lines of 20,000 volts;
- 713,262 kilometres of low-voltage (LV) lines of 400 volts;
- 2,260 HVB/HVA source substations;
- 778,774 HVA/LV transformer stations.

1.4.4.2.1 Organisation of Enedis

Distribution activities on French soil are, pursuant to the legal framework, almost exclusively conducted by Enedis, a French public limited company (*société anonyme*) with an Executive Board and a Supervisory Board responsible for the management of the public electricity distribution network.

Pursuant to Directive no. 2003/54/EC, the principles of which are applied in Directive no. 2009/72/EC of 13 July 2009, when the public distribution network operator is part of a vertically integrated company, its organisation and decision-making must be legally independent from other activities not related to distribution. Within this framework, the principle adopted by EDF and Gaz de France, now Engie, led them to spin out their distribution network. The two subsidiaries Enedis and GRDF share a "common service" pursuant to the legal framework (see section 1.4.4.2.3 "Service shared by Enedis and GRDF").

Pursuant to the Law of 9 August 2004, the business of public electricity distribution network operator was turned into a subsidiary in 2007.

The Supervisory Board of Enedis comprises 15 members, of which 8 are appointed by the Ordinary Shareholders' Meeting, 5 are representatives of the employees elected in accordance with the conditions set out in Law no. 83-675 dated 26 July 1983 relating to the democratisation of the public sector, one member is appointed by the French State by virtue of Articles 4 or 6 of Ordinance no. 2014-948 dated 20 August 2014, and one, representing the organising authorities for the public electricity distribution network, is appointed by decree in application of Article 153 of Law no. 2015-992 relating to Energy Transition for Green Growth. The Enedis Executive Board is made up of five members who perform their work under the supervision of the Supervisory Board.

In application of the possibility offered by Ordinance no. 2014-948 dated 20 August 2014 (Article 15) and in compliance with Decree no. 2015-38 dated 19 January 2015, the French State appointed by a Decree dated 4 February 2015 a Government Commissioner for the purposes of attending the meetings of the Supervisory Board of Enedis.

On 1 June 2016, the business name of the distribution network operator was changed to Enedis, as a replacement for ERDF. This new name reflects the company's strong commitment to the energy transition in the wake of COP 21. This will also enable the electricity distribution network operator to raise its profile and clarify its mission, as intended by the CRE.

Enedis' missions in France

Enedis, pursuant to the conditions set by law and the concession contracts signed with each of the public electricity distribution contracting authorities (see section 1.4.4.2.2 "Distribution activities"), performs its missions as the public distribution network operator in mainland France.

These missions are:

- define and implement operational, investment and development policies in relation to the electricity distribution network;
- provide connection and access for users to these networks under objective, transparent and non-discriminatory conditions, as well as inter-connection with other networks;
- provide users with the information needed to access the network efficiently (information protected by regulations or law excepted);
- oversee relations with the energy regulation authorities (Ministry of Energy, the Energy Regulation Commission (CRE – *Commission de Régulation de l'Énergie*), public distribution contracting authorities) in line with its activities;
- oversee relations with local authorities;
- negotiate, conclude and manage concession contracts;
- operate, service and repair the electricity distribution networks;
- design and build infrastructure, as well as manage work on the networks;
- carry out metering activities for users connected to the networks, particularly as regards supply, installation, meter inspection, maintenance and renewal of metering devices, as well as managing data activities and any other missions relating to its work as a whole;
- implement energy efficiency actions and promote the insertion of renewable energies onto the network;
- ensure the monitoring of the load sharing perimeters;
- be the guarantor for the distribution and accounting for the energy flows between the network user players, and the fair compensation of losses on these networks;
- provide services for the LDCs, distributors and organising authorities mentioned respectively in sections III and IV of Article L. 2224-31 of the French Local Authorities Code.

1.4.4.2.2 Distribution activities

Enedis' business is based on a number of activities: manage, in its capacity as the concession holder, the assets under concession; run and maintain the network in such a way as to ensure the continuity of supply; carry out work on the network (in particular, network connection, reinforcement and renewal work); provide access to the network to all users in the framework of contractual provisions in force; and manage the meter fleet, as well as obtaining, processing and transmitting data on network user consumption.

Change in investments

In 2016, Enedis invested €3.462 billion, €1.408 billion of which were mainly devoted to connections for new customers and producers, as well as to the reinforcement of the network. In addition, the contracting authorities invested €703 million in 2016. In all, almost €4.2 billion were invested on the distribution networks in 2016 in mainland France.

GROSS INVESTMENTS OF ENEDIS:

(in millions of euros)	2016	2015
Connections and reinforcement	1,408	1,396
Regulatory, safety and transmission channel obligations	387	370
Network modernisation ⁽¹⁾	1,316	1089
Work instruments and operational resources	351	315
Total investments of Enedis	3,462	3,170
Work allowances by third parties and local authorities ⁽²⁾	703	789
TOTAL NETWORK INVESTMENTS	4,165	3,959

(1) Of which €318 million in 2016 and €119 million for Linky in 2015.

(2) After deducting PCT¹ and Article 8².

The additional resources thereby committed are dedicated to the quality of the service, to securing the networks, to the security and preservation of the environment, areas where the identified expectations of customers, local authorities and concession authorities are particularly strong.

This level of investment allows Enedis to carry out asset renewal programmes.

To complement these investments, Enedis continues its efforts in the preventative maintenance of networks, in particular for work relating to tree topping. This came to €332 million in 2016 (compared with €342 million in 2015).

Quality of service

Quality of service is one of Enedis' main objectives. In 2016, the average outage time excluding transmission incidents and excluding exceptional incidents was 64 minutes which is a good result in view of the values reached. The quality of service provided is also reflected by maintaining steady voltage levels, kept as close as possible to the level set by regulations, and by minimising the number of outages.

To respond to large-scale incidents, Enedis relies on an Electricity Rapid Intervention Force (FIRE), which allows it to mobilise, at any time, in an affected region, the teams and resources from other regions in order to restore customers' electricity as rapidly as possible. In 2016, the FIRE was mobilised in early June to repair the networks affected by the floods in the greater Paris area, Centre-Val de Loire, then on 13 and 14 September when storms affected the West Coast.

As regards insurance cover for the protection of the overhead distribution network against the effects of large scale storms, see section 2.5.5.3 "Storm cover".

Development of renewable energies

Over the Enedis perimeter, the number of solar panel generation installations connected to the network grew again: at the end of 2016, 5,761MW of solar panel installations were connected (compared with 5,217MW at the end of 2015), representing approximately 354,000 installations (compared with 338,000 at the end of 2015). The development of wind power generation connected to the public distribution network also continued, and 10,381MW were connected at the end of 2016.

At end of 2016, a total of around 16.1GW in photovoltaic and wind power generation was connected to the Enedis grid, respectively made up of 5.7GW from photovoltaic plants and 10.4GW from wind power generation. To the power thus generated are added other sources of power generation, in particular "historical" hydropower plants (1.5GW), cogeneration (2GW), biogas, biomass and dispatchable fossil-fuel thermal. In all, at the end of 2016, the generation fleet connected to Enedis was around 21.3GW.

Furthermore, Enedis has continued its efforts to develop capacities for accepting renewable energies, by implementing construction work on sources as part of the regulatory framework in the regional plans for connection to the network of renewable energies.

Electricity market

The French electricity sales market has been open to competition for all customers since 1 July 2007.

45 electricity suppliers operate on the French market. They have signed a contract with Enedis establishing the terms and conditions for the supplier and the distributor in the event that a customer subscribes to a single contract covering the supply and delivery of electricity.

In a continuation of the operations carried out to facilitate the switch to market offers of sites with a subscribed power supply greater than 36kVA, and following the elimination of the regulated sales tariffs, Enedis maintained the national structure put in place to assist with the switching to "market offers" before 1 July 2016 of some 93,000 sites which had no choice and were on "transitional offers".

Concessions

At 31 December 2016, Enedis and EDF were co-concession holders of 524 concessions contracts, covering around 95% of the population. The concession contracts are generally concluded for a period of 20 to 30 years.

In France, public electricity distribution is operated under a concession plan that derogates from common law on local public service concessions. Enedis is thus designated by the law (Article L. 121-4 of the French Energy Code) to carry out the development and operation of the public distribution networks (rational service of French territory by public distribution networks, connection and access in accordance with non-discriminatory conditions to the public distribution networks). The company carries out this role over the majority of French territory, with the exception of the zones which are not interconnected to mainland France, in which this same role is the responsibility of EDF, and of the exclusive service zone of the LDCs (Local Distribution Companies).

Pursuant to Article L. 334-3 of the French Energy Code, ongoing concession contracts are considered as jointly signed by the contracting authority (local authority or public cooperation institution), by EDF (or territorially competent LDC) for the "regulated tariff supply" portion, and by Enedis (or territorially competent LDC) for the "distribution network" portion. When concession contracts are renewed or amended, they are co-signed according to these terms.

1. PCT (portion covered by the tariff): portion paid to project manager contractors from the contributions to the delivery tariff for financing a connection.

2. Article 8 of Annex 1 of the concession specifications relating to the integration of works into the environment (for example the works to bury lines).

Within the limits fixed by the law and by the jurisprudence, the contracting authorities are the owners of the distribution networks which constitute returnable assets¹.

See also sections 1.4.2.2.4 "Public electricity distribution concessions at regulated tariffs" and 1.5.6.2.7 "Regulations applicable to public procurements".

1.4.4.2.3 Service shared by Enedis and GRDF

The service shared by Enedis and GRDF, defined by Article L. 111-71 of the French Energy Code, sets out, in the electricity and gas distribution sector, to build installations, manage works projects, operate and provide maintenance for the networks, and conduct metering operations. It does not have the status of a legal entity.

Enedis and GRDF are related through an agreement that sets out their relations in the framework of this common service, the scope of said service and the sharing of costs resulting from it. Concluded for an open-ended period, it can be revoked at any time, provided a prior notice of 18 months is given, during which the parties commit to renegotiating. It is updated regularly.

In July 2014, Enedis and GRDF signed a joint communiqué reaffirming the benefits of joint logistical activities and operational partnerships for procurement and mapping, but taking note of the scheduled disappearance of the joint activities of meter reading and interventions on meter panels.

To date, Enedis has favoured organisation through the regional directorates integrating all its operational missions at local level. A more detailed fabric is reserved for local activities.

1.4.4.2.4 Future challenges

Smart grids and smart meters (Linky)

Enedis, guarantor of the electricity distribution public service, invests at all times to develop, modernise and secure the electrical network. The adaptation of the electricity grid to the new needs of society is a major strategic challenge. To achieve this, Enedis is developing the Linky system, based on a new generation of meters, called "smart meters" that can receive orders and send data without the physical involvement of a technician. This system is the first stage of smart grids.

Following a successful experiment, approved by the government authorities, Enedis launched, on 1 December 2015, the first phase of the generalised deployment of the Linky meters. At the end of December 2016, 2.5 million points of delivery were thus equipped with a Linky electricity meter, including 0.3 million installed as part of the experiment. Furthermore, the initiation of the second phase of deployment was approved by the Supervisory Board of Enedis in June 2016, with the objective of replacing 90% of the old meters, or 34 million units, by the end of 2021.

The amount of capital investment approved by the Supervisory Board of Enedis in June 2016 amounted to €4,455 million over the period 2014-2021. At the end of 2016, the cumulated investment already carried out represented €509 million, excluding post experimentation costs.

The rate of fitting Linky meters went from less than 3,000 meters per day at the beginning of 2016 to about 15,000 meters per day at the end of 2016, reaching the expected rate and enabling tranche 2 of the Linky Programme to be started with confidence at the beginning of 2017.

See also section 1.4.4.5.3 "Linky regulatory framework".

Foster energy transition

Concurrently, Enedis is conducting large scale testing of a number of solutions to provide a greatly modernised network to consumers and companies. This work covers the operation of low- and medium-voltage networks, the integration of renewable energies and electric vehicles, storage management, voltage stability, etc. The challenge for the distributor is to support energy transition while developing the networks at the lowest cost for society. Thanks to new technologies, a more detailed and responsive oversight is possible, based on a better understanding of consumption, generation and the state of the network. This "intelligence" makes it possible to avoid over-investment by adjusting it to consumption peaks, while guaranteeing the reliability of the network, pursuant to Enedis' double public service objective of performance and security.

The projects already completed have yielded results in areas such as innovation for the network, flexibility, the integration of renewable energies, storage, data management and economic models.

Industrialising technical solutions

Enedis is preparing the industrialisation of cutting edge solutions in smart grids and is engaged in a roadmap for the implementation of a "foundation network" between now and 2018: this concerns all the components of the network with digital technologies in the source control stations (PCCNs, or Digital Command and Control Stations, which provide central management of the transmission automation of the network, and FARs, or Functions for Automation of the Network, which facilitate management of the insertion of electricity from renewable sources), the distribution stations (HVA/LV Smart stations), the sensors on the network and all the information system tools (forecast, management, planning management, Linky network, etc.).

This roadmap aims to pursue the modernisation of the network, to facilitate the insertion of renewable energies and to assist all the players in the electricity system.

Carry out the digital switch-over and the management of the data

Enedis is participating in the digital transformation of the electricity system by modernising the networks in order to assist with the energy transition and innovating in order to make use of mass data. For this purpose, a digital programme has been undertaken by Enedis since 2014, based on four vectors: the management of the infrastructure (remote management, predictive maintenance, etc.), dialogue with outside parties, the management of data from electricity meters and sensors, and the social and cultural transformation of the company, which is providing its employees with new tools connected to the Information Systems in order in particular to deliver better services to the customers. Enedis has organised itself to process, exploit and accumulate the collected data and provide it to the various players in the electricity system (suppliers, transmission network operators, local authorities, new entrants) in compliance with the confidentiality and security regulations.

1.4.4.3 Island Energy Systems

The Island Energy Systems (IES) bring together the electricity systems operated by EDF and which are not interconnected, or only slightly connected, to the mainland: mainly Corsica, the overseas departments (except Mayotte) and the overseas territories of Saint-Barthélemy, Saint-Martin and Saint-Pierre-et-Miquelon.

The generation surcharges in these territories compared with equivalent costs on the mainland, which the legislator considers as a public service expense, are offset by the Contribution to the Public Electricity Service (see section 1.5.2 "Public service in France").

1. Returnable assets are those that must imperatively be returned to the granting authority at the end of the concession. Such property is deemed to belong to this local authority from the outset. They are defined by the concession contract or even by the law. By default, generally qualified as such are the assets that are indispensable to the performance of the concession service.

EDF's organisation in each of these regions is therefore based on maintaining an integrated structure, providing both part of the generation and the entire range of functions of supply and demand balance manager, of network manager (HVB, HVA and LV) and of supplier.

MAIN CHARACTERISTICS OF THE IES IN 2016

	At end-2016	
	Total	of which Corsica
Headcount ⁽¹⁾	3,379	753
Number of customers	1,138,776	252,899
Network length (in km)	36,420	11,643
Net installed capacity of the EDF fleet (in MW)	2,064	559
of which hydropower fleet and other renewable energy sources	440	189
of which thermal fleet ⁽¹⁾	1,623	369
Output ⁽¹⁾ (in GWh)	5,775	1,282
of which hydropower output	1,298	419
Purchases of energy from third parties (in GWh)	4,042	914
of which renewable energies, including bagasse	1,306	251
of which other energies	2,736	663
TOTAL ENERGY PRODUCED BY EDF AND PURCHASED FROM THIRD PARTIES	9,817	2,196

(1) Data including EDF Production Électrique Insulaire (PEI), a wholly-owned subsidiary of the EDF group, which is in charge of renewing the thermal plants in Corsica and overseas. The 4MW increase in the thermal installed capacity in 2016 compared with 2015 was linked to the renovation of the Saint-Martin power plant whose capacity now stands at 40.6MW (three new engines and decommissioning of G6 to G11 engines).

In view of the difference within these systems between the megawatt-hour generation costs and the sale price at the equalised tariff, EDF's sales activities look to implement, alone or in partnership with the Agency for Environment and Energy Management (Agence de l'Environnement et de la Maîtrise de l'Énergie or ADEME) and local institutions, energy efficiency actions.

Changes and outlook

Investments to modernise and reinforce the electricity generation fleet with guaranteed capacity

In accordance with the 2009 Multi-year Investment Programme, the EDF group has undertaken to replace the main power plants which are at the end of their useful lives. The new power plants will be constructed and operated by the EDF subsidiary PEI (Production Électrique Insulaire).

The construction sites for four diesel power plants were completed successfully between 2012 and 2015, for a total net capacity of almost 746MW: Port-Est in La Réunion, Bellefontaine B in Martinique, Pointe-Jarry in Guadeloupe and Lucciana B in Haute-Corse. These new generation resources, equipped with innovative technologies, allow the Group to deliver better industrial and environmental results and contribute to satisfying a part of the emerging electricity demands in these regions.

The extension of the Saint-Barthélemy power plant (two new generators of 16MW) and the renewal of the power plant on Saint-Pierre-et-Miquelon (21MW) have respectively been operational since 2014 and 2015.

The Saint-Martin power plant was delivered in end June 2016 for an installed capacity of 40MW.

In total, EDF invested €69 million in IES electricity generation in 2016.

Investments in electricity networks

The continued growth in consumption in these regions despite the energy efficiency actions undertaken, as well as the development of renewable energies, have led the EDF group to continue the reinforcement of the

electricity networks. In Corsica as in the overseas departments with natural fleets, some of the new high-voltage connections will be built using underground or underwater techniques.

EDF thus invested €164 million in networks in 2016.

A commitment to projects devoted to a better integration of renewable energies in the electricity generation mix and to optimising the management of electrical systems

The energy transition Law stipulates that France's overseas territories must be energy self-sufficient by 2030.

The EDF group supports the emergence and development of electricity generation methods based on renewable energies adapted to IES. The methods favoured are those that provide abundant and guaranteed energy at competitive generation costs, but also sustainable in the long term, in such a way as to position them as credible alternatives to thermal generation: biomass, marine and river energies, waste recovery, biogas. Studies are also underway on the use of LNG to substitute fuel oil.

EDF also contributes to making advances in technical capacities relating to the insertion of intermittent renewable energies into IES and is committed to experimental projects on smart grids in partnership with other industry actors, research laboratories and the ADEME.

Work is also ongoing to create micro-networks 100% powered by renewable energy in certain isolated zones.

1.4.4.4 ÉS

Électricité de Strasbourg (ÉS) is the Alsatian energy producer which is committed to the long-term energy and economic performance of its territory via its four activities: the distribution of electricity, supply of energies, energy services and the production of renewable energies. This portfolio of activities makes it possible for the ÉS group to better provide support to its customers in the energy transition.

ÉS also provides services to Local Distribution Companies (*Entreprises Locales de Distribution*, or LDCs) in eastern France.

The ÉS group is 88.64% owned by EDF, and the remaining shares are owned by the public and its employees. Its shares are traded on NYSE Euronext Paris.

1.4.4.4.1 Distribution

ÉS Réseaux (ESR) carries out, within the *Électricité de Strasbourg SA* company, activities of electricity distribution network management. ESR operates, maintains, develops and renews an electricity network more than 14,000 kilometers in length in the 400 Alsatian communes that chose ESR to operate their electricity distribution networks under concession agreement. These concession agreements were renewed between 1993 and 2001 for a term of 40 years. The territory serviced covers three quarters of the Bas-Rhin department and includes more than 520,000 points of delivery for low- and high-voltage (A and B) power, as well as connections with the Enedis network and two other downstream network managers.

In order to comply with recent developments in the Energy Code, *Électricité de Strasbourg* engaged in a process to create subsidiaries for its distribution activities.

1.4.4.4.2 Sales and marketing

ÉS *Énergies Strasbourg* is the sales and marketing subsidiary of the ÉS group.

ÉS *Énergies Strasbourg* provides energy to nearly 500,000 electricity customers (including renewable), and 110,000 gas customers, to both residential and business customers (services and industrial sectors) or to communities.

In addition to supplying electricity and gas, *ÉS Énergies Strasbourg* offers related services such as electricity, gas and plumbing corrective maintenance, and digital services. Also, *ÉS Énergies Strasbourg* has continued, for its residential customers, the implementation of support services in renovation and construction in the home.

Following the end of the regulated sales tariffs for more than 36 kVA in electricity and more than 30 MWh in gas, *ÉS* sells 50% of its electricity volumes and 75% of its gas volumes based on market offers. Competitive offers and its strong local base have enabled *ÉS* to retain a significant market share.

1.4.4.4.3 Energy services

ÉS *Services Énergétiques* was born out of the association between *Écotral*, the energy services subsidiary of *ÉS*, and *Dalkia Bas-Rhin*, on 1 January 2016.

The entity produces and operates energy services installations intended for local governments, homes, healthcare, the tertiary sector and industry. In 2016, *ÉS Services Énergétiques* took over, in partnership with another operator, the public service delegation of the heating network for the districts of *Hautepierre* and *Poteries de l'Eurométropole* in Strasbourg, providing heating to approximately 16,000 homes.

1.4.4.4.4 Renewable generation

Deep geothermal energy

The *ÉS* group is one of the leading players in deep geothermal energy in France. It holds an equity stake of 40% in the *ECOIG* (Exploitation of geothermal heat for industry) project, which built, in partnership with the *Roquette* company and the *Caisse des Dépôts*, the first deep geothermal energy power plant for industrial use at *Rittershoffen*, with the support of the *ADEME*, the *Alsace Region* and *SAF-Environnement*. This power plant has been producing 24MW of renewable superheated water using a geothermal resource located at a depth of more than 2,500 meters since September 2016.

In addition to the projects under review, the *ÉS* Group has also transformed, with its partner *EnBW*, the deep geothermal energy research site at *Soultz-sous-Forêts* into an industrial installation for the production of electricity. This geothermal power plant has been producing 1.7MW of electricity since July 2016.

Biomass

In the area of biomass, the *ÉS* group commissioned at the end of 2016, through its majority ownership in the *ÉS Biomasse* company, a biomass cogeneration plant. This power plant produces 70GWh of electricity from renewable sources and 112GWh of heat from renewable sources per year, which feed two of the three principal heat networks for the city of Strasbourg.

1.4.4.5 Regulatory framework

1.4.4.5.1 Tariff for using the public electricity transmission network (transmission TURPE)

Pursuant to Article L. 341-3 of the French Energy Code, the tariff for using the public electricity transmission network is set by way of a reasoned decision by the CRE. The current tariff for using the public transmission network (TURPE 4 HVB), set by the CRE decision of 3 April 2013, came into force on 1 August 2013.

The RTE price increase was 1.4% on 1 August 2016 in application of the indexation provided for in TURPE 4 HVB, with the exception of the annual component of the injections. This price increase on 1 August 2016 incorporates the effect of the price rebate mechanism granted to intensive electricity users during 2015 (principle of a reduction of the electricity transmission invoice for users whose profile is stable or anti-cyclical) and the excess costs associated with the implementation of the new interruptibility mechanism with effect from 2016 (remuneration of users who agree to a power reduction after a very short notice period).

A new tariff for use of the public transmission network (TURPE 5 HVB) will enter into effect on 1 August 2017 for a period of around four years. The CRE published its decision on 17 November 2016, after a favourable opinion (with reservations) from the Higher Energy Council. This deliberation provides for an increase of 6.76% on 1 August 2017, followed by an inflation-based change on 1 August of each year (apart from corrections arising from the income and expense regularisation account).

Financial compensation of RTE's assets is obtained by multiplying the amount of the regulated assets base (RAB), estimated at €13,220 million at 1 January 2016, by a fixed rate of compensation corresponding to a nominal rate before tax of 7.25% for the 2013-2016 tariff period. In addition, the repayment to network users of overpayments prior to 2013, via regulation mechanisms, moderates the tariff.

On this basis, in 2016, network access tariff revenues were around €3,984 million for the electricity transmission network, revenues from services €70 million and revenues from interconnections €393 million.

Concerning the transmission and distribution of natural gas (Law no. 2003-08 dated 3 January 2003), see section 1.5.4.2 "French legislation: French Energy Code".

1.4.4.5.2 Tariff for using the public electricity distribution networks (distribution TURPE)

Over 90% of *Enedis*' sales are made up of revenues made from electricity transmission. The tariff for using the public electricity network (TURPE), in terms of levels and structure, is set by the CRE in a transparent and non-discriminatory manner, in order to cover all the costs borne by the network operators.

On 1 August 2016, the distribution TURPE increased by 1.1%, in application of the indexation rules set out in TURPE 4 HVA/LV.

The next tariff for the use of the public distribution network (TURPE 5 HVA/LV) will enter into effect on 1 August 2017 for a period of approximately four years. It will increase on average by 2.71% on 1 August 2017 in accordance with the CRE decision dated 17 November 2016, following an unfavourable decision by the Higher Energy Council. It will then change in accordance with inflation on 1 August of each year between 2018 and 2020 (excluding corrective effects from the regularisation account for income and expenses).

The Minister responsible for energy, who has a two-month deadline, by a decision of 12 January 2017 published in the *Journal officiel* dated 17 January 2017, requested a new decision, considering that the CRE's project did not take into account the country's energy policy.

By a new decision dated 19 January 2017, the CRE confirmed its decision. The decisions of the CRE (on transport and on distribution) were published in the *Journal officiel* dated 28 January 2017, and will come into force next 1 August.

On 2 February 2017, Enedis filed a request for annulment with the French Council of State against the deliberations by the Energy Regulation Commission (CRE) on the TURPE 5 Distribution adopted on 17 November 2016 and 19 January 2017 and published in the *Journal officiel* dated 28 January 2017.

On 3 February 2017, EDF, acting as a shareholder of Enedis, also filed a request for annulment with the French Council of State against the same deliberations by the Energy Regulation Commission (CRE).

1.4.4.5.3 Linky regulatory framework

The Linky project is subject to a specific regulatory framework regarding meters operating life (20 years), with a dedicated regulated asset basis (RAB) for the meters installed between 2015 and 2021 and the associated systems.

CRE's decision dated 17 July 2014 also set a nominal return rate before tax of 7.25% and a 3% additional premium in return for an incentive regulation to better meet costs and system performance, targets as well as deadlines bringing the return on the RAB to 10.25%. The incentive regulation can also trigger penalties potentially lowering the return, although not below a floor of 5.25%.

In addition, the implementation of a postponed tariff, set up to guarantee a neutral impact of Linky on the tariff for customers, means that payments for the 2014-2022 period will be made during the 2023-2030 period. This postponed tariff, which is attached a 4.6% compensation covering the cost of financial carry, will be totally paid by 2030.

1.4.5 GROUP'S INTERNATIONAL BUSINESS

1.4.5.1 United Kingdom

EDF group activity in the United Kingdom (UK) is led by EDF Energy focusing on energy supply and electricity generation. The Group is also active in oil and gas exploration and production in the North Sea with EDF Production UK, a subsidiary of Edison (see sections 1.4.6.2.2.3 "Exploration and Production (E&P)" and 1.4.5.2.3.2 "Hydrocarbon business").

EDF Energy is principally active in the generation of electricity in the UK, the supply of electricity to domestic and business customers, the supply of gas to domestic customers and in the construction of new nuclear generation. Total electricity generated in the UK in 2016 was c.332TWh and total electricity supplied was c.299TWh (the difference principally reflecting losses in transmission and distribution). Total gas supplied to UK domestic customers in 2016 was 283TWh. EDF Energy is one of the UK's largest energy companies and the largest producer of low-carbon electricity,

producing around one-fifth of the nation's electricity from its nuclear power stations, wind farms, coal and gas power stations and combined heat and power plants.

The company supplies gas and electricity to 5.6 million business and residential customer accounts and is the biggest supplier of electricity by volume in Great Britain.

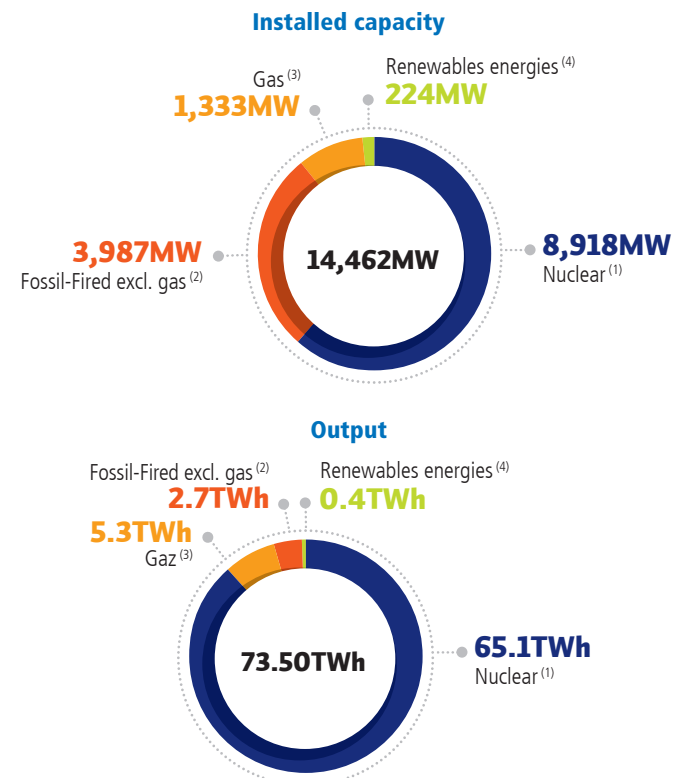
EDF Energy is leading the UK's nuclear renaissance. In partnership with China General Nuclear Corporation (CGN) it has made a final investment decision for the Hinkley Point C power station in Somerset and is developing further new nuclear projects at Sizewell, in Suffolk, and Bradwell, in Essex.

It employs around 13,000 people at sites throughout the country. The workforce is highly engaged with 80% taking part in the annual employee survey with an engagement index score of 75%. 78% would recommend EDF Energy as a good place to work and 79% are proud to tell people where they work. 91% of employees go the 'extra mile' to ensure the success of EDF Energy.

On June 23rd, the United Kingdom approved by referendum the exit of the European Union (see section 2.1.2 "Risks associated with the Group's activities").

In 2016, EDF Energy maintained its position as the largest generator of electricity (by TWh produced) and of low carbon electricity¹, and overall as the leading electricity supplier in Great Britain (by TWh sold²).

2016 INSTALLED CAPACITY AND OUTPUT IN THE UNITED KINGDOM



(1) The figures shown represent 100% of Nuclear capacity and generation output, shared 80%/20% by EDF and Centrica.
 (2) Coal capacity represents transmission entry capacity. Not power including biomass.
 (3) Including 1MW of Barkantine CHP.
 (4) When EDF Energy holds more than 50% of assets, the capacities shown are 100% of the installed capacity and generation output. Renewables output excluding biomass.

1. Source: Elexon Reporting.
 2. According to the available data, excluding Northern Ireland.

	31/12/2016	31/12/2015
Electricity supplied ⁽¹⁾ (GWh)	46,242	48,683
Gas supplied (GWh)	28,307	27,693
Number of residential customer accounts (thousands)	5,221	5,301
Number of employees ⁽²⁾	13,331	13,920
Total Recordable Incident Rate ⁽³⁾	0.68	0.68

(1) Power supplied to final consumer including previous year metering cut-offs.

(2) Includes staff on maternity leave.

(3) Total Recordable Incident Rate - Annual total combined number of Lost Time Incidents, fatalities, Restricted Work Injuries and Medical Treatment Injuries (excluding First Aid)/number of hours worked $\times 1,000,000$. This covers all employees, agency and contractor staff. Excludes EDF Energy Renewables.

1.4.5.1.1 Strategy

The vision for EDF Energy in 2030 starts with customers and their needs. Its strategy, which aims at ensuring a sustainable long-term business, is focused on supporting the transition to a lower-carbon economy through generation of safe, reliable and affordable low-carbon electricity. Equally, EDF Energy seeks to meet customers' needs in an efficient, simple and responsible way, enabling customers to control their energy usage. All of these actions are underpinned by a focus on improving cost efficiency across the business.

In its customer-facing business, EDF Energy aims to be the energy partner of choice for residential and business customers, doing things better, faster and cheaper, and making energy easy for customers by applying digital technologies and innovation. It helps customers to make the most of their energy consumption and production and of their increasingly connected, smart homes (and similarly connected public buildings, communities and cities), whilst providing excellent service and convenience. Through its energy services joint venture with Dalkia, EDF Energy aims to help businesses explore and develop solutions that deliver energy, carbon and cost savings. In response to the major transformations within the energy industry, it has also launched Blue Lab, which applies the benefits of a start-up to help accelerate innovation for customers.

In generation, EDF Energy seeks to create value through continued operational excellence of existing assets and by developing a portfolio of new investments. This includes leading the revival of nuclear new build in the UK. In partnership with China General Nuclear Corporation (CGN), EDF confirmed in July 2016 a final investment decision to proceed with construction of two new nuclear units (3.2GW capacity in total) at Hinkley Point in Somerset, based on the European Pressurised Reactor (EPR) technology. EDF Energy is also working with CGN to progress a similar 3.2GW EPR project at Sizewell in Suffolk (where a second stage of public consultation took place between November 2016 and February 2017) and to develop proposals for a new nuclear station based on CGN's UK HPR1000 technology at Bradwell in Essex. Through EDF Energy Renewables (a joint venture with EDF Énergies Nouvelles) EDF Energy is also continuing to develop new renewable generation (mainly onshore wind) projects and is exploring options for flexibility assets including the development of a new 49MW battery storage project at West Burton B, which will provide frequency response services to the National Grid. EDF Energy aims to secure value from its existing nuclear, coal and gas assets through continued safe and reliable generation. One of the key strategic programmes involves extending the lifetime of existing nuclear plant, when safe and commercially viable, to allow the UK to continue to benefit from nuclear energy until new low-carbon capacity can come online at scale. This will also provide ongoing nuclear employment opportunities and support the maintenance of skills in the UK nuclear industry. EDF Energy now has confirmed life extension plans in place for all of its advanced gas reactor

(AGR) fleet – with an average life extension of 8 years since 2009. Other important strategic actions concerning the company's generation fleet include optimising the lifetime value of coal generation capacity under the UK mechanism aimed at securing a certain capacity level, and optimising the operations of the West Burton B Combined Cycle Gas Turbine (CCGT) power station.

EDF Energy is organised into three main business units: Generation, Customers, and Nuclear New Build.

1.4.5.1.2 Activities

1.4.5.1.2.1 Nuclear generation

EDF Energy owns and operates eight nuclear power stations in the UK (or 15 units) with a total capacity of 8.9GW. The Nuclear Generation business unit employs over 5,700 people.

Since 2009, Centrica plc. ("Centrica") has held a 20% shareholding in Lake Acquisitions Limited, the company in which the nuclear generation assets sit (except Nuclear New Build).

Nuclear generation fleet technology

Seven of the eight nuclear power stations are Advanced Gas-Cooled Reactor (AGR) power stations (Dungeness B, Hartlepool, Heysham 1, Heysham 2, Hinkley Point B, Hunterston B and Torness) and the eighth, Sizewell B, is a Pressurised Water Reactor (PWR) power station.

Safety and radiological protection

Nuclear safety is EDF Energy's overriding priority (see section 3.1.5.1 "Nuclear safety").

EDF Energy operates to strict procedures to minimise and control the radiation doses received by employees and contractors at all of EDF Energy's existing nuclear power stations. In 2016, the average individual dose received by all workers on EDF Energy's existing nuclear sites was 0.065mSv, the legal dose limit being 20mSv per year. The highest individual dose received in 2016 was 5.2mSv.

The operating lifetime of the nuclear power plants

The actual lifetime of each power station will be determined primarily by the technical and economic practicability of supporting its safety case. This is assessed at each statutory outage for the following operating period through inspection, maintenance, testing and assessment of plant performance. Following the outage, consent is required from the Office

for Nuclear Regulation (ONR) before restarting the reactor. The operating period between statutory outages is normally three years for the AGR power stations and eighteen months for Sizewell B.

In addition, every ten years, the stations are subject to a more detailed and wide ranging (Periodic Safety Review, PSR), which must also be accepted by the ONR in order to secure continued operation. In 2016, the ONR evaluated the Hinkley Point B and Hunterston B monitoring processes for an operating extension of ten years in exchange for continued compliance with safety requirements and consideration of economic and commercial conditions related to the end of life of the facilities.

The AGRs were designed with a nominal 25 year lifetime, and Sizewell B with a 40 year lifetime. However, with the aggregation of technical information, and operational and safety experience, it has been possible to revise the expected AGR lifetimes. Prior to EDF Energy ownership, the AGRs had been extended by an average of 10 years, and it has been EDF Energy's intention, where possible and economic, to seek further lifetime extensions.

This may require additional investment in the plant, and requires technical, safety, and economic justifications to be made; and since it may result in increasing the nuclear liabilities, the consent of the Nuclear Decommissioning Authority (NDA).

Since British Energy was acquired by EDF, the AGRs have been extended by an average of eight years. The most recent extensions were declared in February 2016. Hartlepool and Heysham 1 were extended by a further five years, and Heysham 2 and Torness were extended by seven years.

Although the work has not yet been carried out to support the extension of Sizewell B, EDF Energy expects that it should be possible to extend it by c.20 years.

The current station lives (as formally declared by EDF Energy and approved by the NDA) and corresponding current scheduled closure dates of the power stations in the Nuclear Generation Fleet are set out in the following table:

Power Plant	Type of reactor	Start of Generation	Power Station Lifetime (Formally Declared)	Life Extensions (Already Formally Declared)	Associated Scheduled Closure Date	Scheduled Periodic Safety Reviews
Hinkley Point B	AGR	Feb. 1976	47 years	22 years	2023	2017
Hunterston B	AGR	Feb. 1976	47 years	22 years	2023	2017
Dungeness B	AGR	Apr. 1983	45 years	20 years	2028	2018
Heysham 1	AGR	Jul. 1983	41 years	15 years	2024	2019
Hartlepool	AGR	Aug. 1983	41 years	15 years	2024	2019
Torness	AGR	May 1988	42 years	17 years	2030	2020
Heysham 2	AGR	Jul. 1988	42 years	17 years	2030	2020
Sizewell B	PWR	Feb. 1995	40 years	–	2035	2025

CAPACITY AND OUTPUT BY POWER PLANT

Power Plant	Capacity ⁽¹⁾ (MW)	Output ⁽²⁾ (TWh)	
		2016	2015
AGR Power Plants			
Dungeness B	1,050	7.7	6.7
Hartlepool	1,180	6.6	6.2
Heysham 1	1,155	7.6	4.6
Heysham 2	1,230	9.6	9.4
Hinkley Point B	955	7.2	7.1
Hunterston B	965	7.9	7.5
Torness	1,185	9.9	8.7
PWR Power Plant			
Sizewell B	1,198	8.6	10.5
TOTAL	8,918	65.1	60.6
LOAD FACTOR⁽³⁾		83%	78%

(1) Capacities are stated net of all power consumed for the power stations' own use, including power imported from the Grid. Capacities are subject to review each year end. The capacities shown reflect the benchmark generation of units from 1 January 2016. In particular, Hinkley Point B and Hunterston B power stations have been adjusted to reflect planned operation at approximately 80% load, due to boiler temperature restrictions.

(2) Output in each year reflects any re-fuelling, planned and unplanned outages.

(3) Load factors are obtained by dividing the actual output by the output that would have been achieved by each power plant operated at its stated capacity appropriate for the period.

Operational review of the existing nuclear generation fleet

For 2016, the nuclear generation fleet produced 65.1TWh; that is 4.5TWh more than in 2015 (60.6TWh). This is the highest output since 2003. The exceptional operational performance during the year is demonstrated by the load factor, which through revision of station capacities, takes account of the derating of Hinkley Point B and Hunterston B in 2006 in order to protect their boilers; the load factor reached 83%, which represents an increase by 10 points compared to 2009.

The 2016 increase of the nuclear output by 4.5TWh compared to 2015 is principally reflecting the recovery of generation from the boiler spine temperature limits that had constrained loads at Heysham 1 and Hartlepool over 2014 and 2015 and resulted in outages during 2015 to incorporate additional cooling measures to the boiler spines. Additional modifications were made to Heysham 1 Reactor 1 in 2016 (see below).

Planned statutory outages were also completed on Hartlepool Reactor 2, Heysham 2 Reactor 8, Hinkley Point B Reactor 3 and Sizewell B.

Plant status

At the start of 2016, Heysham 1 Reactor 1 was operating on three out of four boiler quadrants (six out of eight boilers) following the discovery of a defect in a boiler spine in 2014. During 2016, modifications were carried out to isolate the affected boiler and to allow the reactor to operate on seven out of eight boilers.

Radioactive Waste Management

In the UK, radioactive waste is classified into four categories:

- Low Level Waste (LLW), for which a near surface disposal route exists – including the LLW Repository at Drigg West Cumbria;
- Intermediate Level Waste (ILW), for which no disposal route is currently available in the UK;
- High Level Waste (HLW) is defined as radioactive waste in which the temperature may rise significantly as a result of the radioactivity, so this factor has to be taken into account in the design of storage and disposal facilities;
- Higher Activity Waste (HAW) – this is effectively HLW, ILW and any LLW that are unsuitable for near-surface disposal.

EDF Energy nuclear generation's strategy for LLW and HAW reflects that the UK and Scottish governments are focused on application of the waste hierarchy (reduce, reuse, recycle, recover). The use of a range of waste recycling and disposal routes will help to make the best use of the UK's Low Level Waste Repository (LLWR) in Cumbria. Only a disposal route for LLW currently exists in the UK.

HAW is stored for the medium-term in safe, purpose built facilities at EDF Energy's stations while longer term national solutions are being established within England and Scotland.

Under historic contractual arrangements, spent fuel from the AGRs is transported to Sellafield nuclear reprocessing site (owned by NDA) for reprocessing or long term storage. Heat generating HAW from the reprocessing of spent AGR fuel are converted into glass blocks for safe, long term storage.

Regarding Sizewell B, the spent fuel is stored on site and EDF Energy has built a further spent fuel dry storage facility on the Sizewell B site to allow the station to continue to safely store all of the spent fuel that will be generated over Sizewell B's life. Following long-term surface storage, the Sizewell B PWR spent fuel will be disposed to a future UK Geological Disposal Facility.

The nature of EDF Energy nuclear generation's business and its historic government link means that the strategy for spent fuel and the management of radioactive waste from EDF Energy nuclear generation's power stations is approved by the NDA. However, EDF Energy has policies to continually improve and minimise the spent fuel and waste arising through the company's wider safety, sustainability and environmental policies.

Costs relating to radioactive waste management and decommissioning – Restructuring Agreements

Restructuring Agreements were originally entered into in 2005 as part of the restructuring of the former British Energy Group of companies (hereafter referred to as "the EDF Energy Nuclear Generation Group") and were carried out from 2002 under the aegis of the UK government in order to stabilise the financial situation of the EDF Energy Nuclear Generation Group (EENGG).

By virtue of these restructuring agreements:

- the Nuclear Liabilities Fund (NLF), an independent trust set up by the UK government as part of the restructuring, agreed (at the direction of the Secretary of State) to fund, to the extent of its assets: (i) qualifying uncontracted nuclear liabilities (including liabilities in connection with the management of spent fuel at the Sizewell B power station); and (ii) qualifying costs of decommissioning in relation to the existing nuclear power stations owned and operated by EENGG;
- the Secretary of State agreed to fund: (i) qualifying uncontracted nuclear liabilities (including liabilities in connection with the management of spent fuel at the Sizewell B power station) and qualifying costs of decommissioning, in each case in relation to the existing nuclear power stations owned and operated by EENGG, to the extent that they exceed the assets of NLF; and (ii) subject to a cap of £2,185 million (in December 2002 monetary values, adjusted accordingly), qualifying contracted liabilities for the EENGG's spent fuel (including in particular liabilities for management of AGR waste from spent fuel loaded prior to 15 January 2005); and
- EDF Energy is responsible for funding certain excluded or disqualified liabilities (mainly liabilities incurred in with the event of an unsafe or careless operation of the power stations) and the potential associated obligations of its subsidiaries to the NLF and the Secretary of State are guaranteed by the principal members of the EDF Energy Nuclear Generation Group.

Certain companies in the EENGG, including EDF Energy Nuclear Generation Limited, entered into a separate contract, now with the NDA for management of AGR spent fuel loaded from 15 January 2005 (termed "new fuel") and have no responsibility/liability for this fuel after it is received at Sellafield.

The Secretary of State and EDF agreed to limited amendments to the Restructuring Agreements, in connection with the acquisition of EENGG by Lake Acquisitions Limited. The amendments, among other things and subject to limited exceptions, restrict the majority of rights and obligations imposed by the Restructuring Agreements only to EENGG and its subsidiaries and subsidiary undertakings and accordingly, do not extend similar rights and obligations to EDF group, or its other subsidiaries and subsidiary undertakings. The amendments do not impact on the contractual funding commitments of the Secretary of State or NLF to the EDF Energy Nuclear Generation Group.

Certain amendments have been made to the Restructuring Agreements, reflecting the EENGG's access to an improved credit rating following the acquisition. In particular, EENGG is required to maintain a minimum cash reserve. The amendments reduced the minimum level to £290 million. The cash reserve may be further reduced to nil if EENGG achieves and maintains an investment grade rating or if irrevocable Committed Facilities of the

same amount are put in place between third party financial institutions or a member of the wider EDF group with an investment grade rating and a member of the EDF Energy Nuclear Generation Group.

1.4.5.1.2.2 Renewable generation

Through EDF Energy Renewables (EDF ER), a joint venture between EDF Energy and EDF Énergies Nouvelles, EDF Energy is developing its own onshore and offshore assets. In addition, EDF Energy has signed power purchase agreements with renewable generators and supports independent developers. This ensures a balanced approach for compliance with its Renewables Obligations (RO) and the provision of renewable electricity to its customer base.

EDF ER currently operates 35 wind farm sites with a total generation capacity of 673.2MW, including two onshore windfarms, Pearie Law (19.2MW) and

Corriemoillie (47.5MW) brought into operation in 2016. Two other onshore windfarms are currently in construction, Beck Burn (31MW), expected to commence operation in 2017 and Dorenell (177MW), EDF ER's largest onshore wind farm to date, expected to commence operation late 2018.

During the year, EDF ER expanded its scope of technologies and was awarded a contract by National Grid for the provision of a 49MW battery storage facility. This facility will be constructed adjacent to the West Burton coal and CCGT stations. In addition, the facility has successfully secured a 15 year Capacity Market agreement for delivery commencing October 2020 in the 2016 Capacity Market Auction held in December 2016.

EDF EN Services UK Limited, a joint venture between EDF Energy and EDF Énergies Nouvelles, which commenced operations in October 2015, continues to expand and now provides operation and maintenance activities for 25 wholly and partly owned wind farms and 2 externally owned wind farms.

1.4.5.1.2.3 Thermal generation and gas storage

Power plant	Location	Year commissioned	Number of units	Type of station	Capacity (MW)	Output (TWh)	
						2016	2015
Cottam	Nottinghamshire	1970	4	Coal-fired	2,000	1.5	7.5
West Burton A	Nottinghamshire	1970	4	Coal-fired and OCGT ⁽¹⁾	1,987	1.2	8.3
West Burton B	Nottinghamshire	2013	3	Combined Cycle Gas Turbine	1,332	5.3	6.2

(1) Open Cycle Gas Turbine.

In 2016, Cottam and West Burton A coal-fired power plants generated 2.7TWh of electricity. Although lower than last year, this represented a good performance in a year of particularly low dark spreads, in addition to two major outages. The impact of the lower dark spreads has been largely economically mitigated by income from National Grid for Balancing Mechanism activity and by favourable trading, including power buybacks at a beneficial price, as well as running in peak periods. West Burton B CCGT generated 5.3TWh, driven by improved market spark spreads and continued Balancing Mechanism activity.

In 2014, the coal plants secured a three year Capacity Market agreement starting in 2018, for seven of its eight units at the clearing price of £19.40/kW per year (2012 prices). However, since then, the steep fall in wholesale electricity prices has led to a revised level of investment meaning the units will now revert to one year agreements from 2018-19.

West Burton B CCGT and both OCGT units at West Burton A were successful in both the 2014 Capacity Market auction; awarded one-year contracts for 2018-2019 at the clearing price of £19.40/kW per year (2012 prices) and the 2015 auction, awarded 1 year contracts for 2019-2020 at the lower clearing price of £18.00/kW per year (2014/15 prices). Further, West Burton A (with the exception of Unit 3), West Burton B CCGT and both OCGT units at West Burton A were awarded 1 year contracts for 2020-21 at the clearing price of £22.50/kW per year (2015/16 prices) in the 2016 Auction held in December 2016. In addition, in recognition of the difficult economic conditions, the UK government has introduced a new Capacity Market auction for a one-year contract for 2017-2018 in which all coal and CCGT units participated. An additional year ahead auction for capacity for 2017/18 was concluded on 3 February 2017, bringing the full start of the Capacity Market forward to October 2017; all of EDF Energy's nuclear, gas and coal-fired capacity secured capacity agreements at £6.95/kW.

EDF Energy operates two mid cycle gas storage facilities in Cheshire. Hole House, purchased from EDF Trading in April 2014, is fully operational with a total working gas capacity of c.18 million therms. Hill Top Farm became commercially operational in mid-January 2015 with three cavities. The

remaining two cavities are being developed and are scheduled to come on-line by the end of next year. Integration of these gas storage activities into a single asset commenced in 2015 and has continued through 2016.

1.4.5.1.2.4 Customer business

The Customers business is responsible for the supply of gas and electricity to residential and business customers across the United Kingdom and the wholesale market optimisation of EDF Energy's generation and customer assets.

EDF Energy sells energy to two major customer segments: domestic and business customers. The size of business customers ranging from large industrial businesses to small privately owned businesses. EDF Energy adopts different risk management strategies for domestic and non-domestic customers.

Residential customers

During the year, EDF Energy supplied 13.2TWh of electricity and supplied 28.2TWh of gas for the domestic segment. As at 31 December 2016, EDF Energy had 3.2 million electricity accounts and 2.0 million gas accounts on this segment.

Competition

Competition from small suppliers remained strong throughout 2016, although increases in wholesale prices put pressure on some, particularly those with short-term hedging strategies. In November, GB Energy Supply, a small supplier, announced it had ceased to operate, which led Ofgem to appoint Co-operative Energy as Supplier of Last Resort.

This has underlined the continuing importance of a robust hedging policy within a volatile wholesale market. In November and December some of the major suppliers, including British Gas, E.ON and SSE, announced a winter Standard Variable price freeze, while EDF Energy announced a price

freeze for variable electricity prices until 1 March 2017, to be followed by an 8.4% increase in the electricity price and a 5.2% decrease to variable gas prices, to come into effect on 6 January 2017. With these moves by major suppliers, and increases in small suppliers' variable tariffs, the gap between major and small suppliers has narrowed towards the end of the year. Small suppliers' market share has continued to increase, reaching c.15.8% by the end of October 2016 (the latest data available), compared to 15.4% at the end of July 2016.

Regulatory Change

On 24 June 2016, the Competition and Markets Authority (CMA) concluded its two-year investigation into the "supply and acquisition of energy in Great Britain" by publishing its final report. The CMA proposed over 30 remedies to improve the functioning of the market across various areas, including measures aimed directly at customers, proposals to improve the wholesale electricity market, and those that will address the regulatory governance framework. EDF Energy agrees with the overall direction of the demanding and fair remedies, and believes that they provide a firm basis for an improved market for both domestic and business customers.

Energy Company Obligation

The Energy Company Obligation (ECO) is an energy efficiency programme that has been extended to be in place until 31 March 2017 (see section 3.2.4.1 "Human Rights").

The current ECO programme ends in March 2017. EDF Energy has completed all four of the March 2015 obligations, which make up the ECO1 target. As of December 2016 the March 2017 ECO2 target has been delivered. Ofgem will make a final determination to confirm the targets are met in September 2017. However, the current scheme is in the process of being consulted on, which may result in the targets and above dates being extended. EDF Energy is preparing its strategy to deliver the extended target.

Smart Metering

Following the EU referendum, the UK government's Department for Business, Energy and Industrial Strategy (BEIS) has reinforced its commitment to delivering smart meters to domestic and business customers by 2020. In 2016, EDF Energy installed over 130,000 smart meters for its customers, the majority being installed by its in-house field force. It is also working with its contracted outsourced field force providers to support the required ramp up in their installation rates. Although the national IT and communications infrastructure (the DCC) has been further delayed, EDF Energy has made significant progress in its own associated system changes, including the required interfaces to the DCC and preparations for implementation of further functionality in Q4 2016.

Domestic Customer Services

In the Citizen's Advice Complaints (domestic) League Table, EDF Energy remained in 2nd place for the third quarter of 2016 with the best score to date of 30.5 points, 5 points ahead of the company at the 3rd place (gas and electricity). Customer Services telephony Average Speed of Answer (ASA) is 2 mn 09 s for domestic customers. In the fourth quarter service level performance was high in other contact channels, c87% of emails were responded to in 6 hours and 95% of live chats started within 1 minute with Customer Self-Serve currently hitting 63%. Our customers remain enthusiastic about the service they are receiving – Advisor Recommendation Scores increased in the fourth quarter, to a 6-month rolling average of +56.

Business customers

In 2016, the non-domestic segment supplied a total of 33.0TWh of electricity; 2.0TWh to 183,383 Small and Medium Enterprise (SME) accounts and 31.1TWh to 103,926 Industrial and Commercial (I&C) accounts. The business customer electricity market in the UK is c.183TWh in total, making EDF Energy the largest supplier to business customers¹. Almost half of the business electricity market is serviced by just three main players.

In 2016, large business renewal rates were higher than anticipated. Key customers signed in 2016 (for delivery in 2017 and 2018) include Nissan Motor Manufacturing (265GWh), Coca-Cola (95GWh), Urenco (320GWh) and Fujitsu (92GWh).

Medium business sales declined steadily throughout the first half of 2016 due to competition pressure on prices and products, yet showed strong signs of recovery in the third quarter, seeing a c.70% increase in quarter three versus quarter two.

In total SME had a strong acquisition performance leading to a maintained account growth since 2015 which stands small business in good stead for 2017.

Wholesale Markets Optimisation

General principles

The policies surrounding EDF Energy's energy purchasing and risk management activities are carried out in accordance with EDF group's policies and ensure that EDF Energy's activities are optimised and its services delivered at a competitive price while limiting its gross margin volatility.

The Wholesale Markets Optimisation (WMO) division's purpose is to manage the wholesale market risk of EDF Energy in one place within pre-defined risk limits and control framework. It provides a unique interface with the wholesale markets, via EDF Trading. WMO also provides modelling services to the whole of EDF Energy, as well as negotiating and managing asset backed commercial structures with third parties e.g. NDA and Centrica.

Electricity sales and procurement

The power generated by the generation fleet is sold via the WMO division within EDF Energy's customers business. Since April 2010, 20% of the output from nuclear generation is separately sold to Centrica (minority shareholder of the existing nuclear fleet) under the agreements made at the time of the Centrica transactions. The remaining 80% is sold to WMO under the same transfer price as used for the transaction with Centrica, based on published market prices, smoothed over forward electricity prices where liquidity allows.

Over and above its own generation, EDF Energy also sources electricity through export power supplied from power purchase agreements which are mainly with renewable and CHP generators. In 2016, EDF Energy acquired approximately 5.9TWh through this channel.

For delivery in 2016, EDF Energy's net position on the wholesale market was a sale of approximately 16.6TWh (including structured trades). In 2016, EDF Energy sold approximately 51.7TWh and bought 35.1TWh.

1. Source: Cornwall Energy.

Gas, coal and carbon rights procurement

Coal and gas contracts (physical and financial) and CO₂ emissions rights are entered into by EDF Energy to hedge the requirements of its power plants and gas consumers.

Purchases are based on coal and gas asset generation forecasts and target coal stock levels. In 2016, 29% of EDF Energy's coal deliveries were from international suppliers and sourced through EDF Trading.

1.4.5.1.2.5 Nuclear New Build business

Nuclear New Build (NNB) activity

On 21 October 2015, EDF and China General Nuclear Power Corporation (CGN) signed a Strategic Investment Agreement leading to co-investment in the construction of two EPR reactors at the Hinkley Point C (HPC) in Somerset. The agreement also includes a broad partnership in the UK to develop nuclear power plants, at Sizewell C (SZC) in Suffolk and Bradwell B (BRB) in Essex.

Final contracts for HPC were signed on 29 September 2016 following the final investment decision (FID) made by EDF SA's Board of Directors on 28 July 2016. HPC is owned by EDF (66.5%) and CGN (33.5%).

It marks the beginning of the new nuclear build programme in the UK.

This is a milestone, which marks the end of the project's development phase following ten years of preparation and planning, from achieving the Generic Design Assessment for the EPR and the Nuclear Site Licence to the start of enabling works on site.

Safety is a key focus of the EPR design. The same EPR technology is already being deployed at the new nuclear power stations currently being constructed by EDF at Flamanville in France (see section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France") and at Taishan in China. Using the same technology, adapted for UK regulatory requirements and Hinkley Point C site specifics, will enable the efficiencies that come with standardisation of design in the construction and operation of a series of plants to be realised.

Hinkley Point C (HPC)

Financing

Under the Strategic Investment Agreement, EDF's share in HPC is 66.5% and CGN's share is 33.5%.

EDF intends to remain the majority shareholder, and has agreed with the British Government not to sell down its control of HPC during the construction period without the previous approval of the British Government. Whilst keeping a stake of at least 50%, EDF intends to bring other investors into the project in due course.

Guarantee agreements by the Infrastructure and Projects Authority (IPA) were also signed on 29 September 2016 with Her Majesty's Treasury. Under these agreements, a first tranche of up to £2 billion of guarantee is available subject to fulfilment of conditions precedent. EDF has confirmed to the British Government that it does not currently intend to avail itself the guarantee and the project will be equity financed at least in a first stage.

Rate of return and Sensitivity

Financing requirements until commissioning are estimated at £18 billion in nominal terms¹. The investment would be equity financed by each partner,

at least in a first phase, with EDF group's share amounting to £12 billion and CGN's share being £6 billion; this includes a provision for risks and contingencies. If the project is delivered for less, the gain will be shared with customers as part of the CfD gain share mechanism. Investors take the risk of constructing the power station on time and in line with the budget (see section 2.1.3 "Specific risks related to the Group's nuclear activities").

Total equity commitment of shareholders includes a 15% contingency margin amounting to £2.7 billion on top of the £18 billion total cost.

The estimated rate of return (IRR) is estimated at around 9%.

The sensitivity of the IRR is approximately 45 basis points for a twelve month delay.

Revenue Arrangements: Contract for Difference (CfD)

The HPC project company and the Department of Energy and Climate Change (DECC) have agreed, on October 2015, on the full terms of the CfD for HPC, which was approved by the European Commission in October 2014, in the rules on State aid.

The CfD was signed on 29 September 2016 and it is a contract to provide security in respect of revenues generated from electricity produced and sold by HPC through compensation based on the difference between the Strike Price and the market price, for a period of 35 years from commissioning.

From the plant's start date, if the reference price at which the generator, sells electricity on the market is lower than the strike price set under the terms of the contract, the generator will receive an additional payment. If the reference price is higher than the strike price, the generator will be liable for the difference. The key elements of the CfD are:

- the strike price for HPC is set at £₂₀₁₂92.50/MWh or £₂₀₁₂89.50/MWh if the SZC project is launched (i.e. if a final investment decision is taken), in order to reflect the fact that the first of a kind costs of EPR reactors are shared across the HPC and SZC sites;
- the strike price is fully indexed to UK inflation through the Consumer Price Index (CPI);
- the contract will last for 35 years;
- the project will be protected from certain qualifying changes in law;
- should there be savings from the construction of the HPC project, these will be shared with consumers through a lower strike price.

Principal project risks

These risks are detailed in section 2.1.3 "Specific risks related to the Group's nuclear activities".

As with any project of this scope and as reported during the meeting of the Board of Directors held on 28 July 2016, the project has risks in terms of timing and budget overruns, even though the CfD has a protective role.

Several structural elements are to be considered in the valuation of the technical risks of the project:

- GDA approval was obtained in 2012 and takes account of the Office for Nuclear Regulation's (UK regulatory body) requirements.
- Experience gained from Flamanville and Taishan is being applied to the HPC project.

¹. Nominal or current costs refer to the costs at the date when they are incurred. They include the cost of inflation each year. Excluding interim interests.

Land Deals

Land acquisition has mirrored the planning progress and reflects those sites included in applications subject to the Planning Inspectorate (PINS).

In 2012, the land required at the main site for the terrestrial construction of HPC was secured by three 999-year leases. The majority of the land needed to assemble the associated development sites required to support the construction process has now been secured. A number of these development sites were secured through Option Agreements, therefore EDF does not yet have possession of the land, but has the right to acquire or lease it when the land is required by the project. EDF is in the process of acquiring a number of small parcels of land, in some cases/eventually with the use of compulsory purchase powers where private treaty arrangements could not be reached.

Project update

The project organisation has been established with command centres for Engineering, Delivery and Site to co-ordinate the works of different teams and contractors during the project. These teams will monitor the flow of delivery, drive construction, integration and management/controlling.

The project has moved into the build phase and the command centres are focussed on schedule and delivery. The project team is continuing development site preparation and works to prepare the construction site. This includes the construction of roundabouts and temporary construction roads to give access to the site for machinery needed for the main construction phase; remediation and enabling works for the earthworks, water management works, and the construction of office buildings and worker welfare facilities.

On-site preparatory work is continuing (operational concrete plant, offshore platform installed) to meet the requirements for the first nuclear safety concrete slab, which marks the start of construction from a regulatory point of view. At the end of 2016, there are 1,100 people working on-site.

Final contracts with key suppliers for HPC have been agreed and signed:

- AREVA NP (Nuclear steam supply system, instrumentation and control);
- Alstom France (turbines) and Alstom UK (services during operations);
- Bouygues TP/Laing O'Rourke (main civil works);
- BAM Nuttal/Kier Infrastructure (earthworks).

Procurement continues on other contracts such as installation and equipment supply contracts for the main site, with preferred bidders selected for over 90 packages of work, representing approximately 90% of HPC's contract amount/spend.

Risk analysis will continue throughout the project, which is common for projects of this magnitude.

At the end of 2016, total expenditure amounted to £3.1 billion, supported at 66.5% by EDF and at 33.5% by CGN (see also note 3.2 of the 2016 consolidated financial statements, "Hinkley Point C: signature of the final agreements").

Timeline

The first nuclear safety concrete of the reactor building of Unit 1 is scheduled for 2019.

The commissioning of HPC first unit is scheduled for the end of 2025.

Following the final investment decision and the re-staffing of the teams on the project, a full review of the costs and schedule is in progress, in accordance with the project company's rules of governance.

Indeed, CGN holds a minority stake in the subsidiary carrying out this project. Agreements between shareholders provide that the budget must be determined (as well as the plan for the three following years) on an

annual basis. The full costs and schedule review which has been initiated will result in this update in order to perform the obligation stated hereinabove. In that respect, the Board of the project company will approve the budget on 31 October 2017 at the latest, and will do so for each of the following years. Until this approval, the default reference budget for 2017 is the budget attached to the shareholders' protocol.

At this stage, no material adverse impact has been identified on the project total cost or completion date.

Funded Decommissioning Programme (FDP)

Contracts for the Funded Decommissioning Programme (FDP) have also been signed. Operators of new nuclear power stations are required under the Energy Act 2008 to have a FDP in place approved by the Secretary of State before nuclear safety related construction begins. The overall objective of the FDP is to ensure that operators make prudent provision for:

- the full costs of decommissioning their installations;
- their full share of the costs of safely and securely managing and disposing of their waste; and that in doing so the risk of recourse to public funds is remote.

Sizewell C

The SZC Project equity documents were signed on 29 September 2016 alongside the HPC contracts. EDF and CGN signed the main terms of an agreement in principle to develop Sizewell C in Suffolk, till a final investment decision with the project to build and operate two EPR reactors.

EDF will participate in the development phase at 80% and CGN at 20%.

In compliance with the planning process, the second phase of formal consultation with local stakeholders started in November 2016.

Bradwell B

Finally, on 29 September 2016 EDF and CGN signed an agreement for the joint submission to the British safety authority for a design certification (Generic Design Assessment) for a British version of the HPR1000 third-generation Hualong reactor. The HPR1000 will be based on Unit 3 of the CGN plant in Fangchenggang, China, which is the reference power plant for both companies developing the British design of Hualong.

Under the terms of the agreement, a joint venture will be in charge of the process of obtaining the certification.

This agreement aims to expand Bradwell B in Essex, until a final investment decision is made, to build and operate the British Hualong reactor technology approved by the British regulator in accordance with the safety certification process.

During the development phase, CGN will have a stake of 66.5% and EDF of 33.5%.

The EDF group and its partner are committed to financing the development of Sizewell and Bradwell in the amount of £1.1 billion, and a final investment decision on the construction is expected to be taken at a later date.

1.4.5.1.2.6 United Kingdom Legal Environment

Electricity Market Reform (EMR)

The three most significant elements of EMR are the carbon price floor, introduced under the Finance Act 2011, the Capacity Market and Contracts for Difference, introduced under the Energy Act 2013.

The carbon price floor, which sets the price that fossil-fired generators pay for their carbon emissions is an important driver of the profitability of low carbon generation such as EDF Energy's nuclear and renewable plants. The "carbon price support rate" that underpins the carbon price floor was capped

in the Budget 2014 on 19 March 2014 at £18 per tonne of CO₂ for the four years, April 2016 to April 2020; in the budget 2016 on 16 March 2016, the £18 per tonne cap was extended and updated with inflation, to April 2021.

The Capacity Market is intended to ensure security of electricity supply. Annual auctions are held to procure capacity four years ahead of delivery with a subsequent auction one year ahead of delivery.

Delivery years run from 1 October to 30 September. Three four year ahead auctions have been held; the most recent auction was held in December 2016, procuring 52.4GW of derated capacity at £22.50/kW per year for 2020/21. All of EDF Energy's nuclear and gas-fired generating units have secured agreements in the four year ahead auctions for the three years 2018/19, 2019/20 and 2020/21. An additional year ahead auction for the supply of capacities for the October 2017 - September 2018 period was finalised on 3 February 2017, bringing forward the full start of the Capacity Market to October 2017. All EDF Energy's nuclear, gas and coal fired capacity secured each a capacity agreement at £6.95/kW.

The four coal-fired units at Cottam and three of the four coal-fired units at West Burton A were awarded capacity agreements in the December 2014 auction for the three year period October 2018 - September 2021, but these agreements were subsequently reduced to one year agreements for October 2018 - September 2019.

Contracts for Difference are expected to support investment new low carbon generation including in particular the Hinkley Point C nuclear project. EDF Energy has subsequently acquired Dorenell Wind Farm, a 177MW onshore windfarm development, which was awarded a CfD with a strike price of £₂₀₁₂82.50/MWh in the first CfD allocation round (auction) in February 2015. The Government has said that it will hold up to three further CfD auctions by 2020, and has announced details of the first of these auctions to be held in mid-2017 to support further development of offshore wind, conditional on the achievement of cost reductions.

1.4.5.2 Italy

1.4.5.2.1 EDF group's strategy in Italy

The Italian energy market represents a strong strategic interest for EDF due to the magnitude of its importance in both the European electricity and gas markets, its connection to the French markets and its key position in the Mediterranean basin.

Like the majority of European energy systems, the Italian market is currently facing a certain number of challenges. Thanks to its current position and to its integrated presence in the gas and electrical energy value chain, Edison is well-placed to seize opportunities created by market changes, all while pursuing efficiency and profitability, in line with CAP 2030 priorities.

The main development factors are:

- Edison has the objective of fortifying its position on the Italian market by providing innovation in its offering. Based on the strong positioning of its brand, Edison aims to grow its portfolio of individual gas and electricity customers. The high quality offering in particular through the development of energy services and low-carbon energy offer has an objective of reinforcing, aim to increase proximity to the end market, in particular on industrial client segments, in the tertiary sector and public administration;
- in order to optimise its portfolio of electricity generation in Italy and to reduce emissions of CO₂, Edison is aiming on the one hand to increase its renewable power generation by the promotion of specific capital investments in hydroelectricity and the development of wind projects, and on the other hand to concentrate the portfolio of thermal generation on the most efficient assets;
- in the area of gas, beyond the optimisation of the current portfolio, Edison can contribute to the development of Italy as a gas hub, in order to reinforce its competitiveness and that of the EDF group, as well as the flexibility and security of supplies;

- in the field of E&P (Exploration & Production), Edison has the intention of optimising its development of E&P activities mainly in Italy and in the Mediterranean basin by integrating it with the gas and electrical energy value chain.

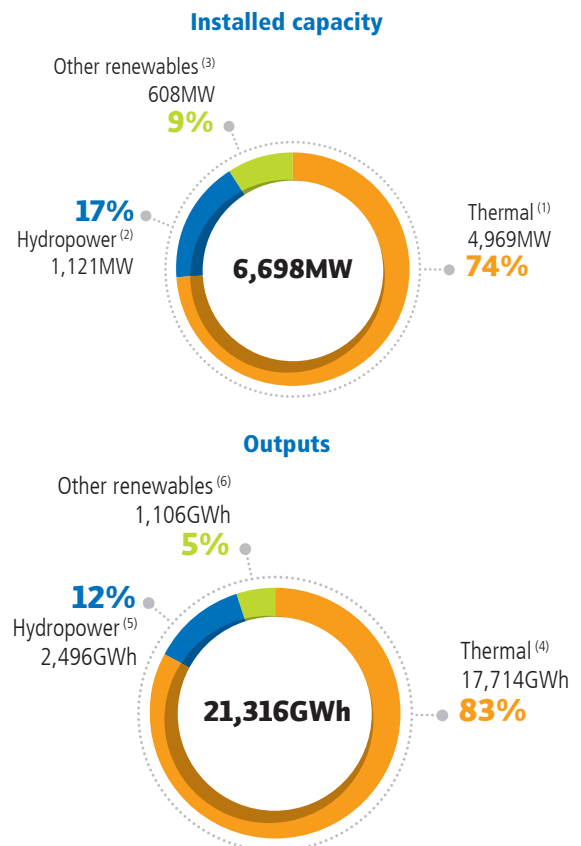
1.4.5.2.2 The EDF group's activities in Italy

As of the end of 2016, the Group was mainly present in Italy through its 97.446% shareholding in Edison, which is a major player in the Italian electricity and gas markets and a well-known Italian brand.

In 2016, EDF Fenice, the 97,4%-held subsidiary of EDF specialising in environmental services, became part of Edison on 1 April 2016. This operation is consistent with the strategic objective of Edison to become a key player on the Italian market for energy services, with a more complete and diversified offering.

The EDF group is also present in Italy through the Italian subsidiary of EDF Énergies Nouvelles.

INSTALLED CAPACITY AND POWER OUTPUT IN ITALY IN 2016



(1) Including Generation 4,735MW and Services of Energy Efficiency with the customers 234MW.

(2) Including Generation 1,120MW and Services of Energy Efficiency with the customers 1MW.

(3) Including Generation 604MW and Services of Energy Efficiency with the customers 3MW.

(4) Including Generation 16,765GWh and Services of Energy Efficiency with the customers 948GWh.

(5) Including Generation 2,490GWh and Services of Energy Efficiency with the customers 6GWh.

(6) Including Generation 1,103GWh and Services of Energy Efficiency with the customers 3GWh.

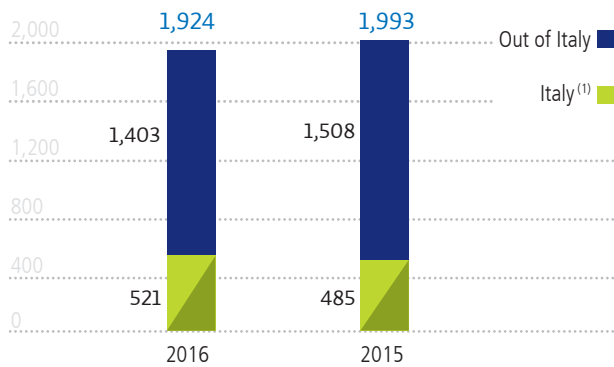
In 2016, electricity consumption on the Italian market was 310.3 TWh, down by 2.1%, or 6.6TWh, due to lower temperatures than in 2015. The 9.4TWh drop in net imports was compensated by a 3.2TWh (+1.2%) rise in net energy output which amounted to 275.6TWh in 2016. The 2.5% rise in thermoelectric output, in particular gas-fired power, and 19% increase in wind power more than offset the 9% drop in hydropower.

Based on power generation data for 2015¹, Edison is the third-largest producer at the national level, after Enel and Eni. In 2016, the EDF group's net electricity output in Italy was 20.4TWh, which accounted for around 7.4% of net Italian electricity generation.

OUTPUT OF GAS AND HYDROCARBONS

Gas output

(in millions of cubic metres)



(1) Includes output from Croatia (Izabela gas field) imported into Italy since July 2014.

In Italy and abroad, the Group's gas output activities through Edison fell by 3.5% compared with 2015, reaching 1.9Gm³.

Production of oil and condensates fell by 5% in 2015 to reach 4.1 million barrels, including 2.2 million of barrels in Italy.

1.4.5.2.3 Edison's activities

1.4.5.2.3.1 Electricity generation business

At 31 December 2016, Edison's installed generation capacity in Italy was 6.5GW, with net electricity output of 20.4TWh over the year, up by 10% compared with 2015. This was mainly due to increased thermoelectric and wind-powered generation, as a result of the 2% increase in the group's energy sales.

Edison's generation fleet is currently made up of 72 hydropower plants, 16 thermal power plants, 35 wind farms, 5 photovoltaic power plants and 1 biomass plant. Combined-Cycle Gas Turbines (CCGT) account for 82% of electricity generation, while hydropower accounts for 12% and combined wind and solar for 5%.

Edison operates approximately 1,120MW of hydropower facilities with an output of 2.5TWh (down 26% compared with 2015).

In late 2015, Edison reached an agreement to sell its equity interests in Hydros (40%) and in Sel Edison (42%), the two hydropower joint ventures, with the Alperia company in the Bolzano province, in exchange for 100% of Alperia's hydropower facilities situated on the Cellina River. Thanks to this transaction, Edison has increased its installed capacity by around 90MW and reduced the risks related to the renewal of the concessions in its hydroelectric portfolio.

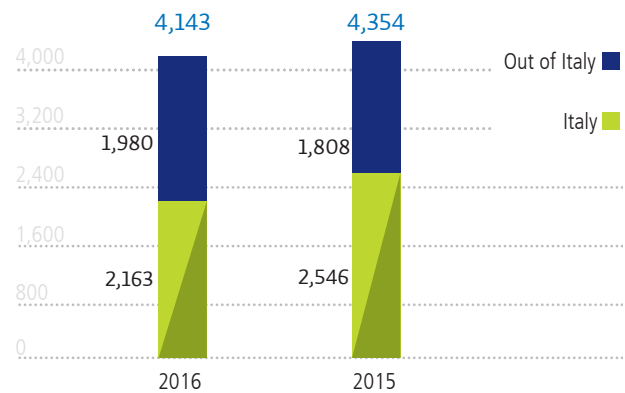
¹ Data published by the AEEG. The 2016 data will be available in mid-2017.

The national demand for gas was 70.4Gm³, up by +5.2% in comparison with 2015 due to a 12.4% increase in the use of gas for electricity production linked to a drop in net electricity imports and lower hydropower and coal-fired thermal power. Industrial use also rose by 5%.

Natural gas imports in Italy represented 92% of the country's demand, and Edison made 22.5% of these imports, namely 14.6Gm³.

Petrol and condensate output

(in millions of barrels)



In May 2016, Edison reinforced its electricity generation fleet thanks to the purchase of nine mini hydropower plants in Piedmont and Frioul - Vénétie Julienne for a total installed capacity of around 15MW.

In the area of renewable energies, Edison also maintains a critical size, thanks to E2i Energie Speciali srl (E2i), a company created in 2014 in partnership with the F2i fund, which holds 70% of the share capital, the 30% remaining being held by Edison Partecipazioni Energie Rinnovabili (EPER) which is itself 83.3% held by Edison and 16.7% by EDF Énergies Nouvelles.

E2i holds 594MW of renewable assets (contributed 82% by Edison and 18% by EDF EN Italia) and transfers 100% of the energy generated to Edison, which uses it for integrated management of its production portfolio.

A company headed by EDF EN and dedicated to services was also set up for the operation and maintenance of this platform.

With the aim of developing its activities in the wind sector, at the end of 2016, E2i won a public auction for eight projects for the construction, reconstruction or extension of wind farms, with the guarantee of a subsidised tariff, for total installed capacity of 153MW, corresponding to 20% of total capacity provided by GSE (Gestore dei Servizi Elettrici).

At the end of 2016, Eolo Energia Srl, a company which is 51%-held by Edison Partecipazioni Energie Rinnovabili (EPER) and 49% by E2i, launched a public takeover bid for 100% of the shares in Alerion Clean Power, an Italian company specialising in the generation of wind energy, with an installed capacity of 259MW in Italy (plus 6MW in Bulgaria). The Eolo bid competed with the one launched by Fri-el Green Power (unlisted Italian operator) over 29.9% of the shares in Alerion.

The transaction was agreed along with the acquisition by Eolo of 38.9% of the capital of Alerion (corresponding to 39.6% of voting rights) and Fri-el Green Power (with 29.4% of the capital and 29.9% of voting rights),

which appointed the majority of the Board of Directors of the company. The transaction is part of the acquisition options that Edison is evaluating to contribute to the consolidation of the wind power market in Italy.

Moreover, outside of Edison and the partnership with F2i, EDF EN is present in Italy (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

In order to rationalise its generation fleet and to increase the efficiency and flexibility of its portfolio, Edison sold on 1 August 2016 the gas power plant in Milazzo and its two gas power plants at Piombino.

Internationally-speaking, Edison benefits from a well-established presence in Greece, where it is one of the main electricity operators in the country, through ElpEdison SA, with a 38% equity interest with Hellenic Petroleum, Hellenic Energy and Development (the Hellactor group) and Halcor. ElpEdison owns two CCGT plants: in Thessalonica (389MW) and in Thisvi (410MW), built by Edison.

Finally, in Brazil, Ibritermo, a 50%-owned subsidiary of Edison, operates a 235MW CCGT power plant.

1.4.5.2.3.2 Hydrocarbon business

For the implementation of its gas strategy, the EDF group, through Edison, benefits from experience developed along the entire value chain, from exploration-production through to the direct sale of natural gas.

Edison's gas supply portfolio in Italy is mainly based on long-term contracts and, in 2016, it included approximately 14.6Gm³ of imports via gas pipelines and LNG, with 0.5Gm³ of own production in Italy and 6.7Gm³ purchased on the market.

In 2016, sales of gas in Italy to end customers amounted to 21.9Gm³ (compared with 17.6Gm³ in 2015). Edison delivered 4Gm³ of gas to the industrial sector, 2.6Gm³ to the residential sector, 7.3Gm³ to the thermoelectric sector (including Edison's own internal needs), and 8Gm³ to the wholesale market.

In recent years, Edison has revised the long-term gas import contracts with its suppliers. This process resulted in particular in the revision of the price of the Libyan long-term gas contract, decided on at the end of 2015 by the International Court of Arbitration of the International Chamber of Commerce in favour of Edison, and in two other commercial agreements for price revisions concluded in 2016 concerning the contract for the supply of Qatari and Libyan gas, which aligned the purchase prices with market terms.

In exploration and production, Edison possessed, at the end of 2016, 60 concessions and exploration permits in Italy and 50 abroad, and approximately 40.4 billion cubic metre equivalents in reserves. Abroad, Edison's most significant asset is the Abu Qir gas field in Egypt; in early 2009 Edison purchased the exploration, production and development rights for this field for an initial period of 20 years, extendable by further 10 years.

Finally, Edison is pursuing its exploration activities in Italy and abroad, particularly in the United Kingdom and in Norway, and currently holds licenses in the North Sea, in the Norwegian Sea and in the Barents Sea. At the end of 2016, Edison reduced its equity stake in the Zidane concession in the Norwegian Sea by half, after the sale of 10% to Dea Norge AS and Petoro AS. This transaction forms part of the strategy to create a balanced portfolio of activities refocused in the Mediterranean basin.

Gas infrastructures

Edison holds an equity interest of 7.3% in the Adriatic LNG Terminal company, which manages the offshore regasification terminal of Rovigo (8Gm³ per year). This terminal is powered with Qatari gas. The other shareholders are ExxonMobil Italiana Gas (46.4%) and Qatar Terminal Company Limited (46.4%). Edison, according to the contract terms signed with Ras Laffan Liquefied Natural Gas Company Limited II (RasGas II), owns 80% of the terminal's capacity, or 6.4Gm³ per year.

Edison is involved in various gas import infrastructure projects (see section 1.4.6.2.2.2 "Infrastructure"), such as IGI Poseidon, 50%-owned by Edison, a company involved in the development of several projects that aim to connect Greece and Italy (ITGI-Poseidon), Greece and Bulgaria (IGB, in 50/50 partnership with Bulgaria), as well as Greece and Cyprus (EastMed).

In 2016, Edison, Depa and Gazprom installed the foundations for the development of a gas pipeline project between Greece and Italy, across the Ionian Sea, for the import of Russian gas from the Black Sea. The project will be able to benefit from the activities already developed on the ITGI-Poseidon project.

1.4.5.2.3.3 Sales and supply activities

In 2016, Edison sold 91.2TWh of electricity in Italy (compared with 89.4TWh in 2015, i.e. 2% up compared with 2015), of which 20.4TWh generated and 70.8TWh purchased on the markets. Sales to end-customers amounted to 11.6TWh, down by 32% compared with 2015 due to lower sales in the business market and fewer residential customers. At the end of 2016, Edison was serving 533,865 electricity customers and 502,554 gas customers, both in the business and residential segments.

In sales and marketing, Edison continues to grow its electricity and gas sales to individuals and to the SME segment, aiming for excellence in customer relationships and focusing on selected loyal customers. In parallel, Edison intends to maintain its position as a leader in the business-customer market, by developing an advisory approach in energy. Improvement of the sales process continued in 2016 and resulted in better service to customers. Growing customer satisfaction, combined with the development of low-carbon offers and value-added services targeted by segment will strengthen ties with the end market and create the conditions for an expansion of the customer base.

1.4.5.2.3.4 Activities on the market for energy services

Consistent with the strategic priorities of the Group, Edison's organisation was enriched in 2016 thanks to the creation of the Market Division for Energy Services, with the objective of contributing to the expansion of Edison on the market for services, with the development, sales and management of energy and environmental services.

The activities of Fenice as well as those of Edison Energy Solutions were integrated into this new Division. The proposed solutions are dedicated to the development of energy efficiency projects intended for major industrial clients, SMEs and tertiary customers. With the "public administration" project, the Division is aiming to produce an offering for a sector that is in a growth phase in terms of the demand for energy services. The environmental activities complete the service offering.

The business models are adapted to the requirements of the customers: the Division, via its companies, designs, builds and manages on behalf of its customers assets such as combined generation plants, photovoltaic installations, electricity substations, thermal power plants for industrial use, cold generation power plants, compressed air generation units, fluid distribution systems (electricity, gas, hot or refrigerated air, compressed air, industrial gas, water) and industrial water treatment plants. The range of services is completed by a consulting activity in terms of energy, management of environmental securities and internal and external training for customers and partners. Contracts with the Fiat group still account for over half of EDF Fenice's business.

The projects are developed in the form of industrial partnerships or performance contracts with customers; the financial model is also adapted to the requirements of the customer and may range from assistance to the customer with third-party financing as far as direct investment by Edison (Esco) in the projects.

The energy efficiency activities are offered abroad by Fenice in Spain, Poland and Morocco. The Russian subsidiary of Fenice was sold to Dalkia in September 2016.

In 2016, EDF Fenice Iberica, 97,4%-held, consolidated its "Global Energy Partner" business model in energy efficiency services to industry. With conclusion of several ESCO-type contracts and completion of numerous energy audits, EDF Fenice Iberica is currently positioning itself as a benchmark in energy efficiency services to industry in the Spanish market. Moreover, in 2016 it formed a subsidiary in Morocco, EDF Fenice Maroc, following the signing of a contract with an international group in the agri-food sector to build and run a wastewater treatment plant.

Fenice Poland, 97,4%-held, operates principally in the field of outsourced management of industrial utilities (cogeneration, heating, cooling, compressed air, electricity grid, industrial gases). It also handles various energy and associated environmental services (potable water, waste treatment, and liquid effluents). EDF Fenice also has the administrative concessions which are necessary to supply customers connected to its distribution networks (electrical, gas, heating).

1.4.5.2.3.5 Regulated activities

Gas transport and storage

Edison owns 100% of the Edison Stocaggio company, dedicated to regulated gas-storage activities.

Furthermore, Edison operates two storage sites in depleted reservoirs (fields which have been depleted of natural gas): Cellino (since 1984) and Collalto (since 1994).

Moreover, Edison has been operating a third site, since 2013, San Potito & Cotignola.

The volume being worked upon on all of the sites is 1Gm³.

In addition, the Company is continuing to develop a storage project on the Palazzo Moroni site.

Finally, Infrastrutture Trasporto Gas SpA (ITG), wholly-owned by Edison, owns and directly manages the Cavarzere-Minerbio gas pipeline, a functional link from the Rovigo terminal to the national network, with a transport capacity of over 9Gm³ per year.

Distribution

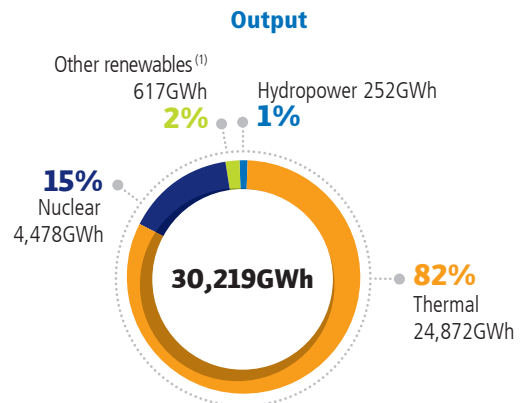
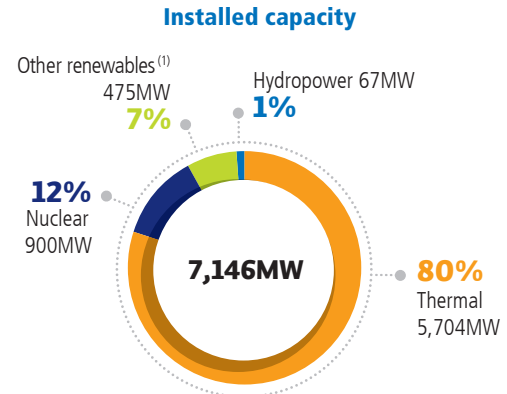
Gas distribution in Italy is regulated and supervised by AEEG, the electricity and gas authority that establishes, in particular, quality and safety parameters, as well as network access rules.

Infrastrutture Distribuzione Gas SpA (previously called Edison Distribuzione Gas) is the company dedicated to the distribution of natural gas within the Edison group. In 2016, Infrastrutture Distribuzione Gas distributed 157.7Mm³ of natural gas to 150,959 users in northern and central Italy.

1.4.5.2.4 EDF Énergies Nouvelles

The capacities held by EDF EN Italia at 31 December 2016 totalled 384.4MW gross wind power (264.9MW net power) and 76.9MW gross photovoltaic power (or 74.3MW net power) (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

1.4.5.3 Other International



(1) Excluding international data for EDF Énergies Nouvelles, part of the "Other activities" segment.

1.4.5.3.1 Northern Europe

Belgium

The Benelux region features important interfaces with the Franco-German electricity marketplace and projects for new links with Germany and with Great Britain are being examined. Benelux also constitutes an important node in the European gas market because of its numerous import and transit infrastructures, such as the Zeebrugge hub and the Dunkirk LNG terminal nearby.

The EDF group is present in Belgium through its two subsidiaries, EDF Belgium and EDF Luminus.

EDF Belgium

As part of a long-term nuclear energy cooperation agreement with Electrabel, EDF holds 50% in undivided co-ownership of the Tihange 1 nuclear power plant, through its wholly-owned Belgian subsidiary, EDF Belgium. The capacity attributed to EDF represents 481MW (or 2% of Belgian generation capacity). Tihange 1 output, which is attributed to EDF Belgium is sold to EDF SA (via a long-term contract renewed at the end of 2015 for 10 additional years) which, in turn, resells the electricity to EDF Luminus at a market price.

Belgium's 2003 nuclear phase-out legislation originally provided for the closure of Tihange 1 on 1 October 2015. Nevertheless, it was finally decided to extend its operation upon 2025, following the adoption in 2012 by the Belgian government of the Equipment Plan, and the Law of 2013 amending the Law of 2003 pertaining to the timeframe for the phasing out of nuclear energy. This extension was the subject of an agreement concluded on 12 March 2014 between Electrabel, EDF and the Belgian State, defining its terms and conditions.

The extension of the life span of Tihange 1 requires significant investment, with EDF's share amounting to around €300 million, spread over the period from 2011 to 2020.

EDF Luminus

At the end of 2016, the EDF group held 68.63% of the EDF Luminus company through its subsidiary EDF Belgium, with the remaining equity held by Belgian public shareholders.

EDF Luminus is the second largest player in the Belgian energy market after Electrabel, and it holds a balanced upstream/downstream portfolio. The company, whose market share is close to 20%, possesses almost 10% of total Belgian generation capacity with 1,972MW installed at the end of 2016. The electricity output of EDF Luminus reached 4,446GWh in 2016. The company employs 1,602 persons, including the newly-acquired subsidiaries.

As part of the Group's CAP 2030 strategic plan, EDF Luminus has the ambition of developing its windfarm fleet and accelerating the deployment of its energy services in order to provide its customers with innovative and sustainable solutions, whilst pursuing its objective of reducing costs and rationalising its thermo-electrical generation fleet.

EDF Luminus owns 10.2% (419MW) of Belgium's Tihange 2 and 3 nuclear power plants (commissioned in 1983 and 1985 respectively) and the Doel 3 and 4 plants (commissioned in 1982 and 1985 respectively), which have a life span of 40 years. EDF Luminus also has 100MW drawing rights on the French Chooz B nuclear power plant, based on a band of guaranteed output according to the average availability of the French fleet.

The Doel 3 and Tihange 2 nuclear reactors, which represent approximately 20% of the energy requirements in Belgium, and which had been at a standstill from 2012 to 2014, are again operational since the end of 2015.

Within the overall framework of the agreement concluded on 30 November 2015 between the Belgian State and Electrabel for the extension of the two Doel 1 and Doel 2 plants, an agreement was reached concerning the nuclear tax in Belgium for the years 2015 (200 million) and 2016 (130 million). The financial impact for the two Belgian subsidiaries of the EDF group was €34.5 million in 2015 and €18.4 million in 2016. A variable formula will apply from 2017 to 2019, with a minimum annual total of €150 million for the nuclear tax in Belgium.

Apart from the drawing rights in the nuclear fleet, EDF Luminus also possesses a thermal fleet comprising several power plants (combined cycles and open cycles) for an installed capacity of 1,215MW. Following the recent fall in wholesale prices coupled with the general reduction of consumption on the market, certain of these power plants have been rarely operated in recent years, obliging EDF Luminus to notify the closures of four of them, for a total capacity of 609MW (the combined cycles of Seraing – 485MW – and Ham – 52MW – as well as the open cycles of Angleur – 50MW and Izegem – 22MW). Since the closure is only effective on 31 October 2017, EDF Luminus will remain vigilant concerning the results of the discussions in progress concerning the mechanism for the remuneration of the thermal power plant capacity.

EDF Luminus is moreover present in renewable energies with 7 hydropower plants and 31 onshore wind farms totalling 114 turbines spread across Wallonia and Flanders. Since the end of 2015, the company has been the leader in onshore wind farms in Belgium and now has an installed capacity of 301MW. In 2016, EDF Luminus erected 17 wind turbines for a total capacity of 46.9MW.

Sales and marketing

Under its "Luminus" brand, EDF Luminus supplies electricity and gas to more than 1.7 million residential and business customers (in number of delivery points) in Belgium, with a net gain of 85,000 customers in B2C (business-to-customer) in 2016, which represents a commercial market share of approximately 20% (18% in gas and 20% in electricity). This excellent marketing achievement was awarded the top rating of "5" given by the Flemish regulator, VREG, for 12 consecutive quarters.

EDF Luminus has retained a stable market share of approximately 20% in a difficult market, marked by a very high level of customer rotation.

Energy services

EDF Luminus has an expanded service offering, thanks to the recent acquisitions of four complementary energy service providers (Rami Services, Dauvister, ATS and Vanparijs) and the launch of its subsidiary EDF Luminus Solutions.

The services offered to residential customers are, *inter alia*, installation and maintenance of boilers, sale and management of an intelligent thermostat (Netatmo), and comfort services in the event of unforeseen damages to housing during inclement weather. At the end of 2016, the B2C portfolio for these last three services exceeded 167,000 contracts. With close, to 70,000 services sold during the course of the 2016 year, sales more than tripled in comparison to 2014. And thanks to cooperation with ATS, EDF Luminus can offer complete integrated electricity and heating solutions to industrial clients.

Within this global perspective the company also took control, in May 2016, of Vanparijs Engineers, a design office offering on the one hand technical solutions intended for B2B customers willing to produce their energy themselves (cogeneration) and on the other hand, services aimed at establishing uninterrupted energy supply via UPS (Uninterrupted Power Supply) installations.

In addition, in order to respond to the requirements of B2B customers, EDF Luminus created, in May 2016, a subsidiary dedicated to energy efficiency services: EDF Luminus Solutions, which covers administrative buildings, hospitals, schools, sports facilities, swimming pools and apartment complexes on the basis of an energy performance contract. This approach enables EDF Luminus to enrich its activity of the supply of energy together with the supply of energy solutions. In December 2016, Dalkia became a joint shareholder of EDF Luminus Solutions, with 49% and will contribute its expertise and know-how to support the development of this new subsidiary.

The Netherlands

Through a joint venture, Sloe Centrale BV, EDF and Delta (each holding 50%) own an 870MW CCGT power plant in the southwest Netherlands, whose two 435MW units were commissioned in 2009. Thanks to its very high technical performance, the Sloe plant was called upon to operate in 2016 for close to 5,000 hours, an exceptional period of time, under market conditions that were not very favourable to gas-powered plants.

Switzerland

The EDF group is present in Switzerland through its investments in Alpiq Holding SA (25%) and in hydropower generation facilities in Le Châtelot (50%), Emosson (50%) and Mauvoisin (10%).

Alpiq is a player of significant size in the European energy market, active in the generation, sale, and trading of energy as well as in energy services, and represents more than one third of Switzerland's supply of electricity. At the end of 2015¹, its installed capacity reached 6,345MW, split as follows: nuclear 795MW, thermal 2,568MW, hydropower 2,695MW and other renewables 287MW.

In 2015¹, its sales amounted to CHF6,715 million. In terms of sales, Alpiq is top-ranked among Swiss electricity companies.

Alpiq's activities rest primarily upon generation assets, which strongly exposes it to variations in market price. In order to address the new market environment which has been strongly degrading since 2011, the Alpiq group launched a significant cost reduction plan as well as profound restructuring measures. Amongst them are the opening up, within a limit of 49%, of its portfolio of hydroelectric generation (the process has been initiated) as well as an ambitious programme of disposals, including Swissgrid, AVAG

1. 2016 data not yet available at the date of publication of this document.

and AEK, in particular, which contributed, with the cash flow originating from operational activities, to reducing the net indebtedness of the Group to less than CHF1 billion.

Germany

In 2016, jointly with the Dutch infrastructure fund DIF, EDF Invest took a 50% equity stake in Thyssengas, the gas transmission network operator in West Germany.

The EDF group also has storage for natural gas in salt cavities located in Etzel. The aboveground facilities are operated through a 50/50 joint-venture with EnBW (see section 1.4.6.2.2 "Gas assets and projects").

1.4.5.3.2 Central and Eastern Europe

Poland

The third-largest electricity producer in Poland after PGE and Enea, the Group supplies almost 10% of the electricity and 15% of the urban heating, namely more than 3,000MW of electricity capacity and 4,000MW of thermal capacity.

EDF is mainly present via its subsidiary EDF Polska SA, which comprises:

- the Krakow cogeneration plant, which has an installed capacity of 460MWe and 957MWth;
- the Wybrzeże cogeneration plant, comprising the Gdansk and Gdynia units with a total installed capacity of 333MWe and 1,134MWth;
- the Rybnik generation plant, with an installed capacity of 1,775MWe;
- the Warsaw plant, comprising the company headquarters and the Optimisation and Sales department, which is responsible for market sales and B2B customer sales of the electricity generated by all EDF group plants in Poland;
- the EDF Toruń company, a subsidiary of EDF Polska, which owns the municipal district heating distribution network in the town of Toruń, in addition to a coal-fired heat generation facility with an installed capacity of 398MWth and 2MWe, which powers the network. The replacement of the existing facility with a cogeneration facility equipped with two gas turbines and gas-fired boilers with a total capacity of 101MWe should take place over the winter of 2017-2018;
- the company EDF Paliwa Sp. z o. o., also a subsidiary of EDF Polska, responsible for the supply of coal and biomass for all of the EDF group sites in Poland.

The Group also controls ZEW Kogeneracja SA, the cogeneration plant in Wrocław, whose company is listed on the Warsaw stock exchange. It has an installed capacity of 366MWe and 1,094MWth and owns 98.4% of the electricity and heat generation company EC Zielona Góra SA, powered entirely by a local gas source, the installed capacity of which is 183MWe and 302MWth.

Moreover, the Group is present in Poland through its subsidiary, EDF Énergies Nouvelles, which owns two wind farms, of 48MW in Linowo and 58MW in Rzepin (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

In October 2015, DK Energy Polska, a subsidiary of Dalkia SA in Poland, acquired 100% of the shares of Zakłady Energetyki Ciepłej Katowice SA (ZEC), a company which is mainly specialised in generation and distribution of heat in the region of Katowice (Upper Silesia) and a leader in the area of mine gas recycling. This acquisition was intended to serve as a base for the development in the Polish market of the Dalkia offer in energy services for industrial businesses and local communities (heating networks and energy-efficiency) and to develop the use of mine gas as a substitute for coal.

On 26 October 2016, following an open competitive process, EDF announced its entry into exclusive negotiations with IFM Investors, which provided the Group with a firm offer for the takeover of its cogeneration activities (heat and electricity) in Poland. The coal-powered thermal power plant of Rybnik

(capacity of 1.8GW) was the subject of a separate disposal process, for which the EDF group was in exclusive negotiations with EPH. The finalisation of these two transactions necessitated the prior demerger of EDF Polska into two autonomous entities, combining' on the one hand the cogeneration assets and, on the other Rybnik. The Polish government notified the EDF group on 12 December 2016, of its decision not to authorise this demerger; EDF is studying the reasoning underlying this refusal and reserves all of its rights.

On 27 January 2017, a memorandum of understanding was signed between EDF and a consortium of Polish utilities composed of PGE, Enea, Energa and PGNiG. This memorandum is intended to provide a framework for the discussions on the sale of EDF Polska.

Hungary

The Hungarian government announced its intention to progressively take back control of the utilities of the energy sector which had been privatised in the 1990s, and to create a sector under the control of the State.

In 2015, the national public service company Első Nemzeti Közműszolgáltató Zrt (ENKSZ) was created for this purpose and contacted EDF. On 5 December 2016, EDF signed with ENKSZ, which is 100%-controlled by the Hungarian state, a definitive agreement for the disposal of the entire share capital of its Hungarian subsidiary EDF Démász.

On 31 January 2017, EDF and ENKSZ finalised the sale of the entire share capital of EDF Démász Zrt, the Hungarian subsidiary of EDF. This announcement follows the approval of the Hungarian regulator of the energy sector and the authorisation of the French Ministry of the economy.

Russia

The EDF group is present in Russia in the area of energy services, via the local subsidiary of Fenice, newly renamed DK Energy Russia (see section 1.4.6.1.1 "Dalkia").

1.4.5.3.3 Southern Europe

Spain

At 31 December 2016, the EDF group held 31.48% of the capital of Elcogas, a 320MW power plant of the ICCG type (Integrated Combined-Cycle Gasification), alongside Endesa Generación (40.99%) and Iberdrola Generación (12.0%). Since the profitability of the power plant was no longer assured, it was disconnected from the network on 31 January 2016 and a process of dismantling, which is likely to take place over a period of approximately three years, was initiated.

The Group is also present in the Spanish market through the local subsidiary of EDF Énergies Nouvelles (see section 1.4.1.4.3 "EDF Énergies Nouvelles") and that of Fenice (Fenice Instalaciones Iberica, see section 1.4.5.2.2 "The EDF group's activities in Italy") and that of Citelum (see section 1.4.6.1.2 "Citelum").

EDF Trading operates in this market from its trading platform in London (see section 1.4.6.3 "Optimisation and trading: EDF Trading").

Lastly, since 2015 EDF Invest has held a minority stake in Madrileña Red de Gas, the operator of the main gas distribution network in Madrid region (see section 5.1.3.11 "New investments and partnerships").

1.4.5.3.4 North America

The EDF group operates throughout the North American continent, with a strong presence in the United States.

It has more than 5.2GW of installed capacity in North America. It also manages, on behalf of third parties, around 36GW of installed capacity under operation and maintenance or optimisation services contracts.

EDF's activities in North America mainly include:

- investments in nuclear generation, by owning 49.99% of three nuclear power plants operated by Exelon, the largest nuclear operator in the US, with a total installed capacity of 3.9GW (i.e. 1.95GW consolidated by the EDF group);
- renewable energies, with a net capacity of 3.3GW, mainly located in the US through EDF Renewable Energy, a wholly-owned American subsidiary of EDF Énergies Nouvelles. Equally, EDF Renewable Services (a wholly-owned subsidiary of EDF Renewable Energy) manages close to 10GW in North America through operation and maintenance contracts on its own account or on behalf of third parties;
- trading, throughout the entire value chain in North American gas -and electricity markets through EDF Trading North America, and the supply of energy management products in the US and Canada through EDF Energy Services (a wholly-owned subsidiary of EDF Trading North America);
- energy services, local management of energy and energy efficiency, under the management of Dalkia and its subsidiaries Tiru and Groom Energy Solutions;
- R&D and Innovation, as part of EDF Innovation Lab;
- urban street lighting, via Citelum, a wholly-owned subsidiary of EDF.

1.4.5.3.4.1 Nuclear activities in the United States

Nuclear generation: Constellation Energy Nuclear Group (CENG)

On 6 November 2009, the EDF group and CEG established CENG. Since the merger between Exelon and CEG, EDF and Exelon have owned stakes of 49.99% and 50.01% respectively in CENG. EDF and Exelon agreed in 2014 to transfer the operating licenses of CENG to Exelon. Pursuant to this agreement, Exelon manages the day-to-day operations of the three CENG nuclear sites (five nuclear reactors).

As part of the transaction, CENG paid EDF US\$400 million in special dividends and EDF was granted a put option to sell its CENG shares to Exelon at fair market value exercisable between 1 January 2016 and 30 June 2022.

CENG is governed by a Board of Directors of ten members, five of whom are appointed by the EDF group and the other five, including the Chairman, by Exelon.

CENG's nuclear activities

CENG's nuclear business is under the control of the US Nuclear Regulatory Commission (NRC).

CENG owns and operates five nuclear reactors, spread across three operating sites and representing a combined capacity of 4,240MW. The duration of licences for Units 1 and 2 of Calvert Cliffs, Unit 1 of Nine Mile Point and RE Ginna is 60 years.

Reactors	Capacity		Company-owned capacity (in MW)	Output ⁽²⁾ (in TWh)	
	(in MW)	% interest		2016	2015
Calvert Cliffs 1	894	100	894	7.18	7.8
Calvert Cliffs 2	863	100	863	7.57	6.9
Nine Mile Point 1	620	100	620	5.35	4.9
Nine Mile Point 2 ⁽¹⁾	1,287	82	1,056	8.29	9.0
RE Ginna	576	100	576	5.04	4.8
TOTAL	4,240		4,009	33.44	33.4

(1) CENG owns 82% of this unit (i.e. 1,056MW of the unit's total capacity of 1,287MW). The 18% of Unit 2 of Nine Mile Point not owned by CENG belongs to the Long Island Power Authority (LIPA). LIPA receives 18% of the capacity and electricity generated by Nine Mile Point Unit 2, in consideration for payment to CENG of its share of the costs incurred by the unit, and is responsible for its 18% share of the costs of dismantling the unit. CENG and LIPA are each required to provide specific funding for Nine Mile Point 2.

(2) These values correspond to the sum of the exact values expressed to one decimal place after rounding.

The assets of EDF represented 2% of the US nuclear generation capacity and 0.4% of total electricity generation in 2015.

The principal competitors of EDF on this market are Entergy, AEP, Exelon, Dynergy and NRG.

Regulations of the State of New York

On 1 August 2016, the New York Public Service Commission (NYPSC) issued an ordinance establishing a new regulation, the Clean Energy Standard (CES), of which one of the aspects is aimed at the preservation of nuclear resources in the State of New York, by the recognition of their zero-carbon electricity generation environmental characteristics. The planned mechanism includes the creation of a programme of zero emission certificates (ZEC: Zero Emission Credit) in order to preserve the low-carbon nuclear generation installations, which comply with the criteria determined by the NYPSC. The New York State Energy Research and Development Authority (NYSERDA) will centralise the award of ZECs to eligible power plants via a 12-year contract, administered in six tranches of two years, with effect from 1 April 2017

until 31 March 2029. The payment of ZECs to eligible producers will be made on the basis of the number of megawatt-hour produced, subject to caps and minimum performance requirements. The price to be paid for the ZEC for each tranche will be determined administratively using a formula based on the social cost of carbon estimated by the federal government. The NYPSC has established that CENG's Ginna and Nine Mile Point nuclear power plants are eligible for the ZEC program.

Today, several stakeholders have submitted requests to the NYPSC for a new hearing or a re-examination of the CES. On 19 October 2016, a coalition of fossil fuel electricity generation companies filed a complaint against the NYPSC before the federal district court, alleging that the ZEC program would violate certain provisions of the US Constitution, and more specifically that it would clash with the regulatory requirements of the Federal Energy Regulatory Commission concerning wholesale tariffs and that it would constitute a severe discrimination against competitors from other States. Other challenges of a legal nature are likely and the outcomes of these currently remain uncertain.

1.4.5.3.4.2 EDF Trading in North America

EDF Trading operates in the North American markets for electricity (including transmission rights), gas, coal and environmental products. EDF Energy Services is the commercial and industrial retail arm of EDF Trading and provides management and optimisation services to large-scale energy intensive commercial and industrial users throughout North America (see section 1.4.6.3 "Optimisation and trading: EDF Trading").

1.4.5.3.4.3 EDF Énergies Nouvelles in North America

EDF Énergies Nouvelles, through its subsidiaries EDF Renewable Energy, EDF Renewable Services, EDF EN Canada and EDF EN Mexico, continued its expansion in North America, commissioning 760.2MW of wind, solar photovoltaic and biogas capacity in 2016.

EDF Renewable Services manages wind and solar projects, both for the company's own accord and on behalf of third parties (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

1.4.5.3.4.4 Dalkia in North America

Dalkia, a wholly-owned subsidiary of the EDF group, is present on the North American energy services markets (local management of energy and energy efficiency) with 364 employees. Dalkia operates via its subsidiaries – Tiru in Canada, DK Energy US and Groom Energy Solutions in the United States, the acquisition of the latter was completed in September 2016 (see section 1.4.6.1.1 "Dalkia"). The principal competitors on this market are Veolia and Constellation.

1.4.5.3.4.5 Research & Development

EDF has an R&D and Innovation team (EDF Innovation Lab) located in Silicon Valley, which assists with the development of EDF in the United States and contributes to innovation within the Group (see section 1.6.3 "International business and partnerships"). In 2016, this team identified the company Off Grid Electric (OGE), EDF's partner in the supply of competitive off-grid solar energy in the Ivory Coast (see section 1.4.5.3.9 "Off-grid energy").

1.4.5.3.4.6 Citelum in North America

Citelum, a wholly-owned subsidiary of EDF since 2014 in the field of urban street lighting, is also present in the United States (see section 1.4.6.1.2 "Citelum").

1.4.5.3.5 South America

In South America, EDF is present on the Brazilian and Chilean markets, and is extending its ambitions in certain countries in the region, in which it is prospecting for development opportunities.

1.4.5.3.5.1 Brazil

Since April 2014, the Group has held 100% of EDF Norte Fluminense, following the buyback of the 10% equity interest held by Petrobras in the share capital of EDF Norte Fluminense. The company, which built and has operated since the end of 2004 the Combined-Cycle Gas power plant of Norte Fluminense, with an installed capacity of 827MW, situated in the region of Macaé, sells 725MW annually to the Light distribution company (pursuant to the terms of a 20-year PPA), corresponding to about 6.3TWh per year. The remaining balance is sold on the open electricity market. EDF Norte Fluminense sold 120GWh in 2016.

EDF Norte Fluminense has an additional solar power plant, intended for industrial consumption, comprising 1,764 photovoltaic modules which generated 318MWh in 2016, helping to reduce its CO₂ emissions by around 198 tonnes a year.

In addition, on 11 December 2014, through its subsidiary EDF Norte Fluminense, EDF acquired a 51% stake in Compagnie Énergétique de Sinop (CES), which is responsible for the construction and future operation of Sinop's hydropower facilities of an installed capacity of 400MW. The two other shareholders are Eletronorte (24.5%) and CHESF (24.5%), subsidiaries of the Eletrobras group. Construction of the dam began in spring 2014 and commissioning for commercial operations is scheduled for the end of 2018. The EDF group has an industrial role in both the construction and the future operation of the dam. At year-end 2016, close to 81.3% of the civil-engineering work had been carried out on the project.

In line with the CAP 2030 strategic plan, the EDF Énergies Nouvelles subsidiary is accelerating its development in Latin America and notably in Brazil, where it entered the solar energy market with the acquisition in October 2016 from Canadian Solar Inc. of the Pirapora I (191MWc) solar project in the north of the state of Minas Gerais. EDF Énergies Nouvelles has been present in the country since February 2015, following the acquisition of 80% of the portfolio of Ventos da Bahia (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

EDF owns 0.9% of the installed capacity in the country. Its principal competitors are ENGIE, Neoenergia, CPFL, ENEL and EDP.

EDF is also present in Brazil via Edison, of which the 50%-held subsidiary Ibritermo operates a CCGT of 226MW in the state of Minas Gerais, as well as via Citeluz, a subsidiary of Citelum created in 1999 and specialising in street lighting.

1.4.5.3.5.2 Chile

Since 2013, EDF is jointly developing with its Chilean partner Andes Mining & Energy (AME) and the American company Cheniere, a gas to power project combining the design, construction, and operation of a CCGT-type power plant with a power output of approximately 600MW, a storage infrastructure and an LNG Floating Storage Regasification Unit (FSRU).

Via its subsidiary EDF Chile, created in 2014 for this purpose, the Group has a 45% shareholding in the two project companies (Penco-Lirquén LNG terminal and El Campesino power plant), alongside BiobioGenera (45%), of which AME is the controlling shareholder and the company Cheniere owns 10%.

This gas to power project is a key element in the energy policy in Chile and is of strategic importance because it marks the reintroduction of natural gas into electricity generation in the region. The final investment decision – conditional on the issue of all the environmental permits and the bank commitments – took place in December 2016. On 30 January 2017, the Chilean Supreme Court revoked the Permit for the Penco Lirquen regasification terminal. At this stage, EDF is studying, with its partners, the consequences of this decision for the project.

The EDF Énergies Nouvelles subsidiary is also present in Chile with the solar power plant of Boléro (146MWc), located in the Atacama desert and inaugurated in December 2016, and the Santiago Solar photovoltaic project (115MWc), 50/50 jointly owned with Andes Mining Energy (AME). EDF Énergies Nouvelles is also pursuing its development in wind-farms with the Cabo Leones project of 115MW (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

The principal competitors of EDF on this market are Endesa, AES Gener, Colbun and Engie. Furthermore, other players such as Mainstream, WPD and Gas Natural Fenosa also show ambitions in the electricity generation segment, essentially of renewable origin.

Lastly, Citelum, a wholly-owned subsidiary of the EDF group, is also present in the country, in street lighting (see section 1.4.6.1.1 "Dalkia").

1.4.5.3.6 Asia-Pacific

The EDF group's activities in the Asia-Pacific region are focused on China and fast developing countries. The presence in the sectors of electricity generation, networks and services constitutes an industrial challenge for the Group. In nuclear power, in addition to the project to build and

operate two EPR reactors in Taishan, new projects should provide the Group with access to technological innovation and enable it to exploit its industrial expertise. EDF's objective is, thus, to maintain its competitive and technological advantages in the international arena focused on the global nuclear programme, the equipping of emerging countries, and the perspective of the French fleet renewal.

1.4.5.3.6.1 Activities in China

The EDF group has been present in China for more than 30 years through its advisory services in nuclear, thermal and hydropower technologies. Today it is one of China's most significant foreign investors in power generation, with investments in coal-fired thermal facilities that have a total installed capacity of 2,000MW¹. With the Taishan project Phase I (two 1,750MW reactors), EDF also became an investor with a 30% stake in an electricity generation project involving an EPR type nuclear power plant. Lastly, EDF is developing partnerships which open up new prospects for investment in the nuclear industry, renewable energies and energy services.

Nuclear power generation activities

Daya Bay, Ling Ao and Taishan EPR Phase I power plants

Having led the design, construction and commissioning in 1994 of Daya Bay (two nuclear reactors of 1,000MW each), then assisted the Chinese group China General Nuclear Power Co. (CGN) in the construction of the Ling Ao phase I power plant (two reactors of 1,000MW each, commissioned in 2002 and 2003), and then phase II (two additional reactors of 1,000MW commissioned in 2010 and 2011), EDF is currently providing assistance to the CGN group with the design of new power plants and the operation of its entire fleet. The performance achieved by these power plants since commissioning is one of the Group's main benchmarks in China. In addition, EDF owns a 30% shareholding in Taishan Nuclear Power Joint Venture Company Ltd., which was set up to fund, build and operate two EPR nuclear reactors in Taishan, in the province of Guangdong. Through this project, the Group represents the first foreign investor in Chinese nuclear power generation. The project's success will rest on the complementary expertise of the EDF and CGN groups. The full-scale commissioning tests for the power plant reached a new stage in November 2016, with the launch of the hot trials of the tranche 1.

Partnership agreements

The General Partnership Agreement between EDF and CGN was signed in 2007 and complemented in 2014 by implementation of agreements related to engineering, R&D, and plant operation. The EDF group has set up a facility based in Shenzhen, with the aim of promoting the EDF model of an integrated architect-assembler operator while acting as a flagship for French industry. Experts in this facility are working, in particular, to further promote French codes and standards, as well as the Group's nuclear safety guidelines. The organisation also hosts the representative of the *Partenariat France Chine Électricité* (PFCE) association chaired by EDF and made up of qualified suppliers of EDF which are seeking to develop in China. In 2015, the 105 members achieved more than €700 million of sales revenues.

In 2010, the Group concluded a partnership framework agreement with China National Nuclear Corporation (CNNC), extended in March 2014, aimed at developing their cooperation along deeper, global lines. Also in 2013, the Group signed an agreement with CGN and AREVA, which prepared the terms for the construction of future reactors and provided for EDF's contribution to CGN's operating fleet and its evolution.

The partnership with CGN enabled the initiation of discussions concerning its participation in joint nuclear projects in Great Britain, which resulted in the signature by EDF and CGN of the final contracts for the Hinkley

Point C power plant on 29 September 2016. An agreement covering the development of the UK Hualong technology was also signed at that time.

Lastly, in the context of the Franco-Chinese governmental declaration of June 2015, tripartite agreements (EDF and AREVA with CGN and CNNC) were signed in 2015, providing for the continuance of the EPR construction in Taishan, the participation of the Chinese industrialists in Great Britain, as well as a partnership for the development of medium- and large-sized reactors.

Coal-fired thermal power generation activities

Shandong Zhonghua Power Company Ltd. (SZPC)

The EDF group holds 19.6% of SZPC, a company which owns three coal-fired power plants in the Shandong province, commissioned between 1987 and 2004, with a total capacity of 3,060MW. The other shareholders are the Guodian group and the Hong Kong electricity utility CLP.

Datang Sanmenxia Power Generation Company Ltd. (DSPC)

The EDF group holds 35% of DSPC, the company that owns the Sanmenxia 2 power plant in Henan province, commissioned in 2007, with an installed capacity of 2x600MW, using a technology known as "supercritical coal". This investment was made through a joint venture with a fixed life span, established by the Chinese authorities, running until 2039. The other shareholders are two Chinese companies including Datang, the majority shareholder in DSPC.

Fuzhou Power Generation Company (FPC)

The EDF group holds 49% of FPC, a joint-venture created in 2014 with a subsidiary of the Datang group to build and operate an "ultra-supercritical" coal-fired thermal power plant (2x1,000MW) in the Jiangxi province. The first unit was commissioned in December 2015, the second in April 2016. Fuzhou is thus the first power plant of the "ultra-supercritical" type (in other words, having increased output and a limited environmental impact) operated by the EDF group. This technology allows to reach high levels of temperature and pressure in the boiler, assuring a better output (close to 44% for Fuzhou) than a traditional power plant, while decreasing coal consumption and CO₂ per kWh emission.

Renewable energies

In July 2016, EDF Énergies Nouvelles acquired a majority stake (80%) in UPC Asia Wind Management (AWM), a company which develops and builds wind farm projects in China with a team of around 60 employees. The transaction covers four projects in operation (66MW net), a project under construction (40MW net) and a significant portfolio of projects under development. With this new acquisition, EDF Énergies Nouvelles is increasing its wind power potential by more than 1.3GW (gross) – under development, under construction or in operation.

Research & Development (R&D) activities

Five years after its creation, EDF's R&D centre in China is continuing to build up its network of scientific partners in that country, together with the R&D departments in France and the Group's other international R&D centres (see section 1.6.3 "International relations and partnerships"). The centre's activities involve the generation and storage of low-carbon electricity, tomorrow's electricity networks, sustainable cities and innovation, with digital simulation capacities being a strong component in each one of these fields.

Prospects for development and new projects

In energy services, the contract signed in 2013 with Dongfeng Peugeot Citroën Automobile (DPCA) concerning energy efficiency for lighting, was extended in 2014 and 2015.

1. Share in the capacity corresponding to EDF's stake.

The EDF group, Datang and the city of Sanmenxia signed a cooperation agreement in 2015 for a district heating network using the recovery of unavoidable heat emitted by thermal power plants. In May 2016, EDF and Datang signed the contract creating a joint venture (of which 65% is held by EDF) in charge of the construction and operation of the heating network. The network entered into commercial operation in November 2016.

EDF is also working with the municipality of Wuhan for the planning, development and operation of energy services in the Franco-Chinese eco-district of the Caidian district. An initial contract was signed in the summer of 2016 for the completion of two pilot projects covering street lighting and the energy efficiency of a test building.

The Group also proposes to bring innovative solutions to industrial users and eco-districts by drawing on EDF's expertise in Europe, particularly in the fields of cogeneration, waste heat recovery and decentralised renewable energies (heat pumps, district solar, biomass and geothermal power).

1.4.5.3.6.2 Southeast and Southern Asia

The EDF group's activities in South-East Asia and in Southern Asia are focused on the development of the electricity sector, particularly through involvement in projects for the design, construction and operation of new thermal gas and hydropower plants in countries offering Independent Power Plant (IPP) type opportunities, as well as in the field of renewable energies, smart cities and innovation.

Vietnam

At 31 December 2016, EDF owned 56.25% of Mekong Energy Company Ltd. (MECO), the company owning Phu My 2.2, a combined cycle gas power plant with a capacity of 715MW (or approximately 2% of the installed capacity in the country). The other shareholders are Tepco and Sumitomo Corporation. This is the first IPP project financed exclusively by foreign investors in Vietnam. The BOT (Build, Operate, Transfer) contract has a term of 20 years. In 2005, EDF provided "turnkey" delivery of the power plant, and operations are now managed by MECO.

Laos

At 31 December 2016, the EDF group held a 40% stake in Nam Theun 2 Power Company (NTPC), which owns the hydropower complex Nam Theun 2 with an installed capacity of 1,070MW, built by the EDF group under a "turnkey" contract, commissioned in 2010 and which represents approximately 25% of the installed capacity of the country. The other shareholders are a Thai company, EGCO (Electricity Generating Public Company Limited), which holds 35%, and a Lao State company, LHSE (Lao Holding State Enterprise), which holds 25%. NTPC company operates the power plant on a 25-year concession contract concluded with the government of Laos.

India

In the field of nuclear energy, EDF and the Indian national electricity producer Nuclear Power Corp. of India Ltd. (NPCIL), signed in January 2016 a memorandum of cooperation relating to the plan for construction of six EPR reactors in Jaitapur, in western India.

Moreover, in 2016, EDF won a contract for 75,000 smart meters from the New Delhi Municipality Council, the municipal authority for the Indian capital. The Group, via its subsidiary EDF International Network responded to this request for bids within the framework of a consortium led by WAPCOS, an infrastructure engineering company wholly-owned by the Indian State.

The EDF Énergies Nouvelles subsidiary is also present in India in photovoltaic solar energy, and since 2016 in wind farms (see section 1.4.1.4.3. "EDF Énergies Nouvelles").

Research & Development

Following an agreement signed in June 2013 with the Singapore Housing and Development Board, the city's largest construction firm, with the aim of developing an innovative urban modelling tool, the EDF group, in 2014, opened a centre of excellence for sustainable cities in Asia: EDF Lab Singapore. This R&D centre dedicated to urban planning has as its mission to reinforce existing collaboration and to initiate new collaborative relationships with Singapore and other cities of the region.

1.4.5.3.7 Africa

The Group wishes to develop on the continent of Africa by assisting countries with high-energy demand, on a selective basis appropriate to each geographical region, and by building sustainable and multi-industry partnerships. EDF is also intensifying its action in the supply of competitive off-grid energy.

South Africa

The EDF group established a subsidiary in 2007 in Johannesburg, with a view to preparing the relaunching of the South African nuclear programme. The energy guideline plan for the country, promulgated in May 2011, in fact provides for the commissioning of 9.6GW of nuclear power capacity between now and 2030. This programme is aimed at responding to a doubling of the installed power generation capacity and the progressive replacement of the current fleet of coal-fired power plants. Within this framework, South Africa signed intergovernmental agreements in 2014 and 2015, with several countries offering a nuclear partnership, including France. In 2016, Eskom submitted to the nuclear safety authority a request for authorisation for the installation of nuclear power plants on two sites in Thyspunt (Eastern Cape) and Duvnefontein (Western Cape) recommended in the environmental impact analysis report published in March.

In November, the South African government published a plan for a revision of the overall energy plan for the period to 2050. Several scenarios are therefore discussed with a view to promulgation in the spring of 2017. This plan takes into account the prospect of growth in electrical consumption revised downwards by extrapolation from the slowdown observed over several years as a result of low economic growth. Approximately 20GW of new nuclear electricity capacity is planned between now and 2050. Eskom, designated as owner-operator and responsible for the purchase of these reactors, wishes to issue a schedule of technical specifications without delay and is thus planning for the commissioning of a first pair of reactors starting from 2026.

Furthermore, EDF Énergies Nouvelles (EDF EN) gained a foothold in the South African wind power market during the course of the various phases of the request for bids launched by the Ministry of Energy, since 2011. The company was selected through its subsidiary InnoWind (80%-held by EDF EN) and operates 108MW (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

The Group is also present in South Africa via the company KES (Kukhanya Energy Services), created in 2002 (see section 1.4.5.3.9 "Off-grid energy").

Morocco

EDF has been active in Morocco since the 1970s, and has formed preferred partnerships with Morocco's national electricity and water office (ONEE), electricity distribution authorities, and industrials. To help support its development, the Group created EDF Maroc in 1997, EDF EN Maroc in 2012 as well as EDF Fenice Maroc in October 2016.

EDF and ONEE continued their cooperation, pursuant to the general agreement signed in January 2012, in the areas of renewable, thermal and hydropower generation, as well as in networks and training.

After having been selected by ONEE through a tender, the consortium led by EDF EN in partnership with the Japanese group, Mitsui & Co., is developing the 150MW Taza wind farm (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

Senegal

Facing a very serious crisis in its energy sector five years ago, the Senegalese government has selected EDF for assistance in diagnosing the situation and defining an emergency plan to re-establish a long-term quality of service.

EDF's operations have been focused on renovating the generation fleet of over 111MW of Sénélec (the Senegalese National Power Company). Following two extensions allowing for the finalisation of all the planned actions, this project management assistance contract was completed on 30 September 2016.

The Group is also present in Senegal, through the ERA company, the operator of the rural electrification concession in Kaffrine-Tambacounda-Kédougou (see section 1.4.5.3.9 "Off-grid energy").

Cameroon

The State of Cameroon (30%), the IFC (World Bank Group, 30%) and EDF (40%) are developing the Nachtigal 420MW hydropower project, situated on the Sanaga River, close to Yaoundé, for an investment decision aiming for the end of 2017. In July 2016, the Nachtigal Hydro Power Company was created to assist with the project.

The Nachtigal hydroelectric power plant is a sizeable project for the country and will, on commissioning, be the largest generation resource in Cameroon. It will provide around one third of the electricity needs and will generate numerous economic benefits for the local economy.

Republic of the Congo

In 2013, the Group signed a three-year term agreement with the Congolese Ministry of the Economy and Finance to reduce the technical and commercial losses of SNE, the national electricity company. Arriving at its expiry in March 2016, this contract was the subject of an amendment that extended it by six months; it then terminated on 30 September 2016.

Ivory Coast

EDF is developing the "Biovéa" project for a biomass electricity power plant with two 23MW units in partnership with SIFCA, an Ivorian agro-industrial group in West Africa. This project is already included into the Ivorian State's development master-plan, and negotiations are underway in order to reach a concession agreement and agreement on the transfer price of the generated energy. The investment decision is envisaged before the end of 2017. In August 2016, EDF created a local subsidiary to support its development strategy.

In October 2016, EDF created the ZECI company, a joint-venture with the US company Off Grid Electric (OGE), for the deployment of an off grid energy project for rural and peri-urban populations (see section 1.4.5.3.9 "Off-grid energy").

1.4.5.3.8 Middle East

The EDF group is present in the Middle East region through its subsidiary, EDF Abu-Dhabi, which, in particular, provides engineering and consultancy services for the building of transmission facilities, dispatching and network studies in the United Arab Emirates.

Saudi Arabia

EDF has an office in Riyadh that facilitates work with the Saudi government, which is planning to develop an energy policy that focuses on replacing fossil fuels with nuclear power and renewable energy sources (solar power).

In 2014, EDF signed a partnership agreement with the Saudi Electricity Company (SEC), a benchmark electricity operator of the country, enabling a broad cooperation between the two groups, and including in particular, training initiatives. In the extension of this agreement, the GOC "Generation,

Optimization Center" contract signed in February 2016 provides for support by EDF for the implementation of regional generation optimisation centres. In October 2016, an agreement was also signed concerning the training of future Saudi nuclear engineers, who will be trained within the Group's installations.

Israel

EDF has been present in Israel since 2010, via its subsidiary EDF Énergies Nouvelles, which operates 159MwC of photovoltaic power projects connected to the network, launched the construction of additional 35MwC and is continuing the development of a portfolio of projects representing close to 290MwC of solar energy (see section 1.4.1.4.3 "EDF Énergies Nouvelles").

EDF is also supporting the development initiatives of its subsidiary Edison in the gas sector. Furthermore, the Group's Hydraulic engineering centre (HEC) supplies services to the first Israeli project for the storage of electricity through pumping, on Mount Gilboa.

1.4.5.3.9 Off-grid energy

EDF has 15 years' experience in the field of "off-grid" – decentralised energy – in Africa via companies created for that purpose.

KES

In South Africa, the KES (Kukhanya Energy Services) company, created in 2002, is 50% owned by EDF, 15% by the local operator, Calulo, and 35% by Total. It initially developed its business through photovoltaic kits in Kwazulu-Natal, and then extended its activities into the Eastern Cape region. At the end of 2016, KES provides solar electrical energy to almost 210,000 people and wishes to continue its development in Southern Africa.

BPC Lesedi

In Botswana, EDF was chosen by BPC (Botswana Power Corporation), the national electricity operator, to assist as its strategic partner in the implementation of its decentralised rural electrification programme. EDF holds 45% of BPC Lesedi, a local subsidiary owned jointly with BPC. The interest in pursuing this programme has been called into question in view of the unachievable nature of the objectives in the business plan and a procedure for disengagement, pursuant to the shareholders' agreement, is under way.

ERA

In Senegal, EDF holds a 70% shareholding in ERA, alongside its local partner, Matforce. ERA is the operator of the rural electrification concession of Kaffrine-Tambacounda-Kédougou, which started the operational phase of its activity in 2014 after obtaining, at the end of December 2013, the first tranche of the French Development Agency grant, through ASER¹. It currently supplies power to approximately 25,000 people. A renegotiation of the concession contract was initiated with the Senegalese authorities, aimed at improving the economic balance of the concession in 2017 and ensuring its development.

ZECI

EDF and Off Grid Electric (OGE) – an American company involved in the distribution of solar energy in Africa, in which Electranova Capital, EDF's cleantech venture capital investment fund, holds a shareholding – created in October 2016 a joint company in the Ivory Coast, ZECI, for the supply of competitive off-grid solar energy in Africa.

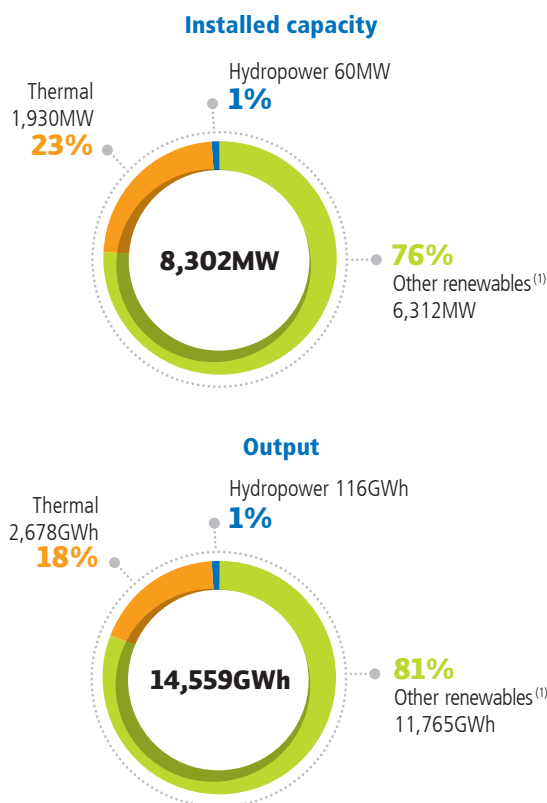
Within the framework of this joint venture, EDF and OGE assume the cost of the installation and maintenance of 300,000 solar kits intended for rural and peri-urban homes. These individual kits include solar panels which are easy to install, backed up by batteries for the storage of electricity, and

1. ASER: Senegalese Agency for Rural Electrification (Agence sénégalaise de l'électrification rurale).

which can be paid for merely by the use of a mobile phone. Thanks to these kits, customers will be able to have light and to power all their low consumption domestic appliances such as a television or a radio proposed within the offer, or to recharge their mobile phones.

The ambition of this first company is to provide power to almost 2,000,000 people by 2020 in the Ivory Coast, with a plan to quickly extend such initiative to other countries in the region and to develop the offer on a large scale.

1.4.6 ENERGY SERVICES AND OTHER ACTIVITIES



(1) Including the whole EDF Énergies Nouvelles entity.

1.4.6.1 Energy services

The EDF group is a significant player in energy services in France. Due to its expertise, it is in a position to offer solutions, covering the whole customer chain: advice, appropriate design solutions, construction, operation and maintenance of the facilities.

EDF is also acting in sectors as varied as street lighting, heating networks, decentralised low-carbon generation based on local resources (like the recovery of household waste), control of consumption and electric mobility.

The Group's CAP 2030 strategic plan emphasizes the development of energy services, in order, in particular, to meet the needs of local communities and businesses. The objective is to assist them with their energy transition and their competitiveness. All these actions are part of a larger context of energy efficiency, of generation with low emissions of CO₂, of energy performance research and improvements to the quality of life, regardless of what may be the business sector concerned.

1.4.6.1.1 Dalkia

The EDF group has held a 99.94% equity interest since July 2014 in Dalkia, a leading player in the European energy services market with a full range of services and an excellent sales network in France, serving to reduce energy consumption and to improve the performance of the facilities.

Dalkia's operations

Dalkia now operates in the face of three major challenges: global warming and the need to reduce greenhouse gas emissions, energy efficiency as a source of savings, and the territories transformation in an increasing urbanisation context and the resulting industrial development.

Dalkia brings expertise to its customers, in order to develop, realise, and manage innovative energy solutions, which are more ecological and more economical, for sustainable growth of cities and businesses.

From decentralised generation to demand-side management, while optimising distribution, Dalkia is present at each stage of the energy chain, in order to improve system performance. Thanks to its nearly 80 years of experience in managing heating and cooling networks, optimising industrial utilities, improving the energy performance of a building, or using alternative and renewable energies, Dalkia offers its customers tailor-made solutions to reduce their energy consumption and to improve the environmental and economic performance of their facilities.

In this way, Dalkia has allowed to avoid 3.2 million tonnes of CO₂ and realised 4.33TWh of energy savings in 2016.

Heating and cooling networks

The development of the networks was an important growth engine in the last few years for Dalkia which established a reproducible model for value creation, resting upon numerous optimisation levers:

- improvement of the efficiency of teams and organisations, optimisation of the performances of operations upon the takeover of networks;
- reconfiguration of generating plants and the networks: anticipation of future network needs, taking into account organic growth potential and progression of energy efficiency, integration of the challenges of regulatory compliance, reduction of unnecessary redundancies;
- modification of the energy mix for greater efficiency and less CO₂, with the optimisation of cogeneration and the development of renewable energies (biomass, geothermal, etc.);
- additional services in order to better enhance assets (for example, support service for the electricity grid).

Thus, Dalkia is one of the leaders in France in the management of urban heating and air-conditioning networks, operating 353 heating or cooling networks, both urban and local, and providing heat to 2 million homes. Deploying this model across its geographic targets will constitute a significant part of its future growth.

Industrial utilities

Dalkia is active in the industrial utilities business for 2,100 French industrial sites. The challenges are to improve environmental performance (particularly by controlling CO₂ emissions and the valuation of energy recovery), competitiveness and security of supply.

Dalkia's strategy is to allow its industrial clients to concentrate on their core processes, by assuming responsibility for and optimising the production of their utilities, their energy usage, and their greenhouse gas emissions. Dalkia differentiates itself by a large and coherent range of services, which includes the optimisation of industrial utilities (steam, electricity, compressed air); adjustment of usage to requirements, and identification of sources of unavoidable energy and recoverable co-products, optimisation of industrial building usage, and reduction of greenhouse gas emissions.

Building energy services

Building energy services consists of management of the energy facilities in buildings: optimisation of local thermal energy generation, energy supply, operation and maintenance of technical facilities. They also seek to improve the operation of existing systems in order to maximise their effectiveness and to reduce their CO₂ emissions. Dalkia provides integrated energy services ranging from the design, construction and upgrading of facilities, to energy supply and management and maintenance of facilities, for tertiary, industrial, public-sector and private-sector customers.

In this respect, Dalkia manages 82,000 energy facilities in France.

Key achievements for Dalkia in 2016

2016 was notable for very good commercial performance.

Concerning the heating networks, Dalkia renewed almost all of its major contracts (Lyon, Nancy, Le Mans, Évry, etc.), generally with new provisions in terms of extension and "greening". In this regard, renewable and recovered energy now represents nearly 29% of the energy mix.

Cogeneration has undergone significant development and, thanks to a partnership with Amundi Transition Énergétique, Dalkia will be able to implement and finance over a hundred projects at its customers (industrial customers, heating networks or residential customers).

Dalkia has also continued its development and actions internationally by acquiring Groom Energy Solutions in the United States.

The range of energy services, products and solutions provided by the EDF group has been enhanced, firstly with the structuration, in Belgium and Great Britain, of partnerships with the local companies of the Group, and secondly, through the acquisition of a majority shareholding in the group Tiru, as well as shares in Fenice Rus from Fenice Spa (Italy). Fenice Rus works in the field of management of industrial utilities in Russia.

Also, the company Techsim, specialised in compressed air, was acquired.

Main subsidiaries of Dalkia

Optimal Solutions

Optimal Solutions (the former EDF OS), a wholly-owned subsidiary of the Dalkia group since February 2015, has positioned itself as a specialist in the design and realisation of energy-efficient solutions in France, strongly complementing Dalkia's regions.

Tiru

The Tiru company specialises in:

- energy recovery via the incineration of household waste to generate energy (electricity and/or steam) for district heating or industrial applications;
- organic recovery via the breakdown of organic matter and production of compost and biogas;
- materials recovery via sorting and packaging of recyclable materials (plastic, fibres, metals).

Tiru designs, constructs and operates facilities in France, Great Britain, and Canada, and had 1,177 employees at the end of 2016. Its client portfolio is made up of municipalities, predominantly departmental and municipal consortia, waste management operators, as well as some private-sector clients (in particular, greenhouse producers and industrials).

Cesbron

Cesbron, a wholly-owned subsidiary of the Dalkia group, is specialised in the installation and maintenance of cooling solutions for corporate customers and local authorities. It has a workforce of 798 employees.

Verdesis

The Verdesis group, a wholly owned subsidiary of the Dalkia group, is specialised in biogas. It provides services or designs and operates its own generation sites and biogas recovery sites, in France and in Belgium.

Verdesis France changed its name and became Dalkia Biogaz in December 2016.

CRAM

The CRAM group is a regional player specialised in building energy services. In 2016, Dalkia SA increased its stake in the capital of CRAM SAS from 75% to 85%. CRAM SAS has a workforce of 521 employees.

1.4.6.1.2 Citelum

Citelum is the lighting and connected services subsidiary of the EDF group, and is one of the leading players in the field in France and throughout the world.

With roughly 450 employees in France, Citelum employs close to 3,000 people, mainly in Europe (including France, Italy, Spain and Denmark) and in America (including the United States, Mexico, Brazil and Chile), which enables it to manage the services of more than 1,000 cities throughout the world (Mexico, Copenhagen, Barcelona, Rome, etc.).

The technological changes in lighting equipment currently enable it to make use of an existing connected infrastructure, thereby facilitating energy savings, remote management of installations and improvements to security as well as showcasing cultural heritage. In addition, this lighting equipment, connected to other devices (sensors, cameras, etc.), offers new value-added services in the areas of the prevention of pollution, video-monitoring of the territory, information to users or the management of urban mobility and parking.

Citelum operates on the following three value chains:

- increasing attractiveness for customers through the optimisation of lighting, while limiting energy expenditure;
- improving perceived security by optimising the use of the allocated resources;
- creating more fluid mobility and parking, promoting an increase in receipts from customers.

Citelum marks out its difference through its capacity to assist in all phases of a project, from design and completion of the works to operation and maintenance, by incorporating into its service offer solutions for financing, innovation with its collaborative management platform for the Muse public space® and strong skills in contractual engineering.

In 2016, Citelum was notably selected by the city of Siena to assist with its transformation into a "smart city". The nine-year contract incorporates the LED modernisation of the lighting, lighting for architectural heritage and the implementation of new connected services (weather station, variable-message information panels, Wi-Fi access) intended for inhabitants and visitors. A remote management system to modulate the intensity and the duration of the lighting will complete the system, thereby enabling the city to reduce its energy bill by 58% over time, together with its emissions of CO₂. Citelum has already implemented this type of solution throughout the world, with major references in Copenhagen (Denmark), Syracuse (Italy), San Cugat (Spain) and Sète (France).

1.4.6.1.3 Other service subsidiaries of the EDF group

Other subsidiaries within the EDF group complete the range of energy services that EDF offers. These focus on specific areas, targeting different categories of customers (individuals, professionals, businesses and local authorities) and cover a wide range of activities including research, construction, equipment maintenance, investment financing and assistance with obtaining permits and subsidies.

Energy management

To help customers manage their energy and fluid consumption, the EDF group provides facility monitoring and management solutions. Its subsidiaries Netseenergy and Edelia are active in this strategic area.

Netseenergy

Netseenergy, a company that is wholly owned by EDF, offers a range of services which enables business customers and regional municipalities to monitor the energy performance of their property assets. This company is an important player in the digitalisation of energy management via service offers such as:

- innovative energy audits: algorithmic control of customers' energy and real estate property data;
- monitoring of energy and real estate property performance: automated data collection, mobile applications, customised energy management.

Edelia (Edev Téléservices)

Edelia is a company which is wholly owned by EDF, and it historically handles, on behalf of EDF, the deployment and operation of demonstrators within the framework of intelligent distributed load-shedding electrical systems, for residential customers, particularly in Lyon (Smart Electric Lyon), in Nice, and in Brittany (with the experimental "Une Bretagne d'avance"). Edelia is also designing and developing a service hub aiming to deal with several millions of customers (display screens of consumption, warnings, advice, etc.).

The positioning of Edelia today is that of a subsidiary contributing a capacity of innovation to the EDF group on "smart home and data" topics (exchanges of data between connected objects in the home, in order to enhance services).

Electric mobility

The transportation sector today is very dependent upon fossil energies and is one of the significant sources of emissions of CO₂. Yet, low-carbon electricity constitutes a lever for developing eco-friendly mobility and transports in a territory. This is why EDF is investing in this field, particularly through its subsidiary Sodetrel.

The Group's solutions include:

- consulting services for local authorities and businesses on the positioning and scale of electric vehicle charging infrastructure;
- installation of recharging infrastructure for all customer segments: residential, local authorities and businesses, car parks and supermarkets;
- remote management and supervision of charging stations;
- the Group has also participated in experimental ride-sharing in Grenoble, Nice and Monaco.

Sodetrel

Sodetrel, a company which is wholly owned by EDF, offers a range of electric mobility schemes for local authorities, energy consortia, and businesses. In

this regard, it proposes a wide range of offers to its customers, from the provision and installation of charging infrastructure to commercial operation of associated services, also including tools for the supervision of charging stations and key solutions in hand for technical operation and maintenance. Sodetrel, in collaboration with its eco-mobility partners, also offers electric vehicle fleet management solutions.

Since 2015, Sodetrel, in the framework of a consortium¹, has deployed a network of 200 rapid-charging stations that are interoperable on highways and compatible with all models of electric vehicles in the market.

Electrical engineering: HTMS

HTMS, a wholly-owned subsidiary of EDF, is involved in the operation and maintenance of high-voltage and medium-voltage equipment and substations, the supply and replacement of circuit breakers and transformers, troubleshooting, project management support and training. The company's core business is the optimisation of maintenance operations to ensure operator safety, the availability of facilities and the sustainability of plant and equipment.

The company also provides independent assessments and consulting (operational audits, definition of maintenance policies and equipment upgrades) and monitoring assignments for major projects.

Its activity is organised around three agencies (Lorette, Audruicq and Nantes), to which the operational branches are attached (Bordeaux, Lyon and Avignon).

In 2016, HTMS won several multi-year maintenance contracts, particularly the maintenance of 400kV and 225kV stations for the new Tours-Bordeaux high-speed railway, or the maintenance and operation with Dalkia of the Iter site in HVB.

Heating: CHAM

CHAM, an EDF's wholly-owned subsidiary, is a major player in the field of maintenance and replacement of heating and hot water production equipment in France. It intervenes with retail customers, in individual homes, in private collective residences, and with professionals.

CHAM carries out more than 700,000 interventions *per annum*, in order to improve the performance of its customers' equipment. In 2016, the company continued the deployment of connected thermostat solutions with its residential customers.

Third-party investment in energy efficiency: Perfesco

Perfesco, an EDF's wholly-owned subsidiary, provides financing services to assist its customers with their energy transition. To do so, this company identifies high-energy consumption items at major industrial players and offers to install more economical equipment, making profit based on the savings generated.

Financial services: Domofinance

Domofinance meets the financing needs of EDF's residential customers and building management companies who wish to integrate energy-efficient solutions into their home renovation projects. Specifically, it markets and finances renovation loans subsidised by EDF and communal works for building management companies.

In 2016, Domofinance granted 46,583 loans.

EDF consolidates under the equity method 45% of Domofinance, the remaining 55% being held by BNP Paribas Personal Finance (a subsidiary of the BNP Paribas group).

1. This consortium brings together EDF, automobile manufacturers Renault, Nissan, BMW, and Volkswagen, and ParisTech. The Corri-Door project is being financed in half by the European Commission.

1.4.6.2 Gas activities

In Europe, the EDF group requires over 20 billion cubic metres of gas, equivalent of half France's national consumption. As such, EDF has developed a gas strategy to ensure the security of the gas supply for its 4.6 million customers, its cogeneration plants and its gas power plants.

The Group is thus present throughout the natural gas chain in France, but also in Europe, mostly through its subsidiaries, EDF Energy, Edison and EDF Luminus. It also relies upon EDF Trading for its operations related to involvement in the wholesale markets, as well as on Dalkia for the cogeneration power plants.

Lasty, the Group is present outside Europe, especially in the United States, where EDF Energy Services is an important natural gas supplier of major industrial customers and distributors.

1.4.6.2.1 Natural gas end-market

In Europe, on 31 December 2016, the downstream customer portfolios were as follows:

- in France (EDF and ÉS): approximately 1.4 million customers (from retail customers to major industrial players) for a consumption of approximately 27.7TWh in 2016, with a market share of around 5.7%;
- in Italy (Edison): approximately 502,000 customer accounts, 6.53Gm³ of gas (around 69.1TWh) *i.e.* a market share of 14.5%;
- in the UK (EDF Energy)¹: around 2.1 million customer accounts (28TWh) *i.e.* a market share of around 5%;
- in Belgium (EDF Luminus): approximately 623,200 customer accounts (15.32TWh) *i.e.* a market share of around 18%.

1.4.6.2.2 Gas assets and projects

1.4.6.2.2.1 Supply sources

In Europe, the Group's gas supply comes from short- and long-term gas markets and from a diversified portfolio of long-term contracts, originating from Qatar, Russia, the North Sea and North Africa.

In the United States, the majority of the supplies originates from the gas markets.

In the rest of the world, specific contracts have been concluded to ensure the supply of the Group's gas power plants.

1.4.6.2.2.2 Infrastructures

Gas pipelines

Apart from its various rights to transport capacity in the European network, the EDF group participates, through its Edison subsidiary, in infrastructure projects for gas importation (see section 1.4.5.2.3.2 "Hydrocarbon business").

Liquefied natural gas (LNG) regasification terminals

EDF, via its subsidiary Dunkerque LNG (65% owned by EDF, 25% by Fluxys and, 10% by Total), has commissioned, since 1 January 2017, a new methane terminal within the Grand Port Maritime of Dunkirk. With a regasification capacity of 13 billion cubic metres *per annum*, the LNG terminal has begun its commercial activities. This terminal, with a storage capacity of 600,000 cubic metres and linked to the French and Belgian transport networks, has the

particularity of producing no CO₂, the calories necessary for the reheating of liquefied natural gas originating from the warm water from the nuclear power plant at Gravelines located nearby.

In Italy, Edison owns 7.3% of the share capital of Adriatic LNG Terminal, the company that operates the Rovigo offshore terminal, and 80% of the regasification capacity, *i.e.* 6.4 billion cubic metres per year (see section 1.4.5.2 "Italy").

The Group also holds regasification capacities in the terminal of Zeebrugge (Belgium).

Storage

In Germany, the EDF group has storage for natural gas in salt cavities situated in Etzel. The aboveground facilities are operated through a 50/50 joint-venture with EnBW. EDF has approximately 190 million cubic metres of volume capacity in this salt cavity storage.

With respect to storage activities of the Group in Italy and in the United Kingdom, see respectively, sections 1.4.5.2.3.5 "Regulated activities" and 1.4.5.1.2.3 "Thermal generation and gas storage".

The Group also holds storage rights in the Netherlands, Belgium and France.

1.4.6.2.2.3 Exploration and Production (E&P)

The Group is developing its upstream activities in hydrocarbons exploration and production, through Edison (see section 1.4.5.2 "Italy"). Proven reserves total 40.4 billion cubic metres of gas equivalent, with 2.6 billion cubic metres produced in 2016.

1.4.6.3 Optimisation and trading: EDF Trading

EDF Trading is the EDF group's exclusive interface with the wholesale energy markets providing market, optimization and risk management services to the EDF group and third parties. The company operates across Europe, North America and Asia in the wholesale markets for electricity, natural gas, LNG and LPG, coal and freight and environmental products. EDF Trading is one of the largest wholesale energy market traders in Europe and in North America. Through its EDF Energy Services subsidiary, it is one of the main independent providers of energy management services for power generation companies and retailers and a top 10 retail supplier to large commercial and industrial users in North America.

EDF Trading's registered office is located in London. The company has around 950 employees and is governed by the UK's financial market regulator, the Financial Conduct Authority.

European Electricity market

EDF Trading is a leading participant in the European electricity wholesale market, providing a full range of risk management services to EDF group's asset operators and to third parties. It has an extensive geographic footprint and scale of activity which makes it able to adapt quickly to changes in the market and to develop new business where appropriate. In 2016, EDF Trading began to trade a new Combined Cycle Gas Turbines (CCGT) technology developed in Bouchain, northern France and extended its optimization services for the Sloe CCG in the Netherlands. Working with EDF's sales and marketing team, EDF Trading expanded its wholesale products offering to the Group's large industrial and commercial customers and also took part in the first wind futures contract on NASDAQ.

1. Excluding Northern Ireland.

European Gas

EDF Trading is a leading player in the European gas wholesale market. It manages EDF group entities' gas assets including production, transmission rights, long-term supply contracts and re-gasification and storage capacities. This enables it to support the EDF group and third party customers with complete gas wholesale market solutions. EDF Trading works with Group entities to optimise their short term assets. In 2016, it strengthened its Italian gas footprint and extended the structure for its optimization of EDF's gas assets. EDF Trading has also been developing wholesale market products for a growing number of third party customers.

North American power and gas

EDF Trading is a leader in the North American wholesale electricity markets with an extensive geographic footprint. It is also one of the top gas marketers. EDF Trading contracts or manages about 4.2Gm³ (15bcf) of natural gas storage and around 400Mm³ (1.5bcf per day) of gas pipeline transportation. It has a portfolio of assets including long term electricity and gas contracts, virtual hydro plants, US tolling agreements, gas storage facilities and gas transportation contracts. In 2016, EDF Trading extended its agreement to manage a significant portion of a Midwest utility's FTRs (Financial Transmission Rights), closed a long-term electricity hedge with an independent power producer and expanded its gas pipeline capacity.

Environmental products

EDF Trading is a major player in structuring and delivering green power solutions in Europe. It is also active in the purchase and sale of renewable energy certificates in the main US states and carbon allowances in California. It is a recognized market maker in the European traded weather market and an active participant in the North American weather derivatives market.

Liquefied Natural Gas (LNG) and Liquefied Petroleum Gas (LPG)

EDF Trading offers a complete range of LNG and LPG services including supply, delivery and nominations into the appropriate network. In 2016, it continued to expand its physical LNG portfolio through medium-term purchase and optimization contracts and has been providing ongoing marketing support for EDF's regasification capacity at the Dunkirk LNG facility as well as providing the facility's commissioning cargoes. It delivered its first LNG cargo into Egypt and secured structured term deals with various producers and consumers. In LPG, EDF Trading took delivery of its first cargoes and expanded its activities in various markets.

Coal and freight trading

EDF Trading has signed on 21 December 2016 binding agreements for the sale of its coal and freight business to JERA Trading Singapore. EDF Trading will have a one-third stake in the new trading venture which is expected to become operational in April 2017.

Following completion of the transaction, JERA Trading will become one of the largest coal traders globally, with a major presence in both the Atlantic and Pacific basins and total physical coal sales of approximately 60 million tonnes *per annum*.

EDF Energy Services

EDF Energy Services is EDF Trading's dedicated customer platform in North America. EDF Energy Services provides large commercial & industrial (C&I) consumers with physical electricity, natural gas and environmental products supply. EDF Energy Services is the premier generation services provider for third party power stations in the US, dispatching over 23,000MW of generation output across 65 power stations and dozens of Load Demand Response customers. Many of these customers are European entities or are present in Europe, allowing EDF to serve their needs on a global scale. In 2016, EDF Energy Services expanded its retail commercial and industrial footprint, increased its asset portfolio in generation services and added new retail energy providers to its wholesale services platform. EDF Energy Services has deployed a comprehensive, integrated digital platform to facilitate this growth. The platform, branded EDGi, includes CRM, bid to bill ISO systems, retail billing, contracting and deal capture processes, load forecasting and customer hedging and portfolio management positions across all deregulated jurisdictions in the US and Canada. EDF Energy Services also launched an enhanced customer portal for its retail clients, enabling them to create personalized views of their data and selected market information.

1.4.6.4 Other equity interests

1.4.6.4.1 EDF Trading Logistics

With a fuel oil supply volume of approximately 1.11 million tonnes and 1.84 million tonnes of coal delivered in 2016, EDF Trading Logistics acts as EDF's vehicle for fuel oil purchases. It organises fuel oil and coal supply logistics operations for all of the EDF group's thermal plants in mainland France, Corsica and France's overseas departments, in close collaboration with EDF Trading, and controls the coal terminals in the ports of Le Havre and Saint Nazaire.

Furthermore, EDF Trading Logistics provides EDF with its expertise in the implementation of processes for managing risks relating to the transport of fuel oil (hazardous materials), an activity that has been awarded ISO 14001 certification, and in the management of environmental crises arising from this activity.

1.4.6.4.2 Other equity interests

As well as interests in local distribution companies or LDCs (SMEG, Enercal, Électricité de Mayotte, EDSB), the EDF group has industrial subsidiaries and holdings. These companies contribute, within their specific field of activities (generation, fuel, engineering) to the Group's missions, and more specifically, to those of generation and engineering: namely to ensure the short- and medium-term performance of EDF's portfolio of generation assets in France.

These companies include SAE, which specialises in fuel transport and trading operations on behalf of the EDF group; SHEMA, which specialises in hydropower generation by small power plants; and SOCODEI, a wholly-owned subsidiary of EDF specialising in the treatment and packaging of low- and intermediate-level radioactive waste.

In the UK, EDF Energy still operates almost 4GW of coal-fired power plants, currently indispensable to the UK's supply and demand balance. These power plants are expected to be closed by 2025, according to the decisions of the UK Government. In continental Europe outside France, EDF has launched a strategic review of its energy generation assets based on fossil fuels.

EDF advocates a minimum CO₂ price to limit the use of existing coal-fired power plants and is continuing its efforts to replace some of its coal-fired power plants with biomass. More generally, the Group is working to optimise the performance of all of its thermal power fleet.

1.5 Legislative and regulatory environment

EDF group entities are subject to a wide variety of regulations in the conduct of their business activities. In particular, EDF is subject to the European legislation on the electricity and gas markets, which has been transposed into French law, as well as to the applicable environmental, nuclear power, health and safety regulations.

The following review of legal and regulatory provisions is not designed to be an exhaustive description of all such provisions that are applicable to the EDF group.

1.5.1 EDF AS A PUBLIC UNDERTAKING

As of 31 December 2016, the French State held 85.62% of EDF's share capital and 85.73% of EDF's voting rights and, pursuant to Article L. 111-67 of the French Energy Code, must at all times hold at least 70% of EDF's capital.

As an undertaking in which the French State holds a majority shareholding, EDF is subject to the provisions of Order no. 2014-948 of 20 August 2014 on the governance and equity transactions of companies with a public shareholding and its implementing Decree no. 2014-949 of the same date.

The French Government Shareholding Agency (APE), which was founded by Decree no. 2004-963 of 9 September 2004, fulfils the State's remit in its capacity as EDF's shareholder and, in this respect, proposes and implements the State's decisions and guidelines, in consultation with the ministers concerned.

In accordance with the legislation that applies to all undertakings of which the State is a majority shareholder, EDF may have to undergo certain State audit procedures, in particular through an economic and financial evaluation assignment, pursuant to Decree no. 55-733 of 26 May 1955 on State economic and financial evaluation and Decree no. 53-707 of 9 August 1953 on State evaluation of national public undertakings and certain organisations, the purpose of which has an economic or social component.

EDF also has to undergo the audit procedures performed by the French General Accounting Office (Cour des Comptes) and Parliament. Thus, in addition to the control performed by the statutory auditors, the Company's accounts and management and, where applicable, those of its directly-held majority subsidiaries, fall under the control of the French General Accounting Office, in accordance with Articles L. 111-4, L. 133-1 and L. 133-2 of the French Code of Financial Jurisdictions.

Moreover, the Legislative Decree of 30 October 1935 allows the Minister for the Economy to have EDF audited by the General Finance Inspection Office.

Lastly, the disposal of EDF shares by the State, or the dilution of the State's stake in EDF's capital, is subject to a specific procedure under Order no. 2014-948 of 20 August 2014 on the governance and equity transactions of companies with a public shareholding. Among other things, this Order simplified the previously applicable rules that resulted from the so-called "privatisation" Laws no. 86-793 of 2 July 1986, no. 86-912 of 6 August 1986 and no. 93-923 of 19 July 1993.

1.5.2 PUBLIC SERVICE IN FRANCE

Statutory definition of public service in France

Articles L. 121-1 *et seq.* of the French Energy Code outline the framework for the public electricity service (see section 1.5.3.2 "French legislation: the French Energy Code" below for a description of this regulation).

Public service missions

Articles L. 121-1 *et seq.* of the French Energy Code state that the purpose of the public electricity service is, *inter alia*, to guarantee electricity supply throughout French territory, while acting in the general interest, to develop and operate public electricity networks and to supply electricity at regulated sales tariffs and at the basic necessity rate.

Balanced development of electricity supply mission

The purpose of the balanced development of electricity supply mission, which is defined in Article L. 121-3 of the French Energy Code, is to achieve the objectives defined in the multi-year energy plan (PPE), which Law no. 2015-992 of 17 August 2015 on Energy Transition for Green Growth substituted for the multi-year generation investment plan (PPI). The PPE was defined by decree, and sets out priority courses of action for the public authorities for the management of all forms of energy in continental metropolitan France. It must be compatible with the greenhouse gas emission reduction targets set in the carbon budget and the low carbon strategy, which are defined by Decree no. 2015-1491 of 18 November 2015, pursuant to the aforementioned Law of 17 August 2015.

The PPE contains sections on (i) the security of supply, (ii) improving energy efficiency and reducing primary energy consumption, in particular fossil fuel, (iii) developing the utilisation of renewable energies and energy recovery, (iv) the balanced development of energy networks, storage and conversion, and managing the demand for energy, (v) the preservation of consumer purchasing power and the competitiveness of energy prices, in particular for undertakings that are exposed to international competition and (vi) the evaluation of the needs for professional skills in the field of energy and how training courses can be adapted to these needs.

It defines the quantitative objectives for the plan and the maximum indicative budget for the public funds that the State and its public institutions will mobilise in order to attain them. This budget is defined in terms of commitments and accomplishments. It may be broken down by objective and by industry sector.

The first PPE must cover an initial period of three years (2016-2018), then a second period of five years (2018-2023). Subsequent PPEs will be drawn up for two, successive five-year periods.

The first PPE was defined by Decree no. 2016-1442 of 27 October 2016 on the multi-year energy plan. Pursuant to the law, by 28 April 2017, EDF must prepare before 28 April 2017 a corporate strategy plan (PSE) presenting the actions that the company commits to implementing in order to meet the security of supply and electricity generation diversification objectives defined in the first period of the PPE. The PSE will be submitted to the approval of the Minister of Energy, who will review its compatibility with the PPE. If it is not, EDF will have to draw up a new plan.

The balanced development of electricity supply mission also involves guaranteeing the supply of areas that are not interconnected to continental metropolitan France (Corsica, and the overseas *départements* and territories), as well as some islands in Brittany. Corsica, Guadeloupe, Guyana, Martinique, Mayotte, La Réunion, and Saint-Pierre-et-Miquelon will each have their own specific PPE. Other areas that are not interconnected with the continental metropolitan network, except for Saint Martin and Saint Barthélemy, will be subject to a section appended to the PPE for continental metropolitan France.

As a power producer, EDF, along with the other producers, contributes to the performance of this mission.

Mission to develop and operate public transmission and distribution networks

The mission to develop and operate the public electricity transmission and distribution networks, which is defined in Article L. 121-4 of the French Energy Code, involves ensuring:

- a rational electricity distribution service in France through the public transmission and distribution networks, in a way that is environmentally friendly, interconnection with neighbouring countries; and
- connection and access to the public transmission and distribution networks, under non-discriminatory conditions.

The public network managers that are designated by law are responsible for this mission, namely RTE for transmission, Enedis and the Local Distribution Companies (LDCs) for distribution, and EDF in the areas not interconnected to the continental metropolitan network.

Mission to supply electricity

The public service mission to supply electricity, which is defined in Article L. 121-5 of the French Energy Code, involves ensuring the supply of electricity throughout France to customers who benefit from regulated electricity sales tariffs.

By law, this mission has been entrusted to EDF and to the LDCs.

The conditions under which customers can benefit from regulated electricity sales tariffs are defined in Articles L. 337-7 *et seq.* of the French Energy Code.

The mission to supply electricity also involves the application of the special "basic necessity" rate (TPN). This public service mission is assigned to all electricity suppliers. The Law of 17 August 2015 on Energy Transition for Green Growth provides for the gradual replacement of the TPN by "energy vouchers". These vouchers are a special means of payment that allow households that are experiencing financial difficulties to cover part of their energy consumption expenses (electricity, gas, fuel oil, etc.) or their expenditure on improving the energy efficiency of their home. Pursuant to Decree no. 2016-555 of 6 May 2016 on energy vouchers, the energy voucher system has been in an experimental phase in the Ardèche, Aveyron, Côtes-d'Armor and Pas-de-Calais départements since 20 May 2016 and is expected to become standard practice throughout France by 1 January 2018.

The mission to supply electricity moreover includes supplying emergency power to customers who are connected to the public networks. The relevant administrative authority designates emergency suppliers through one or more tendering procedures. As the implementing regulations had not yet been adopted on the date of this Reference Document, this provision has still not entered into force.

Social cohesion

Article L. 121-5 of the French Energy Code provides that the supply of electricity at regulated tariffs must contribute to social cohesion, in particular through the national equalisation of regulated electricity sale tariffs.

Article L. 115-3 of the French Social Action and Families Code prohibits electricity suppliers from cutting off electricity supplies to the primary residences of individuals or families during the winter period (from November 1 to March 31) due to unpaid bills, including through contract termination. Electricity suppliers may, nevertheless, in certain cases, reduce the power supplied, except with regard to customers who benefit from the TPN or "energy vouchers".

In its capacity as an electricity supplier, EDF is required to maintain electricity supplies under the conditions laid down by said Article and by Decree no. 2008-780 of 13 August 2008 on the procedure that is applicable in the event of unpaid electricity, gas, heating and water bills, implemented in its amended form pursuant to Decree no. 2014-274 of 27 February 2014.

Public Service Contract

On 24 October 2005, a Public Service Contract was signed by the State and EDF pursuant to Article L. 121-46 of the French Energy Code. This contract, which details the commitments made by EDF and the State and specifies the rules governing the financial compensation for service commitments, will remain in force until a new contract is signed, as provided for in the contract itself.

Commitments by EDF (excluding network managers)

EDF's public service commitments include:

- access to the public electricity service and the supply of electricity to customers who choose to remain at regulated tariffs;
- production and sales. These areas include the implementation of the energy policy and maintaining secure power generation that is environmentally friendly;
- contributing to the safety of the electricity network. In this regard, EDF undertakes to enter into several contracts with RTE, in particular concerning the optimisation of work on generation facilities and the availability of the resources required to maintain network balance.

Commitments by network managers

In the Public Service Contract, the Enedis and RTE network managers made commitments concerning the management of the public networks for the transmission and distribution of electricity and the safety of the electricity system. These commitments are financed by the Tariff for Using the Public Electricity transmission and distribution Networks (TURPE).

These commitments concern, above all, network safety, supply quality, third party safety and the preservation of the environment – four areas where customers' and local authorities' expectations are especially high.

More accessible services

On 28 September 2010, the State and EDF, as well as eight other major public service operators, signed a partnership agreement entitled "+ de services au public" ("more services to the public"), which aims to develop access to a set of services intended for rural populations in France (information on bill payment, general information, travel ticket sales, etc.).

Reception staff and internet access points are some of the many resources made available to users through shared facilities such as Multiservice Conciliation and Information Points (PIMMS), Public Service Relays (RSP) and other structures such as town halls. Following the experimental phase, during which these services were deployed in twenty-two French départements, in July 2013, the Inter-Ministerial Committee for the Modernisation of Public Action (CIMAP) decided to extend this initiative throughout France.

1.5.3 ELECTRICITY MARKET LEGISLATION

1.5.3.1 European Legislation

Three European Directives, which form the basis for the current organisation of the electricity market in France, were successively adopted in order to lay down the common rules for the generation, transmission, distribution and supply of electricity. Directive no. 96/92/EC of 19 December 1996 laid the foundation for opening up the electricity market to competition.

Directive no. 2003/54/EC of 26 June 2003 reiterated the major principles and took an additional step on the path to opening up the market, by progressively expanding eligibility to all customers.

Directive no. 2009/72/EC of 13 July 2009, known as the “Third Directive”, was adopted as part of the third “Energy Package”. This directive primarily strengthens the guarantees of the independence of transmission system operators and increases the power of the national regulatory authorities. These provisions have now been incorporated into the French Energy Code.

Moreover, the rules that govern the conditions for access to the network for cross-border exchanges in electricity are currently defined by Regulation (EC) no. 714/2009 of the European Parliament and of the Council of 13 July 2009, which is part of the third Energy Package. This Regulation, *inter alia*, provides for a compensation mechanism between transmission system operators for the costs incurred by hosting cross-border flows of electricity on their networks. This compensation is paid by the operators of the national transmission systems from which cross-border flows originate and the systems where those flows end.

Finally, the “Security of Electricity Supply” Directive no. 2005/89/EC, which was adopted on 18 January 2006, is designed to provide a better definition of the responsibilities of the various operators, ensure that minimum operational standards are respected, maintain balance between demand and supply, and channel investments toward the systems. The objectives of this directive have been taken into account in various French laws and regulations.

Energy Union

On 30 November 2016, the European Commission presented a legislative package entitled “Clean Energy for All Europeans”, which is a proposal to revise all legislation on electricity. This package is made up of 11 legislative texts and a considerable number of communications documents that accompany the European Commission’s proposals. These proposals concern the organisation of the wholesale and retail markets for electricity, and are designed to give increased importance to consumer-centred measures. The legislative proposals are also an opportunity to confirm or propose new European targets for 2030 in terms of energy efficiency (a 30% target proposal) and renewable energy (a 27% target proposal). A new regulation is proposed for security of supply, and a revised regulation is proposed concerning the Agency for the Cooperation of Energy Regulators (ACER). All the proposed provisions are intended to create a more cohesive organisational framework for the electricity markets, for the benefit of the European energy and climate policies, as part of the planned European Energy Union. A technical memo on Energy Union Governance completes the package and specifies the method for monitoring the achievement of objectives by the Member States that will be implemented by the Commission. Parliamentary debates will start early in 2017; however, the dialogue negotiations (between the European Parliament, the Council of the European Union and the European Commission) of the definitive texts will not be held before the second half of 2017 or even at the start of 2018. The (new or revised) provisions are therefore expected to enter into force between 2018 and 2020, depending on whether they are immediately applicable in the Member States (regulations) or have to be transposed into domestic law (default time of 18 months).

The Agency for the Cooperation of Energy Regulators

Regulation (EC) no. 713/2009 of the European Parliament and of the Council of 13 July 2009, established an Agency for the Cooperation of Energy Regulators (ACER). The ACER plays a role in developing network codes in the electricity and gas sectors, and can make decisions relating to cross-border infrastructures (on this subject, see also section 1.5.6.2.5 “Regulations applicable to renewable energy generation”).

1.5.3.2 French legislation: the French Energy Code

The various pieces of legislation on energy law¹ were incorporated into the French Energy Code by Order no. 2011-504 of 9 May 2011, with the exception of the majority of the provisions on nuclear energy, which were incorporated into the French Environment Code, pursuant to Order no. 2012-6 of 5 January 2012. Moreover, Decree no. 2015-1823 of 30 December 2015 organised the regulatory section of the French Energy Code. Consequently, around one hundred decrees on energy law have been repealed.

The Law of 17 August 2015 on Energy Transition for Green Growth amended numerous provisions of the French Energy Code, and in particular the objectives of the energy policy, which are now focused on the emergence of a competitive economy that creates an abundance of jobs through the mobilisation of all the industrial sectors (in particular the green growth sectors), security of supply and the reduction of reliance on imports, competitive and attractive energy prices, the preservation of human and environmental health, social and territorial cohesion, the fight against fuel poverty, and contributing to the implementation of a European Energy Union.

Generation facilities

Anyone can operate an electricity generation facility provided that, above a certain power threshold determined by decree, an operating licence issued pursuant to Article L. 311-5 of the French Energy Code is obtained. The powers and responsibilities of local authorities with regard to electricity generation are defined in Articles L. 2224-32 and L. 2224-33 of the French Local Authorities Code, and in Article 88 of Law no. 2010-788 of 12 July 2010 on the national commitment to the environment.

Regulated Access to Electricity from the Existing Nuclear Fleet (ARENH)

The rules governing Regulated Access to Electricity from the Existing Nuclear Fleet (ARENH), provided for in Articles L. 336-1 *et seq.* of the French Energy Code, have been implemented since 1 July 2011. See section 1.4.3.3 “Regulated access to historic nuclear power (*Accès Régulé à l’Énergie Nucléaire Historique*, or ARENH)” on this point.

Choice of electricity supplier

All customers, without exception, have been eligible since 1 July 2007, *i.e.* they may freely sign a contract for the purchase of electricity with a producer or supplier of their choice that is established on the territory of the European Union or on the territory of a State that is party to an international agreement with France (Article L. 331-1 of the French Energy Code).

Customers can choose to benefit from regulated electricity sales tariffs under the conditions set out in Articles L. 337-7 *et seq.* of the French Energy Code. Pursuant to these provisions:

- household and non-household final consumers whose power demand is less than or equal to 36kVA benefit, at their request, from regulated sales tariffs; this is also true for all customers in areas that are not interconnected to continental metropolitan France;

1. Law of 15 June 1906, Law no. 46-628 of 8 April 1946, Law no. 2000-108 of 10 February 2000, Law no. 2003-8 of 3 January 2003, Law no. 2004-803 of 9 August 2004, Law no. 2006-1537 of 7 December 2006, Law no. 2010-1488 of 7 December 2010.

- household and non-household final consumers whose power demand is greater than 36 kVA, who had not exercised their eligibility on 7 December 2010 were able to benefit from regulated sales tariffs until 31 December 2015. Since 1 January 2016, these consumers no longer benefit from regulated tariffs. Article 25 of Law no. 2014-344 of 17 March 2014 on consumption provided for a six-month transitional period, during which customers who had not signed a new contract with the supplier of their choice before 31 December 2015 could, in order to guarantee the continuity of their electricity supply, continue to benefit from a contract with EDF¹ during a maximum transitional period of six months, at the end of which they would no longer be supplied (*i.e.* on 30 June 2016). During this period, customers could terminate this contract at any time without having to pay an indemnity. EDF had an obligation to inform the customers concerned, by letter, of the expiration of the transitional contract three months and one month before it ended. Order no. 2016-129 of 10 February 2016 provided for a system ensuring from 1 July 2016 the continuity of gas and electricity supplies: customers who, on 30 June 2016, had not accepted a market-based offer are deemed to have accepted the conditions of the new contract proposed by the supplier that was selected, following a competitive tendering procedure, by the Energy Regulation Commission (CRE) in its decision of 4 May 2016. In November 2016, the CRE organised a new call for tenders for the lots that could not be allocated in May 2016. This call for tenders was unsuccessful for the lots concerning electricity supply contracts.

Article L. 111-84 of the French Energy Code requires internal accounts to be kept that make it possible to distinguish between supply to customers who exercised their right to eligibility and supply to customers at regulated tariffs. The State and the CRE have a right of access to the electricity companies' accounts.

Third-party access to networks

Article L. 111-91 of the French Energy Code provides that network managers must guarantee access to the public transmission and distribution networks in order to:

- perform the public service missions to supply electricity at regulated electricity sales tariffs and at basic necessity special rates;
- perform electricity procurement contracts;
- perform electricity export agreements signed by a producer or by a supplier who is located on French national territory.

Disputes concerning third-party access to networks are heard by the Settlement of Disputes and Sanctions Committee (CoRDIS), which is part of the Energy Regulation Commission (CRE).

The Tariffs for Using the Public transmission and distribution Networks (TURPE) mentioned in Articles L. 341-2 *et seq.* of the French Energy Code, which are currently in force, were established by the CRE Decision of 3 April 2013, which was published in the Official Journal of 30 June 2013, for transmission (TURPE 4 HTB), and by the CRE Decision of 12 December 2013, which was published in the Official Journal of 20 December 2013, for distribution (TURPE 4 HTA/BT). The new tariffs, applicable as of 1 August 2017, were defined by a CRE Decision of 17 November 2016, for transmission (TURPE 4 HTB) and for distribution (TURPE 4 HTA/BT). In a decision dated 12 January 2017, which was published in the Official Journal on 17 January 2017, the Minister for the Environment, Energy and Sea, in accordance with Article L. 341-3 of the Energy Code, asked the CRE to draw up a new draft decision on the tariffs for the public electricity distribution networks, on the basis of the Minister's energy policy guidelines. In particular, the Minister asked new uses that are linked to energy transition and local movable peak times be better taken into account and asked for a higher level of remuneration that will allow the network manager to carry out its missions and for the application of the method for determining the tariff that complies with the legal framework introduced by the Law on energy transition. The CRE will therefore have to hold another meeting.

For more details on the Tariffs for Using the Public transmission and distribution Networks, see section 1.4.4.5 "Regulatory framework" above.

Subsidy mechanisms for certain production sectors

EDF is subject to electricity purchase obligations that result in contracts being signed with facility operators. The purchase obligation system, which was created by Law no. 2000-108 of 10 February 2000 on the modernisation and development of the public electricity service, was amended by Law no. 2015-992 of 17 August 2015 on Energy Transition for Green Growth, which clarified some aspects of this system and created a new form of subsidy in the guise of additional remuneration. The subsidy mechanism for certain production sectors that results from the aforementioned Law of 17 August 2015 now has three separate systems.

Firstly, the purchase obligation regime provided for by Articles L. 314-1 *et seq.* of the French Energy Code. These articles provide that EDF (as well as the LDCs that are responsible for supply in their service area) must sign purchase contracts, at the request of producers, for the electricity generated by technology sectors, the development of which the public authorities wish to support, either because they use sources of renewable energies, or because they have a specific form of energy efficiency (*e.g.* cogeneration). The eligible facilities are listed in Article D. 314-15 of the French Energy Code.

Article R. 314-2 of the French Energy Code provides that producers who benefit from the purchase obligation must sell all of their production to EDF under agreements entered into on the basis of indicative models approved by the Minister for Energy. Purchasing terms and conditions, specifically the electricity purchase prices, are set by order of the Ministers for Energy and the Economy.

Secondly, the additional remuneration regime, which was introduced by Law no. 2015-992 of 17 August 2015 on Energy Transition for Green Growth and is governed by Articles L. 314-18 *et seq.* of the French Energy Code. The additional remuneration takes the form of a premium that is paid to producers as a complement to their income from selling the electricity they produce on the market, as well as the assignment of their capacity certificates. In this respect, EDF is obliged to enter into an additional remuneration contract with eligible producers who request one and with certain producers who currently benefit from a purchase obligation and who wish to benefit from an additional remuneration agreement for the remainder of the term of their initial purchase contract. The facilities that are eligible for the additional remuneration are listed in Article D. 314-23 of the French Energy Code.

Thirdly, the tendering procedure which, pursuant to Articles L. 311-10 *et seq.* of the French Energy Code, may be launched by the Minister for Energy when production capacities do not meet the targets of the multi-year energy plan. EDF is then required, outside the areas served by LDCs, to enter into an electricity purchase contract or a contract that provides for additional remuneration with the selected bidder(s) (this is a memorandum of understanding in the event that it is EDF itself in the capacity of "producer" that is chosen following the call for tenders).

The additional costs for EDF and the LDCs that result from contracts signed pursuant to the obligation to purchase energy are compensated by the State and financed, in particular, by the "Energy Transition" special purpose account, created by the Amending 2015 Finance Law. For 2016, special purpose account (CAS) is funded by part of the proceeds of the domestic tax on final consumption of electricity (TICFE), part of the proceeds of the domestic tax on natural gas consumption (TICGN), as well as part of the domestic tax on coal, lignite and coke (TICC) and part of the domestic tax on energy products (TICPE). For 2017, the special purpose account (CAS) is now only funded by part of the domestic tax on gas consumption (TICC) and part of the domestic tax on energy products (TICPE).

1. Or their Local Distribution Company.

Mechanism for compensating the additional costs of public service

Compensation of Public Electricity Service costs (CSPE)

Article L. 121-6 of the French Energy Code lays down the principle that the State must compensate in full the costs that are attributable to the public service generation and supply missions that are assigned to EDF and the LDCs.

For electricity generation, the expenses defined by Article L. 121-7 of the French Energy Code include:

- the additional costs that result both from electricity purchase agreements entered into by EDF and the LDCs after tendering procedures (Articles L. 311-10 *et seq.* of the French Energy Code) and from purchase obligation agreements signed within the framework of Articles L. 314-1 *et seq.* of the French Energy Code, as well as additional remuneration agreements that are entered into pursuant to Articles L. 314-18 *et seq.* of the French Energy Code;
- in areas that are not interconnected to continental metropolitan France:
 - additional generation costs that are not covered by the generation portion in regulated sales tariffs, the costs of storage facilities managed by the electricity system manager, within the limits of the additional generation costs they help to avoid,
 - additional electricity procurement costs (other than those, mentioned above, linked to the purchase obligation) that are not covered by the generation portion in regulated sales tariffs, within the limit of the additional generation costs they help to avoid,
 - the costs paid by electricity suppliers in respect of energy demand control initiatives, less any income received through these initiatives, within the limit of the additional generation costs they help to avoid,
 - the costs of studies paid by a producer or supplier with a view to implementing electricity supply projects that are identified in the Decree on the multi-year energy plan;
- and, since the Amended Budget Act for 2016, the direct costs for EDF and the LDCs directly induced by the signing and managing of purchase contracts, contracts for additional remuneration and contracts signed following tendering procedures, within the limit of the costs that an average undertaking that would have incurred if properly managed and adequately equipped.

For the supply of electricity, the costs defined in Article L. 121-8 of the French Energy Code include:

- revenue losses and additional costs incurred by suppliers due to the implementation of the special “basic necessity” rate (TPN);
- costs incurred by suppliers as a result of their participation in the plan established for low-income persons (within the limit of a percentage, which is set by order, of the cost borne by the supplier in respect of the TPN for the year in question).

Moreover, in accordance with the provisions of Article L. 121-8-1 of the French Energy Code, the purpose of the CSPE is to finance the costs incurred by operators of public electricity transmission networks in respect of the calls for tender they may initiate if the load shedding capacities do not meet the targets stipulated in the multi-year energy plan.

The mechanism for compensating public service costs, governed by Articles L. 121-9 *et seq.* of the French Energy Code, was reformed as of 1 January 2016, pursuant to Law no. 2015-1786 of 29 December 2015 (the Amended Budget Act for 2015), which aims to secure the financing of the costs of the public energy service.

The electricity (and gas) public service costs are now financed in full, as follows:

- the costs linked to energy transition, which correspond to the subsidy mechanisms for renewable energies, as well as the reimbursement of the “long-term” compensation deficit incurred by EDF as it stands on 31 December 2015, are registered in a special purpose account (CAS) for “energy transition” that was created by the Amended Budget Act for 2015. Law no. 2016-1917 of 29 December 2016 (the Budget Act for 2017) provides that the two sources of revenue that will provide additional funding for the special purpose account (CAS) are a part of the domestic tax on coals, lignite and coke (TICC), as well as a part of the domestic tax on energy products (TICPE);
- the other public service costs – excluding the costs associated with the subsidy mechanisms for renewable energies – (fuel poverty, tariff equalisation in areas not interconnected to metropolitan France, cogeneration, and the budget for the energy conciliator, etc.) are entered directly in the general budget;

Revenue from the domestic tax on the final consumption of electricity, which was renamed the Contribution to Public Electricity Service costs (CSPE) is directly affected to the general budget. The CSPE will be collected directly from final consumers of electricity in the form of an additional levy on the electricity sale price or directly from electricity producers that produce electricity for their own uses.

The amount of the CSPE was set at €22.50/MWh as from 1 January 2016. This amount has been maintained for 2017. As an exception, for electro-intensive and hyper-electro-intensive undertakings and distribution companies, reduced tariffs of between €0.5/MWh and €7.5/MWh have been defined.

The Decree no. 2016-158 of 18 February 2016 specifies the rules for determining the costs that can be attributed to public service energy missions, the procedure for determining the amount of the costs to be compensated for each operator, and the transactions for paying the compensations to the operators who bear the expenses.

Each year, the CRE records the amount of the costs that can be attributed, in respect of the previous year, to public service energy missions that are the responsibility of the operators and assesses, for the following year, the provisional amount of the same costs, and updates its cost forecast for the current year. Doing so, it distinguishes between the costs that are allocated to the “energy transition” special purpose account and those financed directly by the general budget.

Each year, before July 15, the CRE sends the Minister for Energy its assessment of the amount of these costs.

The massive expansion of facilities that generate electricity using renewable energy sources (mainly wind power and photovoltaic facilities) and that benefit from the purchase obligation, for several years, has led to a significant increase in the costs to be compensated. Yet, since 2007, the amount of the CSPE that is actually applied to consumers has not made it possible to cover these costs, thus leading to an offsetting shortfall, for which EDF alone pays and that adversely impacts the Group’s indebtedness. It therefore became necessary to design a new balanced mechanism (*i.e.* that avoids a new structural deficit being created), the financing of which is not based exclusively on electricity consumers alone (electricity is by far the least carbon-heavy energy and yet an imbalanced tax situation penalises its ability to compete with other energy forms, which is in contradiction with the CO₂ emissions reduction targets of the “Energy Transition” Law).

EDF and the public authorities have reached an agreement for the repayment of the debt formed by the offset deficit as it stands on 31 December 2015 *i.e.* €5,779.8 millions. Under the new mechanism that has been in force since 1 January 2016, this debt shall be paid off by 31 December 2020, according to a progressive repayment schedule that was defined by an Order of 13 May 2016, which was amended on 2 December 2016.

On 22 December, EDF sold part (26.40%) of this debt to a pool of investors comprised a bank and a dedicated Special Purpose Entity (SPE). The proceeds of this sale without recourse totalled €1.542 billion. The debt sold includes a component which is not classified as a dedicated assets. The sale of this component has led to an improvement of the net indebtedness of approximately €645 million. The remainder corresponds to the portion of the debt that was allocated to dedicated assets. It will be reinvested in these assets.

Compensation for additional distribution costs

The purpose of the Electricity Equalisation Fund (FPE), the accounting management of which is entrusted to EDF under Article L. 121-29 of the French Energy Code, is to distribute the charges incurred as a result of public service missions assigned for managing the electricity distribution networks among the operators concerned, in particular those linked to the specificities of the networks operated and that will not be covered by the portion relating to the use of those networks in the regulated tariffs or by the tariffs for using the public electricity distribution networks. The costs linked to involvement in the development of areas with particular geographical, economic or social difficulties, as defined by Article 42 of Law no. 95-115 of 4 February 1995, are also concerned.

Capacity guarantees

Articles L. 335-1 *et seq.* of the French Energy Code, which are taken from the NOME Act (New Organisation of the Electricity Market – *Nouvelle Organisation du Marché de l'Électricité*), obligate each electricity supplier to contribute to the security of electricity supply in continental metropolitan France, in light of its customers' power and energy consumption patterns. Each supplier must therefore provide annually, under penalty of an administrative sanction, an amount of capacity guarantees according to its customers' consumption at peak periods. Suppliers will obtain these capacity guarantees from generation or load operators, which must first have their capacities certified by the public distribution network manager.

The aims of this mechanism are:

- to make it possible to maintain or develop generation or load shedding capacities that ensure the level of security of supply set by the public authorities;
- to improve the remuneration of these capacities;
- to share the expense of this security of supply among all suppliers.

The "capacity mechanism rules" proposed by RTE were approved by a ministerial order of 22 January 2015 after consulting the CRE.

The Law of 17 August 2015 on Energy Transition for Green Growth adapted the capacity mechanism to small stakeholders by allowing the LDCs to transfer their capacity obligations not only to another LDC, but also "to any other supplier" and by allowing electricity suppliers to transfer their capacity obligations to a final consumer or to a public network manager (Article L. 335-5 of the French Energy Code).

Moreover, Article L. 335-3 of the French Energy Code introduced the possibility for all capacity operators to transfer to a third party their liability for discrepancies between effective capacity and certified capacity, and the payment of the penalties in respect of said discrepancies.

On 13 November 2015, the European Commission opened an in-depth investigation in light of European rules on State aids, with respect to the planned French capacity mechanism.

On 8 November 2016, the European Commission approved French plans for a capacity mechanism. During the investigation, France agreed to amend the mechanism as follows: long-term (seven-year) contracts will be introduced for new capacities, the mechanism will be opened to foreign capacity providers and measures to prevent any market manipulation will be introduced.

Revisions made for the improvement of market transparency and surveillance led to the publication of the Order of 29 November 2016. This made it

possible for the mechanism to enter into force on 1 January 2017: the first auction of capacity guarantees on the European Power Exchange (EPEX SPOT) took place on 15 December 2016 and 22.6GW of capacity guarantees were traded at a price of €10 for 0.1MW of certified capacity.

The implementation of the commitments concerning the opening of the mechanism to foreign capacity providers requires a revision of the 2012 Decree, adopted in 2012 by the Council of State after reviewing the opinions delivered by the Higher Energy Council, the National Council for Standards Assessment, the Energy Regulation Commission and the Competition Authority. The timetable presented by the French authorities to the European Commission is therefore based on an adaptation of the applicable French regulations in 2018 so that such commitments may be effectively implemented by 2019 (the year of delivery).

Concerning the introduction of long-term contracts, the French authorities have undertaken to implement the mechanism so as to carry out a capacity selection process in 2019 and to ensure an initial effective participation of the capacities selected for the delivery year 2023. Moreover, they undertake to introduce no later than in 2019 a transitional system of multi-year contracts in order to cover the period between 2020 and 2023. For example, this would mean that in 2019, a sustainable mechanism for the delivery year 2023 would be introduced, along with a transitional mechanism for the delivery years 2020, 2021 and 2022 (cf. recital 138 of the European Commission decision of 8 November 2016).

Electricity load shedding

The Law of 17 August 2015 on Energy Transition for Green Growth amended the legal rules on load shedding and, in particular, Articles L. 271-1 *et seq.* of the French Energy Code on this subject.

These provisions amend the previous legal rules and stipulate, in particular:

- that load shedding is defined "as the action to reduce temporarily the effective withdrawal level of electricity from the public electricity supply and distribution networks by one or more consumption sites, compared to a forward-looking consumption plan or an estimated consumption, when an ad hoc request is sent to one or more final consumers by a load manager or an electricity supplier";
- that there is the possibility for consumers to monetize each of their demand responses, either vis-à-vis their supplier as part of a demand response offer that is inseparable from the supply, or via the intermediary of load managers;
- that the Government will organise calls for tenders if the load management capacities do not meet the targets of the multi-year energy plan (this mechanism replaces that of the load shedding premium);
- finally, for load shedding that leads to significant energy savings, the law provides that the administrative authority may require the payment to the supplier to be shared between the load manager and RTE.

The terms and conditions of application of these mechanisms are specified by Articles R. 271-1 *et seq.* of the French Energy Code and by the rules for valuing load shedding reserves on energy markets (known as the "NEBEF 3.0" rules), which were approved by the CRE on 7 December 2016 and the rules on planning, the adjustment mechanism and the recovery of adjustment costs, in the version thereof that was approved by the CRE decision of 7 December 2016.

Electricity sector regulation

The Energy Regulation Commission

The Energy Regulation Commission (CRE) is an independent administrative authority created by Article 28 of the Law of 10 February 2000.

Articles L. 131-1 *et seq.* of the French Energy Code give a general definition of the remit of the CRE, which is tasked with contributing to the correct functioning of the electricity and natural gas markets for the benefit of final

consumers. In this respect, the CRE ensures, in particular, that the conditions for access to electricity and natural gas transmission and distribution networks do not impede the development of competition.

The CRE has significant powers: power to make proposals, advisory powers and decision-making powers (approval power and regulatory power).

The CRE makes proposals, in particular, to the Ministers for the Economy and for Energy regarding the amount of the costs that are attributable to the public service missions assigned to power producers, and the net amount of the related contributions. Once the Decree has been published that specifies the methods for identifying and recognising the costs that are taken into account for the calculation of the ARENH price, the CRE will also propose the ARENH price. Moreover, since 7 December 2015, it has been the CRE's responsibility to send its justifiable proposals for changes in the regulated sales and transfer tariffs for electricity (on which it previously could only issue an opinion) to the Ministers for the Economy and Energy. The decision is deemed to have been made in the absence of any objections by one of the Ministers within the three months following the receipt of these proposals.

The CRE now has decision-making power to set the Tariffs for Using the Public Electricity transmission and distribution Networks (TURPE): it notifies its reasoned decision to the administrative authority, which can only ask the CRE for a new decision in the event of non-compliance with energy policy guidelines. Under its residual regulatory power, the CRE also takes network connection decisions, as well as decisions to define the rules for calculating and adjusting the rights of suppliers to the ARENH.

The CRE is also vested with very broad powers that enable it to obtain any information that it may deem useful for the fulfilment of its remit, as well as authority to settle disputes and to apply penalties, through the Settlement of Disputes and Sanctions Committee (CoRDIS).

The Law on Energy Transition for Green Growth of 17 August 2015 also gives the CRE the possibility of having the information it obtains through its remits audited, at the expense of the audited undertakings.

1.5.4 GAS MARKET LEGISLATION

1.5.4.1 European legislation

Directive no. 98/30/EC of 22 June 1998 and Directive no. 2003/55/EC of 26 June 2003 were the major steps towards opening up the gas market to competition.

New rules aimed at improving the functioning of the internal natural gas market were defined in Directive no. 2009/73/EC of 13 July 2009, and by Regulation (EC) no. 715/2009 of 13 July 2009 on conditions for access to the natural gas transmission networks.

Pursuant to this legislation, the network codes for capacity allocation mechanisms (CAM) and balancing rules officially entered into force on November 1, and 1 October 2015 respectively. The first requires the capacities at interconnection points between transmission networks to be commercialised by bundling the output capacity of the first network with the input capacity of the second network, and by selling these interconnection capacities via auction. The purpose of the second is to harmonise the balancing rules on transmission networks.

1.5.4.2 French legislation: the French Energy Code

Directive no. 2009/73/EC of the European Parliament and of the Council of 13 July 2009 was transposed into French law by Order no. 2011-504 of 9 May 2011, which organised the legislative section of the French Energy Code. The French Energy Code entered into force on 1 June 2011.

Access to natural gas networks

The French Energy Code provides that customers, suppliers and their agents have a right to access natural gas transmission and distribution infrastructures, as well as LNG facilities, under the terms and conditions set forth in an agreement with the operators that run them.

Natural gas network operators must refrain from discriminating between users or categories of users in any way.

Customers

Since 1 July 2007, all customers can freely choose their supplier.

Pursuant to the provisions of Article L. 445-4 of the French Energy Code, household and non-household customers who consume less than 30,000kWh per year may benefit from regulated tariffs, at their request and without having to meet any conditions. Household customers who are entitled to the special "basic necessity" rate for electricity may benefit from a special solidarity tariff that is applicable to the supply of natural gas for part of their consumption. This special tariff will progressively be replaced by the "energy voucher" system (see section 3.2.4.2: "Fragile populations: vulnerable customers").

Customers whose consumption exceeds 30,000kWh per year can only benefit from regulated gas sales tariffs for a site if no market-based offer has been accepted for the site concerned, pursuant to Article L. 445-4 paragraph 2 of the French Energy Code.

Non-household final customers who consume more than 30,000kWh per year and who still benefit from the regulated tariffs for the sale of natural gas that are stipulated in Article L. 445-3 of the French Energy Code have no longer been eligible for these tariffs since the following dates:

- for non-household consumers who are connected to the transmission network, since 18 June 2014;
- for non-household consumers whose consumption level exceeds 200,000kWh per year, since 31 December 2014;
- for non-household consumers whose consumption level exceeds 30,000kWh per year, since 31 December 2015 at the latest.

Article 25 of Law no. 2014-344 of 17 March 2014 on consumption introduced a six-month transitional period, during which customers who had not signed a new contract with the supplier of their choice before 31 December 2015, were allowed, in order to ensure the continuity of their electricity supply, to continue to benefit from a contract with their incumbent supplier during a maximum transition period of six months, at the end of which they would no longer be supplied (i.e. 30 June 2016). During this period, customers had the opportunity to terminate this contract at any time without having to pay an indemnity. The supplier was under an obligation to remind the customers concerned, by letter, of the term of the transitional contract three months and one month before it would automatically come to an end. Order no. 2016-129 of 10 February 2016 provided for a system ensuring starting 1 July 2016 the continuity of gas and electricity supplies: customers who, on 30 June 2016, had not accepted a market-based offer are deemed to have accepted the conditions of the new contract proposed by the supplier selected, following a competitive tendering procedure, by the Energy Regulation Commission (CRE) in its decision of 4 May 2016. In November 2016, the CRE organised a new call for tenders for the lots that could not be allocated in May 2016 and for newly-concerned and for the newly concerned consumption sites. This call for tenders made it possible to award one lot for gas supply contracts.

Suppliers

Article L. 443-4 of the French Energy Code defines suppliers as persons who (i) are established on the territory of a Member State of the European Union or on the territory of another State pursuant to international agreements, and (ii) hold a licence issued by the Minister for Energy.

EDF is authorised to supply natural gas to non-household customers that do not provide services in the public interest, pursuant to an Order of the Deputy Minister of Industry of 14 September 2004, and, pursuant to an Order of 9 August 2005, to non-household customers that provide services in the public interest, as well as to natural gas distributors and suppliers, and, pursuant to an Order of 15 June 2007, to household customers.

EDF only supplies its customers at market-based prices and not at regulated sales tariffs, which can only be proposed by Engie (previously GDF Suez) and the LDCs tasked with supplying gas.

Underground storage and third-party access to natural gas storage facilities

Article L. 421-4 of the French Energy Code requires all suppliers to hold, on 31 October of each year, directly or indirectly through an agent, sufficient inventories of natural gas in France to meet their direct or indirect contractual obligations to supply household customers and other customers that provide services in the public interest or that have not contractually accepted an interruptible gas supply, during the period between 1 November and 31 March.

Articles R. 421-1 to R. 421-2 of the French Energy Code specify the legal framework that applies to underground storage facilities for natural gas.

Control and penalties

The French Energy Code grants the Minister for the Economy and the Minister for Energy, as well as the Energy Regulation Commission, power to oversee the gas market. The Minister for Energy may also levy a fine, or withdraw or suspend an authorisation to supply natural gas. The CRE can carry out investigations into whether offences that breach the provisions of the French Energy Code have been committed (Article L. 135-13 of the French Energy Code).

1.5.5 PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS

French legal system applicable to concessions

In accordance with Articles L. 121-4 *et seq.* and L. 322-1 *et seq.* of the French Energy Code, and Article L. 2224-31 of the French Local Authorities Code, the public distribution of electricity is operated under a system of public service concessions. Pursuant to this body of law, the contracting authorities organise the public electricity distribution service through concession agreements and general specifications that set forth the respective rights and obligations of the contracting authority and the operator. Currently, the contracting authorities are most often public institutions formed by associations of several municipalities cooperating together, however contracting authorities at département level are becoming more common.

The unbundling of supply and network operations required under Community Directives has led to the identification of two separate public service missions: firstly, the mission to supply electricity at regulated tariffs assigned to EDF and the LDCs in their exclusive service areas and, secondly, the mission to develop and operate the public electricity distribution networks assigned to Enedis and the LDCs in their service areas, and to EDF for areas which are not interconnected to the continental metropolitan network.

Article L. 334-3 of the French Energy Code provides that the signature of new concession agreements and amendments, as well as renewals of existing concession agreements, must be executed by three parties: the contracting authority, the distribution network manager (for the provisions relating to

management of the public distribution network) and by EDF (or the LDC that has the authority in the geographic area) for supply at regulated tariffs. The current concession agreements in force are deemed to have been signed jointly by these three entities.

In accordance with Order no. 2016-65 of 29 January 2016 on concession contracts and its implementing Decree no. 2016-86 of 1 February 2016, which transposed Directive no. 2014/23/EU of the European Parliament and of the Council of 26 February 2014 on the award of concession contracts into French domestic law, concession contracts for the operation of the public electricity distribution and supply network at regulated tariffs can be awarded directly, *i.e.* without a contract notice or competitive tendering procedure.

Rights of the contracting authorities

The rights of the contracting authorities are detailed in section 1.4.4.2.2 "Distribution activities" of this Reference Document.

1.5.6 REGULATIONS APPLICABLE TO THE ENVIRONMENT, NUCLEAR POWER, HEALTH, HYGIENE AND SAFETY

EDF's business in France, as well as in other countries where EDF operates, is subject to regulations that are applicable to the environment, nuclear power, health, hygiene and safety. Compliance with these increasingly strict and continuously changing regulations exposes the Group to significant costs in order to ensure it does business compliantly.

1.5.6.1 General regulations that are applicable to the environment, health, hygiene and safety

Environmental regulations

Grenelle Laws 1 and 2

Following the Grenelle Environmental Forum that was initiated in 2007, in Law no. 2009-967 of 3 August 2009, known as the "Grenelle 1 Law", the French government undertook to meet a certain number of objectives and to implement certain environmental measures concerning the reduction of greenhouse gas emissions, energy efficiency, the development of renewable energy sources, ensuring clean bodies of water, the protection of biodiversity, the prevention of risks to health and the environment, waste management and ecological governance.

These commitments and objectives were implemented by Law no. 2010-788 of 12 July 2010 (known as the "Grenelle 2 Law"), many provisions of which impact EDF's activities.

Public involvement in environmental matters

The general framework for the public's involvement in the preparation of regulatory and individual decisions by the public authorities that have an impact on the environment is laid down in Articles L. 120-1 *et seq.* of the French Environment Code. These provisions apply in the absence of specific provisions that are laid down by specialised legislation.

This legal framework recently changed, with the adoption of Order no. 2016-1060 of 3 August 2016 that reformed the procedures that are designed to ensure public information on and participation in the preparation of certain

decisions that are liable to have an impact on the environment. This order, which was adopted pursuant to Law no. 2015-990 of 6 August 2015 on Growth, Business and Equal Opportunities (known as the "Macron Act"), (i) introduced an opening chapter into the French Environment Code that defines the targets for public involvement and the rights of those involved, (ii) expanded the consultation procedure ahead of the decision-making process and (iii) modernised the procedures for downstream consultation.

Environmental Liability (the "LRE" Law)

The purpose of the Law of 1 August 2008 on Environmental Liability (LRE), which is incorporated into the French Environment Code under Articles L. 160-1 to L. 165-2, is to promote the prevention and remedying of environmental damage to water, soil and biodiversity that reaches a certain level of seriousness. The remedy must be environmental only and must allow the natural environment to return to its previous state or an equivalent state.

Balanced management of water resources

The Water Framework Directive of 23 October 2000 is the foundation of Community water policy. It defines a framework for the management and protection of water, for each major river basin, and sets targets for maintaining and restoring the status of surface waters, in particular to ensure the correct ecological and/or chemical status of water by 2015.

In France, the Directive was primarily transposed into law through the Water and Aquatic Environments Act of 30 December 2006, which stipulates the measures that are designed to ensure that the Directive's targets are attained. These targets are determined for each river basin in the master plans for water development and management (SDAGEs). All EDF's activities that could impact water and aquatic environments must be compatible with the targets set in the SDAGEs.

The Water Act also requires the various uses of water to be reconciled. The requisite balanced, sustainable management of water resources therefore has consequences for the operating rights of hydropower plants, and indirectly for all EDF's activities that affect aquatic environments.

Protection of biodiversity

As an occupant and user of natural land and water areas, EDF is directly concerned by biodiversity issues.

In order to protect and restore biodiversity, the Grenelle Environmental Forum set ambitious targets, which include the implementation of a national strategy for the creation of protected land areas (SCAP), which aims to provide extensive protection, by 2019, for at least 2% of metropolitan French land mass, as well as the creation of a green and blue belt, a tool for land-use planning that sets up green corridors to connect protected areas, thereby enabling flora and fauna to migrate.

The provisions on the green and blue belt, as well as the contents of the procedure for designing regional green coherence schemes (SRCE) that implement it have been incorporated into the French Environment Code, in Articles L. 371-1 to L. 371-6 and R. 371-16 to R. 371-35, and completed by Decree no. 2012-1492 of 27 December 2012 and Decree no. 2014-45 of 20 January 2014.

Law no. 2016-1087 of 8 August 2016 on the restoration of biodiversity, nature and landscapes has improved the protection of biodiversity. The main provisions of the Law on biodiversity incorporate new guidelines that are set forth in the French Environment Code (the principle of non-regression of environment Law, the principle of prevention and the objective of "zero net loss" of biodiversity). It has created new institutions for the protection of biodiversity, including the French Agency for Biodiversity (AFB) and also introduced new rules on the compensation of environmental harm into the French Civil Code.

Comprehensive environmental authorisation and project certificate

Three experimental procedures concerning the environment, which are limited in time and confined to certain regions, were implemented pursuant to the Law of 2 January 2014, which empowered the Government to simplify and increase legal certainty for corporations.

- firstly, the experimental use of the project certificate (which was introduced by Order no. 2014-356 of 20 March 2014, then completed by the Macron Act of 6 August 2015). The project certificate is an instrument designed to provide legal certainty and stabilise the law whereby the Prefect notifies a commitment to a project manager regarding the various procedures to be complied with and the timeframes for issuing the authorisations requested;
- secondly, experimental use of a comprehensive authorisation system that is applicable to projects that require authorisation for facilities that are classified for the protection of the environment (which was introduced by Order no. 2014-355 of 20 March 2014, and completed by the Macron Act and the Law of 17 August 2015), and to projects that require authorisation under the Water Act (which was introduced by Order no. 2014-619 of 12 June 2014, completed by the Law of 17 August 2015). The comprehensive authorisation system allows for a coordinated appraisal of authorisation applications and the issuance in a single document, for a given project, of all the decisions required of the State (see section 1.5.6.2.1 "Regulations applicable to facilities classified for the protection of the environment (ICPEs)").

Order no. 2017-80 of 26 January 2017 and Decrees no. 2017-81 and 2017-82 of 26 January 2017 relating to environmental authorisations were published as of this day in the French Official Journal on 27 January 2017. Order no. 2017-80 of 26 January 2017 on environmental authorisations aims to perpetuate the attempts to consolidate the authorisation procedures implemented since March 2014. It definitively incorporates into the French Environment Code a single environmental authorisation system. It is likely that the single authorisation procedure will apply to EDF projects.

Whistleblowers

On 8 November 2016, the French Parliament definitively passed the bill on transparency, the fight against corruption and the modernisation of economic life, and the proposed constitutional bylaw on the authority of the Defender of Rights over the guidance and protection of whistleblowers.

Law no. 2016-1691 of 9 December 2016 includes rules to protect whistleblowers, who are defined as individuals who reveal or report, for no ends of their own and in good faith, a felony or a crime, a serious and blatant breach of an obligation provided for by the law or a regulation, or a serious threat or harm to the public interest. The provisions introduced by the law aim to protect whistleblowers from potential criminal or disciplinary proceedings, and provide for a set of rules on internal whistleblowing to be used in companies.

Environmental class action

Law no. 2016-1547 of 18 November 2016 on the modernisation of 21st century justice created a general right to class action and includes an environmental class action, as provided for in Article L. 142-3-1 of the French Environment Code.

This right enables groups of individuals who are placed in a similar situation and who suffer harm to file a class action before the courts of judiciary in order to cause a breach to cease and obtain compensation for "bodily injury and damage to property that result from harm caused to the environment". Environmental class actions may be brought via environmental protection associations that have been accredited in accordance with Article L. 141-1 of the French Environment Code, or by associations that have been accredited under the conditions defined by a decree issued following consultation of the Council of State, the purpose of which, according to their by-laws, includes the defence of victims of bodily injuries or the defence of the economic interests of their members.

Social and environmental reporting obligation for businesses (RSE)

Articles L. 225-102-1 and R. 225-104 of the French Commercial Code require companies whose securities are admitted to trading on a regulated market, as well as companies that employ more than 500 staff and whose revenue or balance sheet total exceeds €100 million, to disclose in the management report information on how they take into consideration the social and environmental consequences of their activity, as well as on their societal commitments to sustainable development ("RSE reporting").

The Law of 17 August 2015 on Energy Transition for Green Growth completes the list of the environmental information contained in the aforementioned Article L. 225-102-1 by requiring undertakings to make public, as from the financial year ended 31 December 2016, information on the consequences of climate change for their business activities and how the goods and services they produce are used. Decree no. 2016-1138 of 19 August 2016 on the environmental information to be included in companies' management reports specifies that the RSE report that is appended to the annual management report of large companies must report on significant greenhouse emissions that were caused by the company's activity throughout the value chain, *i.e.* by taking into account its own activity, as well as the inputs that are necessary for it and how the goods and services produced are used.

The Law of 8 August 2016 on Employment, The Modernisation of Labour-Management Dialogue and Safeguards for Career Paths added to the list of information to be disclosed, the collective agreements signed in the company and their impacts on the economic performance of the company, as well as on the workers' conditions of employment.

These provisions concern EDF and some of its subsidiaries.

Article L. 225-102-1 of the French Commercial Code authorises subsidiaries and controlled companies not to disclose their RSE information, provided that this information is published by the company that controls them in detail by subsidiary or by controlled company, and that they state how to access this information in their own management report. Moreover, when subsidiaries and controlled companies are established in France and have facilities that are classified for the protection of the environment (ICPEs) that are subject to authorisation and registration, the information provided must concern each of them, if the information cannot be consolidated.

The social and environmental information provided in the management report must be verified, by a third party independent organisation, which is appointed in accordance with the provisions of Article R. 225-105-2 of the French Commercial Code. An Order of 13 May 2013 determined, in particular, the rules according to which the independent third party organisation will perform its assignment. The verification by this organisation leads to a certificate concerning the presence in the management report of all the required information and a substantiated opinion on the accuracy of the information itself (see section 3.1 "Introduction").

At European level, Directive no. 2014/95/EU of 22 October 2014, which aims to improve the transparency of non-financial information that is exchanged between Member States, requires large undertakings to prepare a non-financial statement containing information relating to "*environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters*". It also requires these undertakings to provide a "*description of the diversity policy applied in relation to the undertaking's administrative, management and supervisory bodies*". This directive had to be transposed into French law before 6 December 2016. Article 216 of the Law no. 2017-86 of 27 January 2017 on equality and citizenship, published in the *Journal officiel* on January 28 authorises the French government to introduce, by way of an order, the statutory provisions that are necessary in order to transpose Directive no. 2014/95/EU, within six months of the law being promulgated.

PCBs and PCTs

The Group is subject to regulations on polychlorobiphenyls (PCBs) and polychloroterphenyls (PCTs) in the various countries where it operates, particularly in Europe.

Directive no. 96/59/EC of 16 September 1996 required that an inventory of equipment containing PCBs and PCTs at levels of more than 500ppm be drawn up, together with a national plan for decontamination and the gradual disposal of these substances, which are mainly found in certain electricity transformers and condensers. Decontamination of equipment containing these substances was to be completed by 31 December 2010 at the latest. EDF had a special disposal plan and has achieved this objective.

Pursuant to Decree no. 2013-301 of 10 April 2013, EDF must clean up and decontaminate equipment with pollution levels of between 50 and 500ppm, with the possibility, as the holder of more than 150 pieces of equipment, of benefiting from a "specific plan" that is approved by order of the Minister for the Environment. This plan must, as a minimum, provide for the decontamination or destruction of one-half of the equipment before 1 January 2020 and all equipment before 31 December 2025. The contents of the application for the specific plan were defined by an Order of 28 October 2013. RTE's and Enedis' specific decontamination plans were approved by two orders of 14 April, and 3 July 2014.

The Decree of 10 April 2013 also specified the new obligations in terms of identifying, labelling, declaring and using equipment with fluid containing PCBs with a volume of more than 5dm³. The rules for conforming to these obligations were stipulated in detail by two orders of 7 January, and 14 January 2014.

Greenhouse gases (GHG)**Allowance trading scheme**

Some of the EDF group's activities fall within the scope of application of Directive no. 2003/87/EC of 13 October 2003, as amended by Directive no. 2009/29/EU of 23 April 2009, which established a European scheme for greenhouse gas (GHG) emission allowance trading, using the project mechanisms set forth in the Kyoto Protocol (the Emissions Trading System (ETS) Directive).

In France, this Directive was transposed and integrated into Articles L. 229-5, R. 229-5 *et seq.* of the French Environment Code. The Group has an annual obligation to surrender allowances equal to the level of CO₂ emitted by its facilities. In order to comply with this obligation, under certain conditions, the Group may use credits issued under projects eligible for the project mechanisms provided for under Articles 6 and 12 of the Kyoto Protocol (joint implementation and clean development mechanism).

Under the ETS Directive, the third period for the greenhouse gas (GHG) emission allowance trading scheme started on 1 January 2013. The provisions of the French Environment Code on this scheme were amended accordingly by Order no. 2012-827 of 28 June 2012 (ratified by Law no. 2013-619 of 16 July 2013) and by Decrees no. 2012-1343 of 3 December 2012 and no. 2014-220 of 25 February 2014. Since 1 January 2013, the rule for the electricity sector is the auctioning of quotas, in accordance with the rules defined by Regulation (EU) no. 1031/2010 of 12 November 2010. Since that date, EDF has to purchase 100% of its allowances.

In order to support the price of GHG allowances on the European market, in Decision (EU) no. 2015/1814 of 6 October 2015, the European Parliament and the Council decided to create a market "stability reserve" that makes it possible to remove surplus allowances from the market. This mechanism will enter into force on 1 January 2019.

GHG Reporting

Pursuant to Articles L. 229-25 and R. 229-45 *et seq.* of the French Environment Code (which were respectively amended by Order no. 2015-1737 and Decree no. 2015-1738 of 24 December 2015), companies with over 500 employees must provide an annual report on their greenhouse gas emissions and a summary of the actions they plan to take to reduce such emissions. Article R. 229-46, as amended by the aforementioned Decree of 24 December 2015, specifies that the “groups defined in Article L. 2331-1 of the French Labour Code may draw up a consolidated report on greenhouse gas emissions for all their companies that have the same level 2 nomenclature code for French activities” and that employ more than 500 persons.

The information disclosed is made public and must be updated every four years. The first EDF report was published in the Indicators section of the EDF annual report in March 2012.

Failure to draw up or file the report may lead to an administrative fine, the amount of which cannot exceed €1,500.

Energy efficiency

Energy Efficiency Directive

On 25 October 2012, the European Union adopted a Directive on energy efficiency (no. 2012/27/EU). The purpose of this Directive, for which the transposition deadline was 5 June 2014 is to enable the European Union to reach its energy savings target of 20% by 2020. With this aim in mind, the Directive enhances the provisions of European legislation on energy efficiency services (no. 2006/32/EC) and cogeneration (no. 2004/8/EC).

The Directive of 25 October 2012 contains several provisions that are liable to impact the activities of the EDF group, first and foremost of which is the obligation for Member States to reach an energy savings target each year that is equivalent to an aggregate annual reduction in energy sales of 1.5% over the period 2014-2020, which can take the form of an obligation for energy distributors and/or suppliers to reduce sales. The Directive also contains provisions on providing customers with information on their consumption, the promotion of energy services, taking into account energy efficiency in heat and cold production, and in the transmission and distribution of energy.

Articles L. 233-1 *et seq.* of the French Energy Code (derived from Law no. 2013-619 of 16 July 2013, which transposed Article 8-4 of the Directive into French law), require large undertakings to perform an energy audit on their business activities in France by 5 December 2015 at the latest, then every four years. The thresholds above which undertakings are concerned, the scope of the audit and the conditions to be met by the energy auditors are laid down in Articles R. 233-1 to R. 233-2 and D. 233-3 to D. 233-9 of the French Energy Code, completed by the Order of 24 November 2014 on the terms of application of the energy audit. Undertakings that use a certified energy management system that is ISO 50001 compliant may, under certain conditions, be exempted from this obligation. In accordance with the regulations, on 4 December 2015, EDF sent the summary of its audit report to the Île-de-France Prefect.

Energy savings certificates

At national level, the energy savings certificates (CEE) mechanism, which is provided for in Articles L. 221-1 *et seq.* of the French Energy Code, places energy suppliers under the obligation to save energy. This mechanism defines a three-year objective that is shared between persons subject to an obligation to achieve energy savings (the “obligors”) based on their sales volumes. At the end of the relevant period and under penalty of sanctions, the obligors must produce energy savings certificates that correspond to the amount of the energy savings they are under the obligation to achieve, which are obtained either by carrying out (directly or indirectly) energy savings actions or by purchasing credits from the other “eligible” economic players through a National Register of Certificates.

For the second period of the mechanism, between 1 January 2011 and 31 December 2013, the stated total savings target was 345 TWhc (compared to 54 TWhc for the first period). In order to ensure the continuity of the mechanism, and until the third period starts, the second period has been extended by one year, from 1 January 1 to 31 December 2014, by a Decree of 20 December 2013.

The third period started on 1 January 2015 and will end on 31 December 2017. The energy savings target for the third period is set at 700 TWhc (*i.e.* 233.4 TWhc/year). Decree no. 2014-1668 of 29 December 2014 (now Articles R. 221-1 *et seq.* of the French Energy Code) and several implementing orders that were published in December 2014 determine the conditions and terms for the issuance of CEE for this new period.

The Law of 17 August 2015 on Energy Transition for Green Growth amended the CEE system for the third period, by adding an additional system to the obligation that was already provided for, concerning the energy savings made for the benefit of households that are in a precarious situation in terms of energy. Decree no. 2015-1825 of 30 December 2015 (now Articles R. 221-1 *et seq.* of the French Energy Code) and several ministerial orders of the same date have clarified the rules on meeting the energy savings objectives that are specifically for the benefit of households that are in a precarious situation in terms of energy. The level of this specific obligation for energy suppliers is set at 150TWhc for 2016-2017.

Moreover, the Law of 17 August 2015 on Energy Transition for Green Growth provides for a fourth period between 1 January 2018 and 31 December 2020. A draft decree, which was reviewed by the Higher Energy Council on 29 November 2016, the publication of which is expected during the first quarter of 2017, will specify the amount of the energy savings obligation for this next period. The fourth period of the system provides for an obligation of 1,200TWhc, plus an obligation of an additional 400TWhc for the benefit of households that suffer from energy poverty.

This level of obligation has increased considerably compared to the levels of the third period: by 71% for conventional energy savings certificates and by 167% for energy savings certificates for households in precarious energy situations; this increase is all the more remarkable given that this system, in particular with regard to energy savings certificates for households in precarious energy situations, has only been in force since 1 January 2016 and has not yet shown the extent of its full effectiveness.

Registered natural sites and classified sites (buried lines)

The EDF group is also subject to regulations on classified and registered sites that are stipulated in Articles L. 341-1 to L. 341-22 and R. 341-1 to R. 341-31 of the French Environment Code.

The aim of these regulations is to preserve natural heritage sites and sites for which the conservation, from a landscape, artistic, historical, scientific, folkloric or scenic standpoint, is in the public interest. “Classification”, which is reserved for the most singular sites, provides extensive protection, whereas “registration”, for which the framework of rules is less restrictive, is proposed for less sensitive sites.

Under the French Environment Code, new electricity lines on classified sites must be buried. Registration and classification can also have an impact on the day-to-day operation of facilities (if more than one site is visible at the same time; obligation to obtain the opinion of the State architect – *architecte des Bâtiments de France* –, etc.).

Protection of the environment through criminal law

Directive no. 2008/99/EC of 19 November 2008 on the protection of the environment through criminal law, the main purpose of which is to identify conduct that leads to serious environmental damage that must be punished by all Member States, was at the origin of French Order no. 2012-34 of 11 January 2012, which harmonised the criminal penalties laid down in the French Environment Code.

Health, hygiene and safety regulations

Asbestos

In France, the regulations require, among other things, the identification of materials containing asbestos in buildings and, if necessary, monitoring procedures or asbestos removal work. EDF is also subject to regulatory obligations to inform and protect workers who may be exposed to asbestos dust inhalation.

Legionella

EDF operates air cooling towers that are needed, in particular, for its electricity generation business, which are now subject to ICPE Regulations on basic nuclear facilities (BNF). EDF must, among other obligations, carry out a methodical analysis of the risk of proliferation of legionella in its air cooling towers and implement a preventive maintenance plan for cleaning and disinfection. EDF is also required to carry out analyses once or twice a month, depending on the type of facility involved.

Nanoparticle substances

As from 1 January 2013, Articles L. 523-1 *et seq.* and R. 523-12 *et seq.* of the French Environment Code made it mandatory to report the quantities and uses of nanoparticle substances or nanomaterials produced, distributed or imported in France. Information on these substances must be made available to the public and to inspection authorities. The information to be declared and the rules governing the declaration were specified in an Order of 6 August 2012. EDF is likely to be concerned by these provisions as it uses nanoparticle substances.

Exposure to Electromagnetic Fields (EMF)

Pursuant to the Grenelle 2 Law, Decree no. 2011-1697 of 1 December 2011 requires managers of public electricity transmission networks to perform regular verifications of the EMF caused by electric lines that transmit electricity.

Law no. 2015-136 of 9 February 2015 on Simplicity, Transparency, Information and Consultation Regarding Wave Exposure introduced an obligation to provide information for persons who install equipment that emits electromagnetic fields on residential premises. In due course, this obligation may concern some entities of the EDF group.

Chemical products

Regulation (EC) no. 1907/2006 on the Registration, Evaluation and Authorisation of Chemicals, known as "REACH", which came into force on 1 June 2007, applies to EDF as a user, but also as a manufacturer and importer of chemical products. EDF has complied with its obligation to register substances that it manufactures or imports in quantities of more than 1,000 tonnes per year with the European Chemicals Agency. In May 2013, EDF registered the monochloramine that is manufactured in situ at certain nuclear plants.

In addition, the Biocides Regulation (EU) no. 528/2012 of 22 May 2012 provides for a new procedure, with an extended scope of application, of authorisations for placing of biocidal products on the market that are generated in situ. In this new regulatory environment, EDF could be concerned as a manufacturer and user of monochloramine and sodium hypochlorite. Applications for authorisation will be prepared and filed within the framework of this Biocides Regulation.

Health and the environment

Law no. 2013-316 of 16 April 2013 on the Independence of Expertise in the Area of Health, the Environment and the Protection of Whistleblowers confirmed the recognition of an alert procedure in the area of public health and the environment within businesses and laid down the rules for using this procedure. This Law also organises a system to protect whistleblowers and set up the National Commission for Ethics and Public Health and Environment Alerts (CNDASE). Several decrees have specified the rules for the implementation of this system (Decree no. 2014-324 of 11 March 2014, Decree no. 2014-1629 and Decree no. 2014-1628 of 26 December 2014).

1.5.6.2 Regulations applicable to EDF group facilities and activities

1.5.6.2.1 Regulations applicable to facilities classified for the protection of the environment (ICPEs)

Facilities concerned and main obligations

Certain facilities operated in France by the EDF group, in particular fossil fuel-fired power plants, are subject to legislation on facilities that are classified for the protection of the environment (ICPEs), which is organised in the French Environment Code. These facilities are subject to a prior declaration, simplified authorisation (known as "registration") or to an authorisation depending on the magnitude of danger or adverse effects they may cause to the environment or public health.

The ICPE Regulation requires that the site be restored when a facility is taken out of service, depending on the expected future use of the land. Under Article L. 516-1 of the French Environment Code, lodging financial guarantees is also required for certain ICPE facilities that are subject to authorisation (including Seveso facilities) and registration. The basis and amount of the financial guarantees vary depending on the facility. These financial guarantees are designed to provide collateral for the financing of the measures that must be adopted in the event of an accident before or after closure, as well as the surveillance, safety works and restoration operations after closure. These guarantees do not cover compensation owed by the operator to third parties who may suffer loss or harm in connection with the activity carried out.

The list of the ICPEs concerned by the obligation to lodge these guarantees and the rules for calculating and lodging the financial guarantees are stipulated by the Order of 31 May 2012 (that was amended by an Order of 12 February 2015) and the Order of 31 July 2012. An Order of 5 February 2014 provides the framework for lodging guarantees via the intermediary of a private guarantee fund. The EDF group operates facilities that are concerned by these new requirements. The Decree no. 2015-1250 of 7 October 2015 increased the threshold above which guarantees are required from €75,000 to €100,000 (Article R. 516-1 of the French Environment Code). It also provides for additional financial guarantees to be lodged with the Caisse des dépôts, as well as the amendment of the rules governing how guarantees are triggered, in particular by allowing them to be implemented as soon as court-ordered liquidation proceedings are initiated.

Seveso facilities

Since 1 June 2015, "Seveso" ICPEs have been governed by the provisions of the Seveso 3 Directive (2012/18 of 4 July 2012), which replaced the Seveso 2 Directive (96/82/EC). The entry into force of the Seveso 3 Directive resulted in the use of dangerous products (under the CLP Regulation of 16 December 2008) that were not covered by the Seveso 2 Directive being incorporated into the scope of the Seveso regulations.

The Seveso 3 Directive also contains stricter provisions concerning access by the public to information related to safety, public participation in the decision-making process and access to justice, as well as improvements in the way information is collected, managed, made available and shared. The Seveso 3 Directive also introduced stricter standards for facility inspections. Law no. 2013-619 of 16 July 2013 transposed the legislative portion of the Directive into French law by inserting into the Environment Code (Articles L. 515-15 *et seq.*) a section that is specific to Seveso facilities. These provisions, which are complemented by two Decrees (no. 2014-285 and no. 2014-284) of 3 March 2014 and by an Order of 26 May 2014, entered into force on 1 June 2015.

Decree no. 2015-1250 of 7 October 2015 amended the rules governing how the financial guarantees that are applicable to Seveso ICPEs are lodged, in particular by allowing operators of multiple facilities to pool these guarantees. A forthcoming order will specify the rules for lodging these guarantees, as well as the methodology for calculating pooled guarantees.

Facilities that are subject to the "IED" Directive

Directive no. 2010/75/EU of 24 November 2010 on industrial emissions (known as the "IED" Directive) revised and recast several existing Directives into a single piece of legislation, including the IPPC, LCP, Waste Incineration and VOC Directives, among others.

Chapter III of this Directive affects EDF as it regulates the combustion plants that are found in fossil fuel-fired plants, in particular. The applicable requirement levels depend on the rated thermal input of the combustion plants concerned and on the fuel used. This Directive, which was partially transposed into French law via Order no. 2012-7 of 5 January 2012 (and incorporated into the French Environment Code in Articles L. 515-28 to L. 515-31), has the effect of broadening the application of the IPPC Directive to include new activities, enhancing the scope of the best available techniques (BAT) on which the fixed emission limit values will be based, causing a periodic reconsideration of operating conditions in order to take into account changes in BAT and, in certain cases, requiring a "baseline report" on the state of soil.

Decree no. 2013-5 of 2 January 2013 partially transposed the provisions of the IED Directive on the state of soil. Article 1 of the Decree, which is now Article R. 512-4 of the French Environment Code, states that interim analysis of the soil will now be required in the event of a substantive change of the facility and, if pollution occurs, the operator must propose measures. Another Decree no. 2013-374 of 2 May 2013 completed this transposition by introducing provisions into Articles R. 515-58 to R. 515-84 of the French Environment Code that are specific to facilities that are covered by the IED Directive. These provisions apply to fossil fuel-fired plants, under the conditions laid down, in particular, by the Order of 26 August 2013 on combustion plants with power of 20MW or more.

1.5.6.2.2 Specific regulations applicable to basic nuclear facilities

In France, EDF is subject, in particular, to Law no. 2006-686 of 13 June 2006 on Transparency and Safety in the Nuclear Field (the "TSN Law"), which was integrated into the French Environment Code, to the provisions for its implementation and, in particular, Decree no. 2007-1557 of 2 November 2007, which was most recently amended by Decree no. 2016-846 of 28 June 2016 on the modification, final shutdown and decommissioning of basic nuclear facilities, and on sub-contracting, and to the Order of 7 February 2012, as amended, which laid down the general rules for basic nuclear facilities (the "BNF Order"). The Law was amended by Order no. 2016-128 of 10 February 2016 that contains various provisions on nuclear matters and which, in particular, transposed into French law Council Directive no. 2014/87/Euratom of 8 July 2014 amending Directives no. 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations and Directive no. 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. It will also concern the NSAs powers of sanction.

The TSN Law created the Nuclear Safety Authority (NSA), an independent government agency, with the Ministers for Nuclear Safety retaining authority to issue the main authorisations and draft general regulations.

The construction of a BNF is authorised, following a public debate and a public enquiry, by a decree that is issued after consulting the NSA and on the basis of a report by the Ministers for Nuclear Safety. The decree that authorises the construction must state the identity of the operator, the nature of the facility, its maximum capacity and its perimeter. The application for authorisation to construct a BNF must include, in particular, a preliminary safety report (PSR), a study of the impact of the facility on the environment and health, a decommissioning plan and a risk management study (RMS). The decree that authorises the construction of the BNF sets a time limit to commission the facility and the frequency of safety inspections if they are not scheduled every 10 years and, moreover, lays down basic requirements to protect public safety, health and sanitation, as well as nature and the environment. The authorisation to commission a BNF (which, for a reactor, corresponds to the authorisation to load the fuel into the reactor core) is issued by the NSA after consulting the public. In this respect, the operator provides the updated safety rule set and an internal emergency plan (IEP) that specifies the organisational measures and requisite resources that must be implemented by the operator in the event of an emergency. A periodic safety inspection assesses the compliance of the facility with the applicable regulations and updates the assessment of the risks that the facility poses to the interests mentioned above.

Pursuant to the decree that authorises the facility to be set up, the conditions applicable to pumping water, discharging liquid and gaseous wastes – whether radioactive or not – as well as the related limits placed on these activities are set by an NSA decision; decisions that set the limits for discharges by facilities into the environment require a ministerial approval.

The NSA also issues regulations pursuant to the decree that authorises the facility to be set up, in order to prevent or limit the effects of any accidents or incidents, to define measures to protect residents on an individual and collective basis, limit noise pollution and manage the waste generated by and stored at the facilities.

Rules on nuclear safety and the inspection of basic nuclear facilities

The nuclear facilities operated by EDF are subject to the general regulations on basic nuclear facilities derived from the French Environment Code. Priority must be given to the protection of the interests mentioned by the law (public safety, health and sanitation, nature and the environment) via the prevention of accidents and the limitation of their consequences in respect of nuclear safety, as specified by the BNF Order. In this respect, nuclear safety is defined as a set of technical provisions and organisational measures concerning the design, the construction, the operation, the shutdown and the decommissioning of BNF, as well as the transportation of radioactive substances, which are adopted with a view to preventing accidents or limiting the effects thereof.

The NSA also has the authority to issue regulatory decisions of a technical nature to complete the terms and conditions for application of the decrees and orders issued in the field of nuclear safety and radiation protection, with the exception of those related to occupational healthcare. These decisions are subject to the approval of the relevant ministers. Since the aforementioned BNF Order was published, out of the thirty or so decisions that are being prepared, approximately fifteen decisions have already been published and approved; others are being prepared.

The provisions of the French Environment Code concerning BNF have also introduced mechanisms for informing the authorities. In this respect, all accidents and incidents that occur as a result of the operation of a BNF and that could potentially cause significant harm to the health of the population or to the environment, must be declared without delay by the operator to the NSA and to the administrative authority. Moreover, the methods used to inform the public have been improved, with, for example, the creation of a High Committee for Transparency and Information on Nuclear Safety (HCTINS) and the possibility now given to any member of the public to

ask the operator directly for information on the risks involved in exposure to ionising radiation and on the safety and radiation protection measures adopted to prevent or reduce these risks or exposure.

Moreover, increasingly strict administrative and criminal law penalties have been established to punish BNF operators who do not comply with their legal and regulatory obligations, such as a three-year prison sentence and a €150,000 fine if a BNF is operated without authorisation, or a one-year prison sentence and a €30,000 fine if radioactive substances are transported without authorisation or approval.

What is more, in July 2014, the Council of Ministers of the European Union adopted Council Directive no. 2014/87/Euratom of 8 July 2014 amending Directive no. 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations.

The legal framework described above for nuclear safety and inspection was completed by certain provisions of the Law of 17 August 2015 on Energy Transition for Green Growth and Order no. 2016-128 of 10 February 2016 that contains various provisions on nuclear matters.

In particular, the role of the local information commissions (CLIs) was reinforced: they can review all matters that fall within the scope of their remits of their own motion, they must be consulted if the specific intervention plan is amended and can inspect BNF at the request of the chair of the CLI in the case of an event rated 1 or higher on the International Nuclear and Radiological Event Scale, etc. Moreover, the NSA's power of sanction was enhanced with, in particular, the creation within the NSA of a Sanctions Committee comprised of Council of State and Supreme Court judges.

Decommissioning of nuclear facilities

The decommissioning of a BNF is authorised by a Prime Minister's decree that is issued after a public enquiry and an opinion by the NSA. This decree specifies the stages of the decommissioning, how long it will last and the intended final status. Once the decommissioning has been completed, the operator must send the NSA a declassification request, which, following an approval decision by the NSA, makes it possible to end the BNF status of the facility. The Law of 17 August 2015 on Energy Transition for Green Growth, in particular its provision that is now Article L. 593-25 of the French Environment Code, gave legislative value to the principle implemented since the early 2000s by EDF according to which decommissioning must take place within a timeframe that is "as short as possible" after final shutdown, under conditions that are economically acceptable and in compliance with the principles set forth in Article L. 1333-2 of the French Public Health Code and Section II of Article L. 110-1 of the French Environment Code. Moreover, the aforementioned Law introduced an additional administrative stage which consists of the operator having a duty, at least two years before the scheduled shutdown date, to make a declaration that its facility will be shut down.

Decree no. 2016-846 of 28 June 2016 on the final shutdown and decommissioning of basic nuclear facilities, and sub-contracting, amended the Decree of 2 November 2007, known as the "Procedures Decree", by implementing the provisions derived from the Law on Energy Transition for Green Growth, in particular the content of the shutdown declaration and decommissioning application files.

Radioactive waste

EDF's business is subject to French regulations on the sustainable management of radioactive waste. EDF bears liability for the radioactive waste resulting from its operations. In France, radioactive waste is managed by the National Agency for Radioactive Waste Management (ANDRA), a public institution of industrial and commercial nature created by Law no. 91-1381 of 30 December 1991 on research into the management of radioactive waste.

The method used to manage radioactive waste in France depends on the level of radioactivity and on the radioactivity lifespan of the waste (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues". The Law of 28 June 2006, which is now Articles L. 542-1 *et seq.* of the French

Environment Code, defines the organisation and the financing of radioactive waste management, along with the terms for a framework to evaluate and cover the costs of decommissioning BNF, as well as managing spent fuels and radioactive waste, is incorporated into Articles L. 594-1 *et seq.* of the French Environment Code. In particular, the assets allocated to cover provisions cannot be used for any other purpose by the operator, and these assets must be recognised separately in the accounts. The implementation of these provisions is controlled by the administrative authority, *i.e.* the Minister for Energy, which is itself overseen by a National Assessment Commission for the financing of decommissioning costs for BNFs and the management of spent fuels and radioactive waste.

Decree no. 2007-243 of 23 February 2007 on securing the financing of costs in the nuclear industry sets forth the terms and conditions for implementing the Law of June 2006.

A report is filed with the administrative authorities and the NSA every three years and a copy sent to the Statutory Auditors. This report includes, in particular, a valuation of the costs, the methods used for the calculation of provisions, and the composition of the assets. The administrative authorities may require any additional supporting documents, have an outside organisation conduct a study, or require an expert valuation of the assets at the operator's expense.

Council Directive no. 2011/70/Euratom, which was transposed by Order no. 2016-128 of 10 February 2016 that contains various provisions on nuclear matters, forms a common set of fundamental rules for the management of spent fuel and radioactive waste for a certain number of European Union Member States, and clarifies several concepts. This text presents, in particular, deep geological disposal as the safest and most sustainable option to manage Long-Lived, High-Level Waste and considers the possibility of creating disposal facilities shared between several Member States, on a voluntary basis.

The financing of decommissioning and radioactive waste management activities

The Law of 28 June 2006, which is now Articles L. 542-1 *et seq.* of the French Environment Code, defines the organisation and the financing of radioactive waste management, along with the terms for a framework to evaluate and cover the costs of decommissioning BNF, as well as managing spent fuels and radioactive waste, such terms being incorporated into Articles L. 594-1 *et seq.* In particular, the assets allocated to cover provisions cannot be used for any other purpose by the operator, and separate accounting procedures for these assets must be used. The implementation of these provisions is controlled by the administrative authority, *i.e.* the Minister for Energy, which is itself overseen by a National Assessment Commission for the financing of decommissioning costs for BNFs and the management of spent fuels and radioactive waste.

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Regulations on radiation protection

In France, nuclear activities that present a risk of exposing persons to ionising radiation are regulated by two separate sets of rules, depending on the category of persons to be protected. Regulations on the basic protection of the population against such radiation, which are governed by the French Public Health Code, are primarily based on all nuclear activities being subject

to a declaration or authorisation. Authorisations granted to establish a Basic Nuclear Facility serve as the authorisation required under the French Public Health Code. Article R. 1333-8 of the French Public Health Code sets the maximum exposure level of the general public at 1mSv per year.

French Regulations on the protection of workers against the dangers of ionising radiation, which are governed by the French Labour Code, lay down various obligations for employers of workers who are likely to be exposed and, in particular, set a limit on exposure of workers to ionising radiation at 20 mSv over a period of twelve consecutive months.

The French Health Code contains the provisions applicable to controlling high-level sealed radioactive sources and orphan sources.

Council Directive no. 2013/59/Euratom of 5 December 2013, which laid down "basic safety standards", repealed Directive no. 96/29 of 13 May 1996. This Directive must be transposed before 6 February 2018. The aforementioned Order no. 2016-128 of 10 February 2016 brought about this transposition. The entry into force of its provisions is contingent on the publication of decrees (public consultations are currently being held and certain bodies must be consulted) that will revise the French Public Health Code and the French Labour Code and, by default, will be 1 July 2017 at the latest.

Civil liability of nuclear facility operators

Several international conventions govern the civil liability of nuclear facility operators, in particular the Paris Convention of 29 July 1960 on Third-Party Liability in the Field of Nuclear Energy and the Brussels Convention of 31 January 1963, which supplements the Paris Convention. These two Conventions are applicable in the signatory countries that have ratified them, including France and the United Kingdom (see also section 2.5.6 "Specific insurance for nuclear facility operation").

The Paris Convention established a special liability derogation system, with specific characteristics. Liability for nuclear damage to persons and property is strict (even in the absence of a fault), limited in terms of the amount and duration, and is exclusively focused on the operator of the nuclear facility.

In France, the operator's liability was limited to €91.5 million per nuclear accident at a facility and to €22.9 million per nuclear accident during transport. These amounts were respectively increased to €700 million and €70 million on 18 February 2016 when Article 130 of the Law of 17 August 2015 on Energy Transition for Green Growth mentioned below entered into force.

Over and above the maximum amount for which the operator is liable, the State in which the incident occurred is responsible for compensating victims up to a maximum of €201.4 million (provided that said State is a Contracting State of the Brussels Convention); over and above this amount, Member States that have ratified the Brussels Convention (including France) contribute collectively to compensation up to a limit of €345.3 million.

The Convention also provides that the operator has an obligation to take out insurance or lodge a financial guarantee for the liability amounts established in order to guarantee the availability of funds. The Minister for the Economy monitors French operators' compliance with this obligation. EDF complies with the current coverage requirements (see section 2.5 "Insurance").

Protocols to amend the Paris and Brussels Conventions were signed on 12 February 2004 but have still not entered into force. They require significantly higher amounts of compensation than the original conventions, in order to cover a greater number of victims and types of damage that are eligible for indemnification. The operator's liability will thus be at least €700 million per nuclear incident in a facility and €70 million per nuclear incident during transport. The State in which the nuclear facility of the operator that is liable for causing the damage is located is liable for amounts above the €700 million for which the operator is liable, up to €1,200 million (provided that said State is a Contracting State of the Brussels

Convention). Over and above this amount, the Contracting States of the Brussels Convention are liable up to a maximum amount of €1,500 million. In addition, for personal injury only, the time limit to claim compensation has changed from 10 years to 30 years from the date of the incident. Another important change is the introduction of a detailed definition of "nuclear damage", which includes economic losses, the cost of protective measures, the cost of measures to rehabilitate damaged environments, and certain other losses resulting from damage to the environment. These new provisions will, however, only be applicable as of the date when the protocol that amends the Paris Convention comes into force, i.e. when at least two-thirds of the sixteen Contracting States have ratified it. France has adopted a law permitting ratification of both Protocols (Law no. 2006-786 of 5 July 2006), but has not yet filed the corresponding ratification instruments.

Moreover, on 30 April 2014, France filed its ratification instrument for the joint protocol relating to the application of the Vienna Convention and the Paris Convention, which thus entered into force for France on 30 July 2014. This joint protocol establishes a link between the Paris Convention, which covers countries in Western Europe, and the Vienna Convention of 21 May 1963 on Civil Liability for Nuclear Damage, which covers (among others) countries in Eastern Europe. It enables the parties to one of these two conventions (Paris or Vienna) who adhere to the protocol to benefit from the coverage provided by the other convention.

Protection of facilities that house nuclear materials

The purpose of the regulations on the protection and control of nuclear material governed by Article L. 1333-1 of the French Defence Code is to detect and prevent the loss, theft or misappropriation of nuclear material that is stored at facilities or being transported, or any attempts to alter, damage or disperse such material.

These regulations were completely recast by Decree no. 2009-1120 of 17 September 2009 on the protection and control of nuclear material, its facilities and its transportation, as set forth in the French Defence Code. The main purpose of this Decree was to extend the protection of nuclear material to the facilities where it is stored. Several orders published in 2011 detail operators' obligations.

For nuclear power plants, the Order of 10 June 2011 on the physical protection of facilities that house nuclear materials, which can only be held with an authorisation, is based on in-depth defence of targets, namely the nuclear material, equipment or functions, which, in the event of default or damage by a malicious act, are liable to have radiological consequences. Accordingly, the operator must set up several lines of protection in the form of six zones (e.g. access control areas, a vital area, an internal area, etc.). Following an amendment by an Order of 15 September 2015, the Order of 10 June 2011 now makes it possible to set up safety devices in dangerous areas if the assessment of the contents of the safety study provided for in Article R. 1333-4 of the French Defence Code reveal that the means implemented to meet the safety objectives appear to be insufficient.

The Order of 9 June 2011 organises the system for physically monitoring nuclear material, as well as the accounting conditions for nuclear material and operator obligations. Accordingly, operators must ensure that the physical monitoring and accounting are protected against the malicious actions identified when the authorisation is issued.

Law no. 2015-588 of 2 June 2015 on the Improvement of the Protection of Civilian Facilities That House Nuclear Materials, which is now incorporated into the French Defence Code, created a specific criminal misdemeanour of trespassing in these facilities. For the implementation of these rules, Decree no. 2015-1255 of 8 October 2015 created restricted access nuclear areas (ZNAR) that must be delineated within each facility. Trespassing in a ZNAR constitutes a criminal misdemeanour that carries a one-year prison sentence and a €15,000 fine. These penalties are increased in the event of

aggravating circumstances (to a three-year prison sentence and a €45,000 fine, in particular when the offence is committed in a group, and to a seven-year prison sentence and a €100,000 fine, in particular if the offence is committed with the use or threat of a weapon). All of the orders that define the ZNAR for each nuclear power plant have been published.

1.5.6.2.3 Regulations applicable to fossil fuel-fired energy generation

The EDF group's fossil fuel-fired energy generation business is subject in France to the regulations that are applicable to ICPEs (see section 1.5.6.2.1 "Regulations applicable to facilities classified for the protection of the environment (ICPEs)"). EDF's fossil fuel-fired facilities must also comply with specific regulations on air quality, adopted mainly as a result of European Directive no. 2001/81/EC of 23 October 2001 on National Emission Ceilings for Certain Atmospheric Pollutants (the NEC Directive), and Directive no. 2001/80/EC of 23 October 2001 on the Limitation of Emissions of Certain Pollutants into the Air from Large Combustion Plants (the LCP Directive), which, since 1 January 2016, has been repealed and replaced by Directive no. 2010/75/EU of 24 November 2010 on Industrial Emissions (the IED Directive). These directives have been transposed into French law by several orders, in particular the Order of 30 July 2003 on boilers that are present in existing combustion facilities with a power rating of more than 20MWth, which, since 1 January 2016, has been repealed and replaced by the Order of 26 August 2013 on combustion facilities with a power rating of 20MW or more, which are subject to authorisation under section 2910 and section 2931.

Exemptions from obligations concerning emissions into the air were possible until 31 December 2015. As of that time, the ceilings and the exemptions originating from the IED Directive mentioned above will apply, with, in particular, specific issues concerning production facilities in the overseas departments and emergency systems, for which the pollution levels require negotiating adapted provisions. Two orders of 26 August 2013, which entered into force on 1 January 2014, bring together all the provisions that are applicable to combustion facilities and specify the conditions under which these facilities will be allowed to exceed emissions limits.

Fossil fuel-fired energy production is also subject to the provisions of the Seveso 3 Directive and to the obligation to lodge financial guarantees (see section 1.5.6.2.1 "Regulations applicable to facilities classified for the protection of the environment (ICPEs)").

Directive no. 2015/2193/EU of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants must be transposed into French law by 19 December 2017. It lays down rules designed to limit the air pollution caused by sulphur dioxide (SO₂), nitrogen oxides (NO_x) and dust from medium combustion plants, and to reduce the airborne emissions and their potential risks for human and environmental health. The facilities concerned are combustion plants with a rated thermal input of 1MW or more and less than 50MW, regardless of the type of fuel they use.

1.5.6.2.4 Regulations applicable to hydropower facilities

In France, hydropower facilities are subject to the provisions contained in Articles L. 511-1 *et seq.* of the French Energy Code. They require concession agreements granted by the State (for facilities generating over 4.5MW), or an authorisation from the Prefecture (for facilities under 4.5MW), (see section 1.4.1.4.1.4 "Hydropower generation issues") concerning hydropower concessions.

EDF's hydropower generation business is subject to the substantive provisions of water regulations. Such regulations cover in particular control over variations in water levels and flow rates, the safety of areas in the vicinity and downstream of hydropower facilities and, in general, maintaining balanced management of water resources (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety").

Competitive tendering for hydropower concession contracts

Until 1 April 2016, the competitive tendering procedure for hydropower concession contracts was still governed by Decree no. 94-894 of 13 October 1994, which has now been incorporated into Book V of the regulatory section of the French Energy Code (cf. Decree no. 2015-1823 of 30 December 2015 on the organisation of the regulatory section of the French Energy Code). This Decree, as amended by Decree no. 2008-1009 of 26 September 2008, places concessions within the legal framework for public service delegation contracts defined by Law no. 93-122 of 29 January 1993, known as the "Sapin Act", it being specified that the former preferential right of the outgoing operator was eliminated by the Water Act (Law no. 2006-1772 of 30 December 2006) as it was incompatible with European law.

For all procedures initiated as from 1 April 2016, the award of hydropower concession contracts is now governed by Order no. 2016-65 of 29 January 2016 and by its implementing Decree no. 2016-86 of 1 February 2016 on concession contracts. This legislation has repealed the aforementioned provisions of the "Sapin Act", in order to modernise them and align them with European law (Directive no. 2014/23/EU of 26 February 2014 on the award of concession contracts).

The Law of 17 August 2015 on Energy Transition for Green Growth has completed the legal framework for hydropower concession contracts by giving the State the possibility:

- of combining concession contracts that form a "series of facilities that are hydraulically linked", by setting a new deadline for all the concession contracts concerned (Articles L. 521-16-1 and L. 521-16-2 of the French Energy Code);
- of creating semi-public hydroelectric companies (SEM) made up of private-sector operators and a public division (State, local authorities, etc.), each of which holds at least 34% of the shares (Articles L. 521-18 *et seq.* of the French Energy Code);
- of extending certain concession contracts in return for investments by operators where these investments are necessary in order to reach national energy policy targets (Article L. 521-16-3 of the French Energy Code).

The purpose of the Decree of 27 April 2016 on hydropower concession contracts is to implement the provisions of the aforementioned Law of 17 August 2015 and to modernise the regulatory framework for hydropower concession contracts (in particular by clarifying certain aspects of the procedure for awarding hydropower concession contracts by approving a new model for general terms and conditions).

A set of provisions completes this legislation, concerning the performance of hydropower concession contracts: in particular, Order no. 2016-518 of 28 April 2016 that made various amendments to Book V of the French Energy Code, the purpose of which is to enhance the administration control of hydropower facilities and to clarify certain rules with a view to renewing their operating permit, the Decree of 27 May 2016 on the purchase obligation and the additional remuneration, which is likely to concern certain hydropower facilities, Orders of 3 August 2016 on the environmental assessment of projects and procedures to inform and involve the public, and the Law of 7 October 2016 for a digital Republic.

Annual concession fee

In accordance with Article L. 523-2 of the French Energy Code, when a hydropower concession contract is renewed or extended under the conditions provided for by Articles L. 521-16-2 or L. 521-16-3 of the French Energy Code, an annual concession fee that is proportional to the revenues generated by the concession contract is levied, which is paid in part to the French State and in part to the French départements and municipalities through which the waterways used flow. A limit is set by the contracting authority on a case-by-case basis for each new or renewed concession contract. Article 69 of Law no. 2015-1785 of 29 December 2015 (the Budget Act for 2016) expressly confirmed that this type of concession fee excludes the application of the concession fees provided for by Article L. 523-1 of said Code, which apply to concession contracts that were renewed before 2006.

Safety and security of facilities

Articles R. 214-112 *et seq.* of the French Environment Code contain provisions that are applicable to the safety and security of hydropower facilities that are authorised and operated under concession contracts. Dams are divided into three classes (A, B and C) according to their characteristics, in particular their height and the volume of the floodwaters. According to this classification and the legal rules applicable to the facility, the regulations require the operator or concession contract holder to fulfil a certain number of obligations in order to guarantee the safety and security thereof (in particular by carrying out and updating hazard studies – see section 1.4.1.4.1.2 “Hydropower safety”). The aforementioned Decree of 27 April 2016 on hydropower energy concession contracts contains provisions that are designed to unify the regulations, regardless of the legal rules that are applicable to the facility.

1.5.6.2.5 Regulations applicable to renewable energy generation

The “Climate Package” (known as the “2020 Energy-Climate Package”) is the source of a set of measures aimed at ensuring that, by 2020, the EU will achieve the objectives of a 20% reduction of greenhouse gas (GHG) emissions, a 20% improvement in energy efficiency and a 20% portion of renewable energy (REN) in energy consumption. The “2020 Energy-Climate Package”, which was adopted on 24 October 2014, set new targets for 2030: a 40% reduction in GHG emissions compared to 1990, 27% of renewable energies in the energy mix and a 27% improvement in energy savings.

One of the five instruments that make up the “2020 Energy-Climate Package” is Directive no. 2009/28/EC of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources, known as the “REN” Directive. It allocates the effort to reach the target of 20% of renewable energies in final EU energy consumption by 2020 among Member States, taking into account, among other aspects, the national energy mix, the potential of each State and its GDP, and requires Member States to adopt national renewable energy action plans.

According to Article 4 of the aforementioned REN Directive, France adopted its National Action Plan in favour of renewable energies (2009-2020). This Plan, in accordance with the REN Directive, sets a national target of a 23% share of energy from renewable sources in the gross final consumption of energy by 2020. The Law of 17 August 2015 on Energy Transition for Green Growth also provides for a target of 32% of renewable energies in energy consumption by 2030. Moreover, the same Law provides that the National Plan will be replaced by the part of the PPE that concerns the development of renewable energies and energy recovery.

In order to achieve the objectives of the REN Directive, the Grenelle 2 Law created new land planning instruments with a view to enabling balanced development between the various renewable energy sectors, which include:

- regional climate, air and energy schemes (SRCAEs), for which the legal framework is laid down in Articles L. 222-1 to L. 222-3 and R. 222-1 to R. 222-7 of the French Environment Code. As of 1 May 2014, all regions had adopted their SRCAE;

- regional schemes for connection to renewable energy networks (S3RERs), of which Articles D. 321-10 to D. 321-21 and D. 342-22 to D. 342-25 of the French Energy Code specify the content, approval rules, host capacity management and financial conditions for the connection of electricity producers.

Under Article 15 of the REN Directive, an Order of 14 September 2011 (ratified by Law no. 2013-619 of 16 July 2013) amended the legal rules on the guarantees of origin of the electricity produced using renewable sources or by cogeneration, laid down in Articles L. 314-14 *et seq.* of the French Energy Code. The terms and conditions to implement this new scheme and the rules for appointing the organisation in charge of managing guarantees of origin (issuing, transfer, cancellation) are stipulated in Articles R. 314-24 to R. 314-41 of the French Energy Code. As producer and mandatory purchaser of electricity produced using renewable energy sources, the EDF group is concerned by these provisions.

The Grenelle 2 Law also contains exceptional provisions designed to encourage the development of sea-based energies, which were enhanced by the Law of 17 August 2015 on Energy Transition for Green Growth.

In addition, Article 18 of Law no. 2014-1545 of 20 December 2014 on the simplification of corporate life empowers the Government to set up a dedicated, comprehensive authorisation system for sea-based facilities that produce renewable energy and that are located in the maritime public domain, and for the connection structures for these facilities. Moreover, Decree no. 2016-9 of 8 January 2016 simplified the legal procedures that are applicable to sea-based renewable energy projects that win competitive tendering procedures.

Furthermore, the Law of 17 August 2015 on Energy Transition for Green Growth provides an exceptional appeal timeframe for the benefit of “facilities that produce energy from renewable sources” of four months in which to contest an authorisation, as from, respectively, either the publication of the authorisation, or its notification.

1.5.6.2.6 Regulations that are applicable to the generation of wind power

Pursuant to Articles R. 421-1 and R. 421-2 of the French Urban Planning Code, a building permit must be obtained for land-based wind farms with a height equal to or greater than 12 metres. The construction of wind farms on the public maritime domain is exempted from the requirement for a building permit, in accordance with Article R. 421-8-1 of the French Urban Planning Code.

In addition, the Grenelle 2 Law provides that land-based wind farms are now subject to the nomenclature applicable to ICPEs with the legal system of authorisation or declaration (see section 1.5.6.2.1 “Regulations applicable to facilities classified for the protection of the environment (ICPEs)”) under section 2980 “Terrestrial facilities for the generation of electricity using mechanical wind energy with one or more wind-power generators”. In connection with the application for a building permit, an impact study must be performed for wind farms that are subject to authorisation and submitted with the building permit file.

The Law of 17 August 2015 on Energy Transition for Green Growth amended the rules on the distance required between wind farms and housing: the minimum distance of 500 metres is maintained, but may be increased in light of the impact study, which is part of the authorisation application. It also inserted provisions into Article L. 146-4.1 of the French Urban Planning Code that are designed to facilitate the location of land-based wind farms in municipalities concerned by the “Coastline” Law. A decree is also expected to clarify the rules on wind farm location with regard to military facilities and sectors, weather monitoring equipment and air navigation equipment.

The operator of a wind farm, or in the event of default, the parent company, is responsible for decommissioning the farm and site restoration, as soon as operation is terminated for any reason (Articles L. 553-3 and R. 553-1 of the French Environment Code). For this purpose, the operator is required to lodge financial guarantees as of the start-up of generation and for subsequent accounting periods.

1.5.6.2.7 Regulations applicable to public procurements

Directive no. 2014/24/EU on Public Procurement and Directive no. 2014/25/EU on Procurement by Entities Operating in the Water, Energy, Transport and Postal Services Sectors, to which EDF is subject as a purchaser, have been transposed into French domestic law by:

- Order no. 2015-899 of 23 July 2015 on public procurement contracts, which unified the various competitive tendering procedures that previously existed in the French Public Procurement Code and Order no. 2005-649 of 6 June 2005;
- Decree no. 2016-260 of 25 March 2016 that implemented the Order of 23 July 2015.

These texts entered into force on 1 April 2016.

1.5.7 REGULATIONS ON THE WHOLESALE ENERGY MARKETS

Inspired by the rules contained in Directive no. 2003/6/EC on Market Abuse applicable to financial markets (see section 4.1 "Corporate governance code"), Regulation (EU) no. 1227/2011, known as the "REMIT" Regulation, on wholesale energy market integrity and transparency came into force on

28 December 2011. This Regulation is aimed at preventing market abuse and manipulation on wholesale energy markets and strengthening the confidence of market participants and consumers.

Strengthening wholesale energy market integrity and transparency must foster open and fair competition on these markets, in particular so that prices set on these markets reflect a fair and competitive interplay between supply and demand. The Regulation prohibits insider trading and market manipulation, and establishes an obligation to publish inside information as defined in the REMIT.

The European Agency for the Cooperation of Energy Regulators (ACER) is primarily responsible for monitoring wholesale trades in energy products, in order to detect and prevent transactions based on inside information and market manipulations.

ACER also collects the data needed to assess and monitor markets, inasmuch as the regulation provides that market participants, or a person empowered to do so on their behalf, must supply ACER with a detailed statement of wholesale energy market transactions.

Lastly, market participants that perform transactions for which a declaration to ACER is mandatory must register with the national regulatory authority of the Member State in which they are established (the CRE in France) or, if they are not established in the European Union, that of a Member State in which they do business.

1.6 Research & development, patents and licenses

The main missions of the EDF group's Research and Development Division (R&D) are firstly, to support the Group's business lines and subsidiaries on a day-to-day basis, by providing them with its top-level expertise and high-performance practices, and secondly, to contribute to build the Group's future by anticipating the developments and major challenges with which it is confronted.

In particular, these challenges include the following:

- fossil fuels and global warming, entailing questions and regulations concerning greenhouse gas emissions levels;
- the uses of water and management of the environment;
- the rapid development of emerging nations, and the resulting shift in areas of consumption;
- the significant development of information technology applied to energy, offering new opportunities for the electricity business;
- the changing behaviours of clients: consumers and local authorities who are also becoming producers, and seeking to consume more effectively, living in buildings, neighbourhoods and cities that have greater energy autonomy.

In this context, R&D's role is crucial when it comes to finding solutions to all of these challenges. Its avenues of research are structured on the basis of three broad priorities:

- developing and experimenting with new energy services for clients, enabling demand-side management that is both flexible and low-carbon, thanks to improvements in knowledge of demand, the development by clients of energy efficiency, the promotion of new, effective uses of electricity, often in combination with renewable energies (heat pumps, electric mobility, etc.), the development of technical and economic

modelling to engineer buildings, industry and sustainable cities, and the development of uses and consumption being integrated into the electricity system itself through the use of smart grids and appropriate pricing;

- preparing the electricity systems of the future, by: optimising the lifespan of network infrastructures and accompanying adaptation of the electricity system by improving network asset management; implementing optimisation models and economic scenarios for new infrastructure projects relating to energy transport; inserting intermittent energies; and developing smart grids;
- consolidating and developing competitive, low-carbon production mixes: one of the key aspects of transition is to ensure the effective coexistence of conventional means of production, in particular by further improving the safety, performance and operating life of existing nuclear power plants, with the development of new renewable energies, by improving their performance and how they are integrated into energy systems.

In addition to its overall activity, R&D has also identified four research programmes that fall into the "disruptive - future-ready" category. These are:

- local energy services and systems, with industrial fine-tuning of technical resources for urban planning and definition of optimum procedures to incorporate local energy systems within an overall national system;
- the use of digital technology in customer relations to offer innovative services and, within our own industry, to improve monitoring of our installations and maintenance forecasting;
- energy storage, photovoltaic energy and electric mobility;
- Small Modular Reactors: small reactors that could be used, in particular, to address the market for areas that are isolated or suffer from weak transport links.

1.6.1 R&D ORGANISATION AND KEY FIGURES

EDF's R&D is both integrated and cross-disciplinary, in order to facilitate synergies and method transfers between the different business lines within the Group.

In 2016, the Group's overall research and development budget amounted to €662 million, €572 million of which was earmarked for the EDF R&D budget. This is one of the largest R&D budgets of any major electricity company. Approximately two-thirds of this budget is devoted to programmes put together on a yearly basis under contractual agreements with EDF's operational divisions and subsidiaries. The remaining third goes to medium and long-term anticipation initiatives that fall within Group R&D priority areas.

In 2016, approximately 19% of this budget was devoted to protecting the environment. In particular, expenditures covered research into energy efficiency, uses of electricity as a substitute for fossil fuels, renewable energies and their insertion into the grid, sustainable cities, the local impacts of climate change and other environmental issues such as biodiversity, water quality, and the mitigation of disturbances.

EDF's R&D Division employs 2,029 staff (FTE in 2009) in France, representing 27 nationalities; 83.19% have manager status, 31.3% are women, 134 are Ph.D. students and 55 are on work-study programmes. 104 researchers teach in universities and major engineering schools. At Group level, including Edison and EDF Energy, this total number of staff is 2,255 (a FTE of 2,233).

The EDF R&D Division, which hired 63 people in 2016, channels its employees towards other entities of the EDF group. In 2016 the result of this mobility was a net reduction in headcount of 98.

The R&D Division is made up of 15 technical departments. Its expertise covers all the Group's fields of activity: renewable energies and storage, networks, nuclear, fossil-fired, and hydro power generation, energy management, trade and services, information systems and the environment. They are specific to particular disciplines, business lines and projects, and also come together for work on major systems. EDF's R&D Division manages an internal training body, the Technology Transfer Institute (Institut de Transfert de Technologie, ITech), whose purpose is to disseminate EDF's R&D practices, know-how and innovations to the rest of the EDF group. Some ITECH training courses are open to other companies. ITECH has a catalogue of training courses (out of the 123 courses on offer, 23 were available to professionals from outside the Group in 2016), which is updated each year. ITECH generated €170,000 of revenue in 2016; its training courses are also used by the Vocational Academies (see section 3.3.1.3 "Skill development: preparing for the future").

At present, the R&D Division is organised on a multi-site basis. Three of these sites are located in France, in the Greater Paris region; seven are located abroad, in Germany, the UK, Poland, China, the USA, Singapore and Italy. The Chatou and Les Renardières (near Fontainebleau) centres respectively have workforces of 489 and 584 people. The new EDF Lab centre in Paris-Saclay has a workforce of around 956 people. Around 230 researchers work outside France, including some 30 expatriates.

In November 2010, EDF's Board of Directors approved a project to move EDF's main R&D centre, which was previously located in Clamart, to Palaiseau on the Paris-Saclay campus. This centre was inaugurated in 2016 with the arrival, starting in March, of the employees who were previously based in Clamart. Through the opening of this new centre, which is intended to provide workspace for up to 1,500 persons, including Group researchers, Ph.D. students and interns, EDF is expressing fresh ambitions for its R&D and placing scientific and industrial innovation and research at the heart of its priorities. A new EDF training centre which is located in the immediate proximity of the R&D centre, opened its doors in September 2016. Together on one site, the new research centre and training centre form the EDF Lab Paris-Saclay complex. This strategic decision positions EDF as a leading player on the Paris-Saclay campus, thereby enabling it to benefit from more dynamic collaboration with the higher education establishments and public and private-sector research centres located nearby.

In this regard, a new agreement came into effect on 1 July 2014, signed by EDF's R&D Management and all the trade union organisations representing R&D. The fruit of sustained labour relations between the various stakeholders, this agreement defines the assistance made available to EDF Clamart employees who moved into the new centre in 2016.

In addition, a number of partnership agreements have been concluded with other institutions of the Paris-Saclay University:

- SEIDO, a joint EDF-Telecom Paris Tech laboratory dedicated to the Internet of Things and cyber security for electricity systems. Its mission is to prepare and facilitate the deployment of energy demand management and energy efficiency services, making use of interoperable, communicating energy-related objects (heating, air conditioning, white and brown goods, electric vehicles, etc.), thereby helping to provide coherence for the system as a whole, as well as safety (security, confidentiality, and so on);
- the shared Rise Grid laboratory, devoted to the modelling and simulation of smart grids, in association with the Supélec engineering school;
- the SEISM Institute for modelling the effects of seismic activity from fault lines through to structures, which was founded by EDF, the French Atomic Energy Commission, CentraleSupélec, the Ecole normale supérieure Paris-Saclay and the National Center for Scientific Research (CNRS);
- PGMO, the Gaspard Monge Programme for optimisation and operational research, housed by the Jacques Hadamard Mathematics Foundation, and established with the patronage of EDF's R&D Division;
- IMSIA, the Institute of Mechanical Sciences and Industrial Applications, which since June 2015 has brought together ENSTA, CNRS, and CEA Saclay alongside EDF;
- the Energy Finance and Markets laboratory, shared with Dauphine University, ENSAE and *École polytechnique*;
- the Île-de-France Photovoltaic Institute (IPVF), which is an institute for energy transition dedicated to developing ground-breaking technologies in the photovoltaic field, which was founded by EDF, Total, Air Liquide, Riber, Jobin Yvon, the CNRS and *École polytechnique*. This partnership is supported by the State in the form of financing for energy transition institutes, specifically State funding for investments in the future that is overseen by the Commissariat-General for Investment.

The R&D sites also accommodate two research units operated jointly with CNRS: IMSIA, the Institute of Mechanical Sciences and Industrial Applications (formerly LaMSID, the Laboratory for the Mechanics of Sustainable Industrial Structures) and IRDEP, the Institute for Photovoltaic Energy Research and Development, as well as an international R&D centre, the Materials Aging Institute (MAI).

To conduct its research, EDF is continuing to invest in powerful, widely-acclaimed digital simulation resources, and developing cutting-edge computing code and resources that are among the best in industry, with a current total capacity of 1800Tflop.

In addition, the Group benefits from unique experimental resources; these include specific analytical loops to study chemicals/corrosion, failure, aero-acoustics, etc.; loops focusing on components and processes; resources for on-site test interventions; and resources dedicated to the characterisation of materials and their ageing. Two recent flagship installations are noted below:

- Concept Grid: a scaled-down electricity grid for the purpose of trialling and testing the insertion of the innovative hardware and "intelligent" systems that together make up a smart grid, prior to them being installed on the grid itself. Concept Grid is designed to prepare future developments of the grid by studying the integration of new components and equipment from the world of information and communication technology to facilitate demand-side management. It is also intended to facilitate the integration of decentralised production, by studying the behaviour of production resources on the electricity system, and electricity storage applications. Concept Grid provides the missing link between a conventional research laboratory, in which innovations are tested in conditions that are not entirely representative of reality, and the actual grid, where quality of service considerations restrict experimentation;

- Vercors: construction of a model reactor building to 1:3 scale in order to study how double containment buildings age. This model was completed in 2016 and the initial tests have been conducted. Due to its reduced thickness, it enables the Group's researchers to analyse then predict the effects of aging of the concrete enclosures of reactor buildings and to check the solidity of this type of structure over time. It is used in conjunction with several digital models, which make it possible to model concrete aging phenomena.

In terms of innovation, R&D has also increased its capacity for industrialisation and value creation based on internal innovation, and with a view to benefiting further from external innovation. The aim is to be able to integrate innovations in the Group's industrial processes.

In order to do so, through an Innovation Hub that is currently being set up, R&D is developing services to assist with new business innovation and development. The two ultimate objectives of this Innovation Hub are as follows:

- to assist, accelerate and leverage innovation within the Group as part of the "innovate in the present" initiative; this involves supporting the business lines and R&D in the implementation of the innovation, time to business acceleration and entrepreneurship processes;
- to help to predict and explore breakthrough models as part of the "dare for the future" initiative; tomorrow, these new models could constitute new business lines for the Group, whether in the form of new services or new technological solutions.

EDF is the leading investor in Electranova Capital, a venture capital fund for startups specialising in cleantech, launched in May 2012 together with Allianz and Bpi France, and managed by Idinvest Partners. With investment capacity of some €90 million, the purpose of the Electranova Capital fund is to nurture the emergence of innovative products using new technologies in order to take up the challenge of low-carbon energy models.

Ten investment packages have been concluded with new companies, four of which are French. All of them are related in some way to one or more of EDF's business lines:

- Actility: a leading French player in the field of smart grids;
- Enlighted: Enlighted is an expert in energy optimisation, providing lighting control solutions for retail, industrial, and service buildings;
- Forsee Power Solution: a French firm specialising in battery design;
- Seatower: a Norwegian firm that has developed innovative gravity foundations for offshore wind farms;
- SunFire: a German company specialising in fuel cells and electrolysis for mobility and stationary storage;
- Leosphère: a French SME established in 2004, and now the world leader in the use of Lidar, a technology using lasers and their reflection in the atmosphere;
- Techniwood: a French company that designs, manufactures and markets the latest industrial generation of a high-performance wood-insulation composite construction system known as Panobloc®;
- Sunrun: an American firm which is one of the leading vendors of solar panels to consumers in the US, on the basis of solar as a service;
- Organica Water: a Hungarian-based company that is developing and marketing a disruptive, energy-efficient technology for the organic treatment of municipal and industrial wastewater;
- First Fuel: a US firm providing a "digital" solution for carrying out mass energy audit campaigns for retail premises remotely.

With these ten investments, Electranova Capital completed its investment period. In order to maintain this momentum, at the start of 2016 EDF and Idinvest Partners decided to set up Electranova Capital II, which is currently raising funds.

Electranova Capital II has already invested in the US company Off Grid Electric (OGE), which is the world leader in the commercialisation of solar energy access kits in Africa. In November 2016, EDF and OGE set up a joint venture in the Ivory Coast and announced the launch of a new off grid solar energy product that is designed to bring electricity to rural areas of West Africa.

EDF also has a stake in the Amorceage Technologique Investissement fund (ATI) managed by CEA Investissement. This is directed at new French companies working in technological innovation for energy, the environment, micro-technologies and nanotechnologies.

Lastly, EDF has taken out five stakes in venture capital funds in France, North America and China in order to provide access to a global pool of startups and innovations:

- Robolution Capital, a fund focusing on robotics, launched in March 2014;
- Chrysalix, a Canadian fund dedicated to cleantech venture capital, in December 2011;
- Tsing capital, the first Chinese fund to be devoted to cleantech venture capital, in December 2011;
- DBL Investors in the USA, a fund set up in 2008;
- Mc Rock, a Canadian venture capital firm that specialises in the Industrial Internet of Things (IIoT), in 2015.

1.6.2 R&D PRIORITIES

EDF R&D's work serves all the Group's business lines. For each of them, it offers technological solutions or innovative business and economic models designed to improve their performance, and prepare the Group's future in the longer term by means of medium and long-term anticipation initiatives. It is one of the factors in EDF becoming a global industrial group providing low-carbon electricity systems.

EDF's R&D performs work for Enedis on the networks under a services agreement, which defines obligations that guarantee the protection of commercially sensitive information and compliance with the principle of the independent management of the distributor.

As the energy sector undergoes profound change, the goal of EDF R&D may be defined in terms of three strategic avenues: consolidating and developing competitive, low-carbon production mixes; developing and experimenting with new energy services for clients; and preparing the electricity systems of the future and, moreover, consolidating and developing competitive, low-carbon mixes of electricity production sources.

R&D also engages in research into information technology to support these three strategic avenues. This research is in turn structured around five major areas: complex systems; the management and processing of large volumes of data; the Internet of Things; cyber security; and the simulation of physical problems.

Research in this field has a twofold purpose:

- improving business line performance through advanced simulation technologies;
- facilitating the emergence of new opportunities for business lines through innovative uses of new information and communications technologies.

1.6.2.1 Developing and experimenting with new energy services for clients

The development of energy efficiency and distributed renewable energies, along with changes in both legislation and technology (digitisation), as well as market deregulation, have all led to profound changes in the relationship between energy firms and their clients, allowing clients to become actively involved in their consumption and production of energy, both individually and across entire territories.

This environment has resulted in a range of issues being faced by the EDF group's marketers:

- changes in rate structures and prices;
- demand-side management: under schemes such as Green Deal in the UK and Energy Savings Certificates in France, suppliers must shoulder an increasing number of obligations;
- the development of smart technologies: the advent of smart meters and the emergence of connected objects will result in access by the general public to new services made possible by these new smart technologies (management, customised offers, etc.);
- changes in customer relations, destined to become increasingly digital, with more demanding client expectations accompanied by changing behaviours. However, the modernisation of this relationship should not obscure the accompanying increase in clients' energy vulnerability, which calls for an appropriate response from the company;
- the growing power of local stakeholders as a result of France's Energy Transition and 'NOTRe' Boundaries Reform Acts: local authorities, already actively engaged in urban planning and public energy distribution, will be increasingly able to take control of their own energy destiny. The notion of sustainable territories, which combines aspects of planning (eco-districts) and mobility (electric vehicles), is becoming a key structural component in local policies. New potential areas of service are emerging at the intersection of the development of smart technologies and the shift in power to local territories;
- the emergence of demand among customers to become stakeholders in their own production of electricity through private energy generation and consumption.

To address these issues, EDF R&D is restructuring its action around four topical priority programmes:

- developing methods and resources to provide improved knowledge of societal expectations in the form of a Consumer Trend Observatory, of demand, by cross-referencing consumer data with online data, *i.e.* a Big Data approach, and of new prices in order to incentivise dynamic demand-side management and thereby address the new needs of the electricity system in terms of flexibility. This theme is shared among each of the following three programmes, according to the market targeted;
- innovating to develop new uses for electricity (heat pumps for buildings and industry, lightning, and electric mobility) ultimately in order to stimulate future electricity demand and effective energy solutions in the long term for all customer segments, in a way that is compatible with new regulatory frameworks, developing comprehensive energy supply and energy services solutions for industry and the tertiary sector. The programme under which this activity is run also manages the B2B market;
- developing methods and resources to allow customer relations to be modernised, in order to enhance commercial performance and cut costs through the use of new technologies and related data processing; designing tools to develop energy services downstream from meters for the residential market, which can be interfaced with the functionalities of the Linky meters and smart devices. The programme under which this activity is run also manages the B2C market;

- designing and modelling local energy systems; developing the tools and technologies to deliver an innovative service offering for sustainable towns, cities and territories in France and internationally. The programme under which this activity is run also manages the B2G market; developing, with EDF ENR-Solaire for its "Mon Soleil et Moi" solution, a meter to manage the photovoltaic production and consumption of residential customers, in order to increase private consumption of the photovoltaic electricity produced by customers' facilities.

For instance, research has been conducted into new uses for electricity, such as electric mobility, heat pumps and more economic buildings. R&D has developed a prototype high-temperature industrial heat pump that allows waste heat from client processes to be recovered. Deployment of this technology as part of a service offering to clients is underway. Innovations that will ultimately make it possible to reduce the cost of heat pumps for the tertiary, commercial and residential sectors have also been developed. Lastly, innovations relating to smart energy management for electricity used for heating have been developed, in particular for residential heat pumps and the modernisation of storage tanks in order to make them compatible with innovative control modes, such as off-peak periods for solar energy. Moreover, work has intensified on the operating safety of industrial electrical networks, and a specific project on smart lighting has been initiated to support the development of solutions for Citelum.

More especially, this research has been implemented in the field via smart grid demonstrators, such as Nice grid and Smart Electric Lyon, in which R&D is looking at new models aggregating various types of flexible demand (load management, deferred consumption, self-consumption, renewable energies, and energy planning and management at local levels).

As to client relations, to allow residential clients to be aware of their electricity use between two bills, EDF has designed and developed a prototype range of features compatible with smart meters, including an application for smartphones and PCs that allows consumers to estimate their bill, taking into account their own particular characteristics, seasonal variations in their electricity consumption, and their past consumption history. EDF R&D is also working on research initiatives to combat energy vulnerability, for instance by designing relevant client relations offers and resources. R&D has helped to develop a new offering of energy services for a new EDF subsidiary that combines gas supply, boiler management with a smart thermostat and a digital customer interface.

In sustainable territories, to address the needs of cities that are seeking to optimise infrastructures and their management (e.g. for transport, waste treatment, buildings, energy production, and networks) and aspiring to become sustainable, "smart cities", R&D is developing urban engineering resources for EDF sales staff in France, such as the study performed for the Nice urban district. R&D is also investing in a partnership with the city of Singapore to develop a decision support tool for urban planning. Under the "City of the Future" contract that was signed in June 2013 by EDF and Singapore's Housing Development Board, the leading builder of homes for the city, in mid-2015 EDF delivered an innovative 3D tool for urban modelling.

In collaboration with the Singaporean authorities, this solution covers the energy efficiency of buildings and their air conditioning systems, as well as the collection of household waste. It also includes the possibility of addressing issues such as the incorporation of photovoltaics into buildings, green roofs, and local water recycling. This modelling is coupled with innovative 3D visualisation tools at the level of individual buildings or a neighbourhood, allowing the impacts of planning decisions, for instance on greenhouse gas emissions, to be studied. This experience acquired has now made it possible to develop a project in Lyon for the new Gerland neighbourhood. Since 2016, new development areas are being studied with Singapore, in particular with the signature of a new study contract to optimise Singapore's photovoltaic production.

Electric mobility is another important aspect of sustainable cities: electric transport opens up the prospect of a fundamental transformation of modes of travel. Battery storage is the key technology for electric transport. R&D research in this respect consists, firstly, in characterising battery safety and performance in the lab, and secondly, in innovating in the realm of breakthrough technologies with the potential to deliver significant improvements in battery life and/or cost. R&D is also studying non-mobile applications for the reuse of batteries that were originally used in electric vehicles (combining them with renewable energies, system services, etc.). In the longer term, R&D will adopt a similar approach for the hydrogen (H₂) technologies that are used for mobility, including electrolysers and charging stations, as well as fuel cells for heavy transport and light vehicles.

More generally, the goals of R&D activities in the field of electric vehicles (EVs) and rechargeable hybrid vehicles (RHVs) are as follows:

- supporting the development of this new use (monitoring initial experimentation; standardisation; innovations with the potential to remove market barriers, such as wireless charging);
- managing integration with the electricity system (smart charging, dimensioning and location of charging stations);
- developing mobility service resources (fleet supervision platform, charging station operation software, smart charging stations for residential customers and resources to advise local authorities on mobility);
- preparing the integration of electric vehicles into local energy systems, with the study of vehicle to grid (V2G) and vehicle to home (V2H) models,

in particular, through partnerships with leading transport players such as Renault, PSA, RATP, and SNCF.

All of the studies carried out for the Smart Cities, Smart Building and Smart Factory have enriched the work carried out on local energy systems, which incorporates the development of specific tools for the design and operation of hot and cold heat networks for specialised subsidiaries.

1.6.2.2 Preparing the electricity systems of the future

Energy transition towards a low-carbon economy in Europe primarily involves reducing the carbon footprint of electricity systems. This involves addressing new challenges for electrical systems:

- managing the intermittence of production sources that use renewable energies and pushing back the limits of their inclusion in electrical systems;
- integrating new uses of electricity by optimising the production mix and grid requirements;
- developing network transmission infrastructures and optimising electricity traffic in Europe;
- optimising decentralised energy systems (demand-side management, decentralised production and storage, etc.) by integrating them into larger-scale energy management systems;
- adapting the coordination of electricity systems in order to address a reduction in inertia in a context of increasing use of power electronics in order to factor in patterns of use and new production sources;
- and, more generally, optimising investments in production and storage facilities, in network infrastructures and energy efficiency and green energy solutions, having regard to the interest of the public and the competitiveness of electricity, without there being any significant increase in bills for customers, while also maintaining the quality and reliability of the electricity system.

The trend towards more intelligent electricity systems, also known as smart grids, is one of the pivotal points in transitioning towards a low-carbon energy economy in Europe. It raises not only technical, economic and regulatory issues, but over and above the integration of renewable energies and new uses, issues relating to the management of information for the various users of the grid and the need to control costs.

R&D's work can be divided into three main categories.

The first category of work aims to anticipate the impacts of energy transitions and the emergence of decentralised energy systems on the development and management of electricity systems:

- energy transitions: this work involves developing an overview of changes in the fundamental aspects of demand, potential disruptions in supply, energy mix choices and the conditions for implementing energy transition scenarios (financing, technologies and infrastructures);
- market design and the emergence of local energy markets: this work involves contributing to the definition of the future ground rules for the electricity and gas markets in the context of the emergence of distributed energy systems.

The second category of work aims to improve the performance of electricity grids.

- R&D is working to improve the management of transmission and distribution network assets. Studies are being conducted concerning the lifespan of materials and factors that can help to reduce equipment failures;
- in 2016, the automation of distribution networks entered a new phase, which corresponds to the industrialisation of the systems developed in previous years;
- R&D is also working on electricity systems and super grids: large DC grids that could emerge with the insertion of renewable energies which are altering the technical and economic fundamentals of electricity systems.

The third category of work aims to manage the electricity system's transition to smart grids and the integration of intermittent production.

- R&D is developing and trialling new functionalities for coordinating the distribution grid when decentralised production is used. This innovative coordination method makes it possible to maintain voltage on the high-voltage grid within its contractual range, on the basis of a grid status estimate, even when decentralised production resources are used. R&D is working on solutions to improve the forecasting of grid losses and develop local energy balance forecasts (source substitutions);
- R&D is developing advanced tools to forecast renewable energy consumption and production. It is working in partnership with weather forecasting organisations in order to update meteorological benchmarks for the management of electricity systems;
- R&D is providing support for the deployment of the Linky meters, developed by Enedis;
- R&D is also experimenting with electricity use coordination systems based on the Linky infrastructure. In particular, these experiments are making it possible to demonstrate the feasibility of load management, for instance concerning electric heating, in order to smooth demand spikes;
- moreover, R&D is working on innovative solutions for the management of production and consumption portfolios, and the associated risks. This involves anticipating the consequences of the development of new means of production and/or new decentralised uses for the management of energy systems, and assessing the key issues linked to the interfacing of the overall flexibilities (production, suppliers and energy markets) with the local flexibilities of the Distributed Energy Systems.

The activities in the second and third categories for the benefit of Enedis are performed under a services agreement entered into by the R&D Divisions of EDF and Enedis.

In order to prepare the solutions to these new challenges, a number of smart electricity demonstrators are currently under development in France and Europe, based on a collaborative approach. R&D has made significant contributions to this. This year, feedback from these demonstrators will provide the findings for this development work.

More specifically, we will endeavour to study the technical and economic conclusions, and also the societal and environmental conclusions, for business models, market architecture and energy regulation. These projects also offer opportunities to reflect and innovate, together with the electricity sector as a whole and the 'new information and communications technologies' sector, in order to tailor installations to the needs for flexibility of the electricity systems of the future.

Research into electricity systems uses extensive test facilities:

- laboratories for high power electrical tests;
- the Concept Grid testing facility: Concept Grid is a reduced scale electricity grid, the purpose of which is to test and trial the installation of the innovative equipment and "smart" systems that make up a smart grid before they are used on the actual grid.

1.6.2.3 Consolidating and developing competitive low-carbon production mixes

In the field of nuclear, hydro and fossil-fired power generation, EDF R&D is developing tools and methods to improve the safety of production resources, optimise their operational lifespan, and increase their performance in terms of output and environmental impact. There are three key priority goals: ensuring the Group maintains its advantage in terms of nuclear power over the long term, developing renewable energies while reducing their cost and increasing the extent to which they are used in electricity systems, while improving the environmental acceptability of our production facilities.

To secure the Group's advantage in nuclear power generation in the long term, R&D is working to protect EDF's assets through actions in line with its policy to improve the safety of facilities, particularly with regard to enhanced performance and extended operating lifespan. In 2016, for example, R&D developed calculation codes to demonstrate that the robustness levels of our nuclear and hydro power generation facilities in the event of an earthquake comply with the updated regulatory requirements.

Moreover, initiatives in the field of nuclear power also concern issues relating to the fuel cycle. They include the design of new power plants, in particular fourth-generation plants and Small Modular Reactors (SMR).

Furthermore, R&D actions contribute to improved knowledge and better control of the impact of facilities on the environment, and, at the same time, to ensuring that greater attention is paid to the environmental risks for industrial facilities. For instance, R&D is studying how water resource availability may change in the future as a result of changes in climate and physical geography. R&D research also contributes to understanding the possible risks and consequences for the power generation plants (availability of a heat sink, scope for modulation and location optimisation).

To support these programmes, R&D is developing digital simulation tools and experimental test resources, as well as tools that are capable of handling the fresh challenges raised by the increase in large sets of digital data, IT security, and new information and communication technologies.

In association with other European leaders in the nuclear sector, in March 2012 EDF R&D set up NUGENIA, an international non-profit organisation whose purpose is to develop a single cooperative framework for R&D in Europe for second- and third-generation nuclear systems, as part

of the European Sustainable Nuclear Energy Technology Platform (SNETP). The association brings together 80 members from 20 countries, including industrial players, research bodies and safety authorities. EDF chairs this association, which will facilitate the creation of synergies and joint projects between members or with national R&D programmes, in the following fields: safety and risk analysis; serious accidents; reactor cores and performance; component integrity and aging; fuel, waste and decommissioning; "Innovative Generation III Design"; as well as into cross-functional issues such as the harmonisation of practices (in particular in the field of safety), in addition to controls and non-destructive evaluation.

In 2016, EDF finalised the Connexion Project, which was launched in 2012, on digital nuclear instrumentation and control systems of the future, as part of the French State's "Investments for the Future" projects¹. This project brings together industrial and academic partners from the French nuclear sector in an ambitious research programme designed to prepare the future methods for the design, classification and renovation of digital instrumentation and control systems for power plants. This initiative also addresses the need to harmonise industrial solutions within the sector. The systems engineering methods developed during the course of this project are feeding into other projects to design new nuclear power plant models, and are contributing to the digital transition policy being implemented by the group

The second priority is support for the development of renewable energies. These are playing a growing role in the energy landscape both within Europe and worldwide; EDF is already a major player here, and is seeking to expand its role in the field still further.

For renewable energies, the goal of R&D is to identify technological breakthroughs that offer a significant competitive advantage, and to help the most promising technologies emerge industrially, working in partnership with the academia and industry. EDF is investigating a wide range of renewable energies: hydro, photovoltaic, onshore and offshore wind farms, thermodynamic solar power, biomass, marine energies, geothermal energy, etc.

R&D is also working to develop tools and methods to enhance operational performance and optimise the cost of the EDF group's electricity production system projects that are based on renewable energies, with a number of aims in mind:

- reducing investment risks: for instance, EDF's R&D is contributing its expertise to the EDF group's offshore windfarm projects, in particular as regards the design of windfarm turbine systems and foundations, turbine certification, and methods to evaluate production potential. R&D is also preparing the future by studying floating offshore windfarm technologies;
- improving operational performance: for instance, R&D is involved in the development of a solution to measure performance of wind turbines;
- controlling the technical and economic impact on the electricity system, and managing the electricity system balance as renewable energies are incorporated. The work concerns the definition of procedures for renewable energies to be inserted into electricity grids. This involves analysing the various solutions that enable variable renewable energies to be integrated, and evaluating the costs and limitations of their integration into large systems: storage, super grids, smart grids, energy demand management, etc.

The third priority is to improve the environmental acceptability of our production facilities. Climate change, the marked decline in biodiversity and Earth's limited resources make EDF a legitimate choice for a low carbon energy mix. The aim of the R&D Division's initiatives is:

- through its scientific and technical expertise, to contribute to the way in which the regulatory environment is implemented and evolves, in a way that is proportionate to the key issues;

1. The "Investments for the Future" are a loan initiated by the French State to finance research and innovation initiatives that are relevant to France's economic development.

- to provide justification for our production facilities being on par with the best available techniques, at an economically acceptable cost, and to leverage these best available techniques in new projects;
- to be aware of and control our impacts on the aquatic and terrestrial environments, to leverage our progress initiatives, limit and recover our by-products; for example, in 2016 a physical model and a digital simulation were set up in order to understand how sediment moves in a hydroelectric valley;
- to know how to anticipate and address new developments in climate change, for example by becoming more familiar with the robustness of the heat sinks for power plants in light of future climate change;
- to contribute to leveraging our positive actions with regard to local stakeholders.

1.6.3 INTERNATIONAL RELATIONS AND PARTNERSHIPS

To conduct its research and development programmes, EDF R&D develops a large number of partnerships worldwide, the purpose of which is to maintain its expertise at the highest global level in the disciplines central to EDF's concerns, and to supplement its internal reservoir of skills.

R&D's partnership policy is embodied in a variety of ways, both nationally and internationally.

In France, over the past few years R&D has set up about fifteen laboratories on a joint basis with academic partners and technical or industrial centres. With them, it is participating in collaborative research projects funded by several national desks. Each shared laboratory offers an opportunity to establish a combined team in order to focus on a common scientific and technical problem, with a view to creating value, expertise and knowledge for all partners; this constitutes a major asset when taking part in cooperative projects. R&D also supports a few specially targeted teaching and research chairs.

In the field of nuclear R&D, a three-way agreement between CEA, EDF and AREVA was extended for a further year and followed by a new nuclear R&D agreement in early 2014. This new "Institute" agreement is designed to increase R&D programme coordination between partners and to make available programmes defined with reference to detailed goals, particularly industrial goals. In practical terms, this entails the following:

- formation of a Three-Party Programme Team (équipe programme tripartite, EPT), responsible for programme supervision and coordination. This team consists of four members per partner, for a total of 12 members;
- detailing of these programmes in the form of projects monitored by the EPT;
- implementation of these programmes in existing shared laboratories.

At the same time, the three-party agreement on R&D between CEA, IRSN and EDF was also the subject of negotiations in 2014; this has led to the signature of a four-party agreement including AREVA, allowing enhanced coordination with the "Institute" policy.

R&D is also present within the Energy Transition Institutes (Instituts de la transition énergétique, ITE) which were set up as part of France's "Investments for the Future" initiative:

- Île-de-France Photovoltaic Institute (IPVF): EDF is one of the founding members of this institute, devoted to seeking technological breakthroughs in photovoltaic energy that is competitive in the market. Ultimately, the Institute will bring together some 150 researchers seconded from the different partners to work with state-of-the-art equipment located at Saclay;
- France Énergies Marines, devoted to marine energies and offshore wind farms;
- SuperGrid, focusing on major transport networks to connect remote renewable energy production sites;

- Vedecom, devoted to electric mobility;
- Efficacy, working on energy efficiency and sustainable cities; and
- INEF 4, working in the field of building rehabilitation and sustainable construction.

EDF was also behind the launch in 2012 of the Connexion project, focusing on future digital nuclear Instrumentation & Control systems as part of the "Investments for the Future" initiative (see section 1.6.2.3: "Consolidating and developing competitive low-carbon production mixes"). In Europe, R&D participates in some thirty EU projects and has established links with the Joint Research Center, a facility that conducts research in the fields of energy and transport for the European Union, and whose purpose is to establish collaboration in the field of low-carbon technologies, in particular as regards electricity storage. EDF is also a founding member of several European associations recognised at the EU level, such as Nugenia for nuclear power and EASE for storage.

Since the early 2000s, EDF has had a research centre in Germany, EIFER, in collaboration with the Karlsruhe Institute of Technology (KIT). This centre is chiefly devoted to decentralised production (fuel cells, hydrogen), sustainable cities and territories, geothermal energy, and biofuels. In recent years, partnership agreements have been signed with Fraunhofer institutes, the University of Stuttgart, and TU Berlin.

Since 2010, the international aspect of research has expanded in relation to a number of centres in Poland, the UK, China, Singapore, the USA and Italy.

The UK Centre consolidates the Group's positions in the British research ecosystem, particularly through Strathclyde University in the field of renewables, as well as with Manchester University, Imperial College, the National Nuclear Laboratory (NNL) and the University of Bristol in the field of nuclear energy. In 2012, this research centre became an independent legal entity, EDF Energy R&D UK Centre Ltd, a subsidiary of EDF Energy. This new status has raised EDF's profile and research capability in the UK, in line with the Group's development strategy. The Centre thus provides direct support for the development of the activities of EDF Energy's business units, whether in the nuclear field (extension of the lifespan of AGRs), for digital clients or offshore wind farm projects.

EDF Polska's research team is dedicated to advanced fossil fuel issues, biomass co-combustion, and more recently, heating networks. The R&D Polska Centre has developed collaborative work with Polish universities, including AGH at Krakow and Wroclaw University.

The centre based in Beijing is a particular asset when it comes to taking part in large-scale Chinese demonstrators for smart grids, sustainable cities, and a number of renewable energy technologies. This centre is also a resource in facilitating the implementation of the research partnership for nuclear power in China (see section 1.4.5.3.6.1 "Activities in China"). Creation of the centre has been accompanied by significant development of academic and industrial partnerships in China. For instance, EDF has signed a joint research programme in China relating to thermodynamic solar power. The cooperation underway with the Chinese Academy of Science's Institute of Electrical Engineering relates chiefly to research and innovation work carried out at an experimentation facility dedicated to thermodynamic solar technology located in Badaling. One of the challenges for EDF is to further improve its modelling resources using measurements performed during experiments conducted using this facility. One of the challenges for EDF is to further improve its modelling resources using measurements taken during experiments conducted using this facility and to facilitate the industrial development of solar projects that are primarily international. The Centre has also developed an extensive partnership with the China Electric Power Research Institute (CEPRI), which is a subsidiary of the State Grid Corporation of China, in the field of electrical grids.

The main goal of the Edison R&D team in Italy is to coordinate all gas research programmes for the EDF group. To help Edison achieve its commercial growth targets, the Centre has also developed programmes in the field of the digital customer and the "smart home". In 2015, Edison and the University of Turin set up a joint laboratory devoted to these topics.

The US R&D and innovation sector is one of the largest and most buoyant in the world. EDF has had an R&D and Innovation team in Silicon Valley for several years, which supports EDF's development in the USA and contributes to innovation in the Group. EDF Innovation Lab's areas of activity include, in particular, analysis of technological, digital and regulatory trends and the assessment of new business models for the Group in the USA, in connection with distributed energy resources and microgrids. In this regard, EDF Innovation Lab contributed to the development by EDF EN of the 20MW McHenry Storage Project that is designed to provide system services to the US grid operator PJM. EDF Innovation Lab has also contributed to the longstanding partnerships developed by EDF with elite establishments such as EPRI, MIT and UC Berkeley.

EDF Lab Singapore was set up in early 2014 primarily to support the promotion and implementation of the Group's know-how concerning sustainable cities and to market the various solutions described above to Singapore's urban planning agencies.

1.6.4 INTELLECTUAL PROPERTY POLICY

Intellectual property plays a major role in protecting the EDF group's technologies and know-how from competition, and in leveraging these assets through licensing agreements.

EDF is keen to strengthen its industrial property portfolio in order to make the most of its capacity for innovation and technological expertise. The portfolio is comprised of patents, registered software and formalised expertise.

1.7 Property, plant and equipment

1.7.1 SERVICE SECTOR REAL ESTATE ASSETS

EDF's Real Estate Division, comprised of the Group's Real Estate Department and its real estate subsidiaries, operates in France as the real estate service provider for EDF and Enedis's entities by managing and optimising a real estate portfolio of nearly 4.5 million square meters of offices and commercial premises, of which approximately 61% are fully owned by the Group and 39% are leased from third parties (leases and concessions). In 2016, approximately 160 of these assets were disposed of, representing 0.3 million square meters or so in usable floor area. Among these 160 real estate assets, a portfolio of 130 assets was sold by Sofilo.

The Real Estate Division is in charge of real estate asset management, lease management, the technical operation of building as well as the operation-maintenance of the facilities and the services provided to occupants, by offering areas through a sub-lease system for Group entities and units. By taking leases from third parties, the Real Estate Division made lease commitments for EDF amounting to €902 million for the period from 2017-2031.

Patents

At the end of 2016, EDF's portfolio comprised 551 patented innovations, protected by 1,678 property titles in France and abroad.

Strengthening the patent portfolio is a priority and aims to facilitate R&D cooperation, protect the development of EDF's activities, contribute to EDF's external image, boost the motivation of researchers, and provide maximum leverage for inventions.

In 2016, EDF filed 63 patent applications (64 in 2015)¹.

Trademarks

"EDF" is a registered trademark in over 90 countries. The Group's name is a vital component of its image and its assets: as a result, the EDF brand, Internet domain names and logos are under constant surveillance, in order to protect them against any fraudulent use which could adversely affect the image of the Group. Moreover, following the work to increase the status of the "EDF" brand, the Company has entered into brand licensing agreements with those of its subsidiaries that use the "EDF" brand.

The Group has also registered a large number of other trademarks, in particular those relating to the business of its various subsidiaries.

At the end of 2016, the EDF group's brand portfolio comprised some 456 names, protected by over 1,335 property titles.

1.7.2 EMPLOYER PARTICIPATION IN THE CONSTRUCTION EFFORT

Each year, EDF is subject to an obligation to participate in the French construction effort program up to 0.45% of its total payroll, which represented approximately €18.4 million for 2016 (€18 million for 2015).

In exchange for this contribution, EDF's employees benefit from services intended to facilitate their residential mobility: assistance with renting, assistance with home purchasing, assistance with mobility, advice on financing.

1.7.3 SUBSIDISED LOANS FOR HOME OWNERSHIP

As part of its social policy, EDF helps its employees purchase their main home, thanks to a partnership concluded with a banking institution (SOCRIF). This institution produces, finances and manages loans granted to the company's employees. EDF compensates this institution for the difference between the preferential rate at which SOCRIF grants loans to EDF employees and the rate resulting from the bank survey conducted in 2005 on the basis of which this institution was chosen.

As of 31 December 2016, the residual non-securitized balance for personal residence mortgages amounted to €2.7 million on EDF's balance sheet (€3.3 million as of 31 December 2015).

1. Note: Enedis has also filed one patent application.



Risk factors and control framework

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The Group operates in an environment that is experiencing profound change, which generates various risks, some of which are beyond its control and come in addition to the risks inherent to its business operations. The Group describes hereinafter the material risks to which it considers itself exposed. One or more of these risks could have an adverse effect on the Group's activities or results. Moreover, other risks, of which it is currently unaware, or which it deems not material, may also have the same adverse effect.

The risks presented below in Chapter 2.1 "Risks to which the Group is exposed" concern risks associated with the regulation of energy markets, risks associated with the Group's activities, risks specifically related to the Group's nuclear activities, and risks related to the Group's organizational structure and evolution.

In particular, the Group faces legal risks in all of its activities and in its various markets. Legal risks relating *inter alia* to the statutory and regulatory framework, operating activities, partnerships set up and contracts concluded with customers and suppliers are described below and mentioned in sections 2.1 "Risks to which the Group is exposed" and 2.3 "Dependency factors". Key litigation, proceedings and arbitrations in which the Group is involved are described in section 2.4 "Legal proceedings and arbitration".

The measures taken by the Group to mitigate the risks to which it is exposed are described in section 2.2 "Internal control within the EDF group".

Chapter 2.5 describes the EDF group's insurance program.

2.1 Risks to which the Group is exposed

Strategic or operating challenges associated with the risks to which the Group is exposed are comprised of several criteria. Such challenges may produce effects at very different time horizons, ranging from very short term (less than a year) to very long term (up to several decades or more, given the nature of the relevant industrial activities). Some orders of magnitude for the potential financial effects related to the materialization of certain risks are mentioned without limitation in this section, for information purposes only.

The risks associated with the regulation of energy markets are described in section 2.1.1. "Risks associated with the regulation of energy markets", and, in particular, the regulation of electricity market, for which it is necessary to take into account:

- competition rules, especially in Europe and France, where most of the Group's activities are conducted;

- public policies, especially with respect to energy and sustainable development; and
- safety requirements for interconnected electrical systems.

Section 2.1.2 "Risks associated with the Group's activities" describes the risks associated with the specific nature of the EDF group's business model, along with any changes in such business model, when conducting its industrial production and sales & services activities.

Section 2.1.3 covers the specific risks associated with the Group's nuclear activities, which involves additional risk factors and specific measures, in particular with regard to nuclear safety requirements and the long-term capital intensive nature of the activity.

Section 2.1.4 "Risks related to the Group's structure and changes within the Group" then sets forth the risk factors arising from the Group's structure and any changes within the Group.

Main risk factors	Scope
Regulation of energy markets	<ul style="list-style-type: none"> ■ Increased competition in European energy markets France – European ■ Changes in prices and in the energy industry regulatory framework France – International ■ Management of transport and energy distribution activities France – European
Group activities	<ul style="list-style-type: none"> ■ Installations that may materially and adversely affect the natural or human environment France – European – International ■ Granting and renewal of the necessary administrative authorisations France – European – International ■ Conduct of certain activities under public service concessions France – European (Italy, in particular) ■ Exposure to European energy wholesale market prices and to changes in CO₂ emission quota prices France – European – International ■ Changes in environmental and health regulations and in energy-saving certificates France – European – International ■ Adverse economic and weather conditions and / or occurrence of industrial accidents France – European – International ■ Control of important projects France – European – International ■ Risks related to technologies used by the Group France – European – International ■ Risks related to political, macroeconomic or financial conditions in specific regions or countries France – European – International ■ Withdrawal of the United Kingdom from the European Union France – European ■ Fluctuations in the prices of equipment or services purchased by the Group France – European – International ■ Financial risks and risks related to changes in financial regulations France – European – International ■ Default of Group's counterparties France – European – International ■ Litigation, arbitration and regulatory investigations risk France – European – International ■ Human risks France – European – International ■ Malfunctions and malicious attacks against the Group's information systems France – European – International
Group's nuclear activities	<ul style="list-style-type: none"> ■ Nuclear safety France – European – International ■ Changes in regulations applicable to nuclear activities France – European – International ■ Suppliers, service providers involved in nuclear activities, fuel supply, conditions and transport France – European – International ■ Maintenance and operating life of the nuclear fleet France – European – International ■ Decision by the French authorities to stop the production or construction of one or more nuclear power generation units France ■ Difficulties potentially faced during the EPRs construction France – United-Kingdom ■ Responsibility related to spent fuel, radioactive waste, and processing operations along with the long-term management of spent fuel and radioactive waste France – European – International ■ Deconstruction of the existing nuclear fleet France – European (United Kingdom, in particular) – International ■ Increase in the amount of the dedicated assets set up by the Group to cover the costs of its long-term nuclear commitments France – United Kingdom
Group's structure and changes within the Group	<ul style="list-style-type: none"> ■ Development, acquisition, sale and transfer, reorganization and holding of minority interests France – European – International ■ Interventions of the French State as shareholder in important Group decisions France ■ Fluctuations in EDF market share prices France – European – International ■ Personnel management mechanisms common to EDF and Engie France – European ■ Political, economic or social instability in the countries in which the Group operates France – European – International ■ Risks related to Group's personnel management, pension commitments and employee benefits France – European – International ■ Changes in IFRS standards applicable to the Group European – International

2.1.1 RISKS ASSOCIATED WITH THE REGULATION OF ENERGY MARKETS

The Group faces stiff competition in the European energy markets and, especially, in the French electricity market, which constitutes its main market.

In France, the electricity market has been totally open to competition since 1 July 2007. All EDF customers can choose their electricity supplier and therefore elect any of EDF's competitors (see section 1.4.2.1. "Presentation of the market in France"). EDF is prepared to face competition in a context of increased competitive intensity (new regulations, emergence of new players, mergers between existing players, changes in market prices, etc.). The end of regulated tariffs as of 31 December 2015 for sites signing up for power in an amount greater than 36 kVA led to EDF losing market share (see section 1.4.2.1.3 "Regulated electricity sales tariff contracts"). This loss of market share, at constant consumption and price levels, had and may have in the future an adverse impact on the Group's sales in France. Lastly, to achieve its objectives, EDF must adapt its marketing expenditures; this situation could have negatively impacted its profitability. At 31 December 2016, EDF's volume market share for electricity sales to all final customers was 70%, down by -7 points compared to the end of 2015. The impact of client losses on volumes supplied to final customers in 2016 represents -39.9TWh, including -30.3TWh for business customers. On the contrary, EDF's share of the natural gas market was 5.7%, a year-on-year gain of 0.7 points. At 30 September 2016, according to the French Energy Regulatory Commission (CRE), the electricity market shares in terms of sites of alternative suppliers (*i.e.* excluding historic suppliers) amount to 13.2% of the residential market, and 17% of the non-residential market, and a gas market share, in terms of sites, respectively of 22.1% and 38.1%.

Elsewhere in Europe, the Group faces different contexts, depending on the local competitive conditions (totally or partially open markets, position of competitors, regulations, etc.). Therefore, in some countries, or in certain regions within a country, the Group must pursue mainly a defensive strategy to protect its market share and control its costs, as it does in France. On the contrary, in other countries such as Belgium, Italy or the United Kingdom, the Group must pursue a more offensive strategy to gain market share and control its costs. The type of competition faced by the Group, the evolution over time of such competition and its effect on the Group's activities and results vary from one country to another. These factors depend in particular on the level of market depth and its regulations in the country in question and on other factors over which the Group has no control.

In this context, even if the Group considers that the European electricity market offers opportunities, including in terms of developing new electricity uses and the need for energy services and energy efficiency, the Group may not be able to defend its market share or gain market shares as expected, or it may see its margins decrease, which would have a negative effect on its activities, its strategy and its financial position.

A significant share of the Group's revenue is generated by the activities subject to regulated tariffs, and changes in such tariffs and in the conditions of their application, may have an impact on the Group's results.

In France, a significant share of the EDF group's revenue depends on regulated tariffs that are set by public or regulatory authorities (integrated regulated sale tariffs and TURPE – see section 1.4.4.5.1 "Tariffs for using the public electricity transmission networks (TURPE)"). Determining tariffs with the participation of regulatory authorities in such a way is a method also used in other countries where the Group operates.

The principles defining the right to tariffs were reiterated in France in the NOME Act no. 2010-1488 of 7 December 2010 and are now provided for in Articles L. 337-7 to L. 337-9 and Article L. 445-5 of the French Energy Code (see section 1.4.2.1.3 "Regulated electricity sales tariff contract"). The French Energy Regulatory Commission (CRE) may ask the Minister of the Economy and the Minister of Energy to limit or block tariff increases, for the same service quality and unless one of the relevant Ministers expresses its opposition to this proposition within 3 months, such proposition consisting in

a tariff increase limitation or tariff freeze is deemed to have been accepted. The French Energy Regulatory Commission (CRE) may also recommend that the conditions of access to such regulated tariffs be modified. Certain stakeholders may also challenge in court the decisions setting rates.

The NOME Act also provided for a regulated access in France to electricity generated by existing nuclear capacity (ARENH) to the advantage of electricity suppliers competing with EDF (see section 1.4.3.3 "Regulated access to historical nuclear power (*Accès Régulé à l'Énergie Nucléaire Historique*, or ARENH)"). The ARENH price, which is regulated, is one of the price references used to set the regulated tariffs.

Moreover, the conditions for the implementation of the ARENH, which offer numerous options to the advantage of alternative suppliers, give them opportunities to arbitrate on the markets to the detriment of EDF. In an order dated 14 November 2016, following the recommendations of the French Energy Regulatory Commission (CRE), the French government tightened the conditions under which alternative operators are entitled to terminate their ARENH framework agreement with EDF, thus limiting such opportunities to arbitrate on a quarterly basis. The French Ministry of the Environment also announced on 25 October 2016 that the "ARENH Decree would be amended to prevent the risk of speculation associated with semi-annual arbitration". Such amendment of the Decree is still to be implemented and, furthermore, no measure is currently planned to restrict the possibilities of arbitration on an annual basis for alternative suppliers to the detriment of EDF.

More generally, the Group sells a significant share of its energy output on the European markets or at regulated or contracted prices, indexed on market prices to a greater or lesser degree. In France, as in other countries, the Group cannot guarantee that the regulated sale or purchase tariffs will always be set at a level enabling it to preserve its short-, medium- and long-term investment capacity and its proprietary interests, by ensuring a fair return on capital invested by the Group in its generation, transmission and distribution assets.

For example, regularisation in France of the regulated tariffs applicable to the electricity sales for the period from 1 August 2014 to 31 July 2015, following the Council of State's decision of 15 June 2016 and the publication of the decisions setting forth the rectified tariffs in the *Journal officiel* on 2 October 2016, reached a gross amount of € 1,030 million.

The legal framework governing the liberalisation of the energy sector is recent. This framework may change in the future and become more restrictive.

The Group's activities in France and abroad are subject to numerous regulations (see section 1.5 "Legislative and regulatory environment"). Moreover, laws may vary from one country to another, including in the European Union where directives only establish a general framework.

This legal framework organizing the liberalisation of the energy sector is relatively recent. The legal framework is therefore subject to change in the future, and such changes could be unfavourable to the Group and, in particular, generate additional costs, be inconsistent with the Group's growth model, change the competitive context in which the Group operates, or affect the profitability of current or future generating units.

Due to its position in the French market, the Group faces the risk of having its expansion limited more than its competitors.

Although it has seen a decrease in its market share due to market liberalisation, EDF should remain the largest operator in the French electricity market over the next few years, particularly with respect to power generation and supply.

Act no. 2015-992 of 17 August 2015 on Energy Transition for Green Growth results in additional indications or constraints with regard to the power generation tools (target of 50% of nuclear power share in French electricity production by 2025), cap of the total authorised capacity of nuclear generation to 63.2GW and the company's governance (obligation for any operator producing more than a third of the national electricity generation to draft a strategic plan outlining the actions it agrees to implement to meet the targets set in the multiannual energy programme (PPE) and appointment

of a Commissioner to these operators empowered to object to investment decisions whose implementation would be incompatible with the objectives of the strategic plan or the PPE.

Although EDF complies and will continue to comply with the applicable competition and non-discrimination rules, competitors have initiated and may initiate litigation on the grounds of non-compliance with these rules, and such litigations could be decided against the Group's interests (see section 2.4.1 "Legal proceedings concerning EDF", including paragraphs "Solaire Direct", "Litigation by photovoltaic operators for compensation", "Photovoltaic producers' litigation", "Eole Miquelon" and "Xélan").

In addition, the competent authorities or certain governments could, in order to maintain or enhance competition in certain energy markets, take decisions contrary to the Group's economic or financial interests or that impact its model as an integrated operator (see in particular, section 1.5.3.1, "European legislation" and section 2.4.1 "Legal proceedings concerning EDF", including paragraphs "Competitive bidding for hydroelectric concessions in France", "CSPE ceiling investigation" and "Capacity mechanism investigation"), which could have a material adverse impact on the Group's model, activities and financial position.

Laws and regulations that require transmission and distribution activities to be managed independently limit control over these activities.

The transmission and distribution activities carried out in France respectively by Réseau de Transport d'Électricité (RTE) and Enedis are conducted within a framework ensuring their independence with regard to the production and marketing activities, so as to allow all users non-discriminatory access (see section 1.4.4 "Regulated activities in France").

In accordance with current laws and regulations, EDF manages its transmission network independently from its generation and marketing activities and has transferred its transmission activity to a subsidiary. Since the creation of the subsidiary on 1 September 2005, RTE has been the owner and manager of the French electricity transmission network, which it operates, maintains and develops. In 2016 EDF signed a contract for the sale of 49.9% of RTE's share capital to Caisse des Dépôts and CNP Assurances. EDF may be affected by the loss of control over certain strategic and operational decisions, which may have an impact on the outlook for and profitability of its transmission activity in France (see section 1.5 "Legislative and regulatory environment"). At the same time, EDF will continue to bear certain risks associated with its operations, potential liability to third parties and factors that may affect the profitability of its assets.

In accordance with current laws and regulations, EDF manages its distribution network independently from its generation and marketing activities and has transferred its distribution activity to a subsidiary. Distribution is carried out by Enedis, whose main purpose is the operation and development of the public energy distribution network. A fully-owned subsidiary of EDF, Enedis has been operational since 1 January 2008. EDF may be affected by the loss of control over certain strategic and operational decisions, which may have an impact on the outlook for and profitability of its distribution activity in France (see section 1.5 "Legislative and regulatory environment"). At the same time, EDF will continue to bear certain risks associated with its operations, potential liability to third parties and factors that may affect the profitability of its assets.

The Group may face similar risks in countries where it owns or manages transmission or distribution networks and where it is subject to similar regulatory restrictions.

The development of an integrated European electricity market could be hampered by a delay in the necessary adaptations of the European electricity system.

The development of an integrated European electricity market relies in particular on the adaptation of the European electricity system, in particular in

terms of transport infrastructure and interconnections. This adaptation must take into consideration new data on local, national and European energy policies, energy demands and production offers, in particular the growing role of intermittent energies. To successfully carry out these adaptations, it may be necessary to mobilise time and significant financial resources.

The length of this transitional period associated with the necessary adaptation of the European electricity system, which may extend from five to ten years with regard notably to investment programs in transport grids and interconnections in Europe for the next ten years, could lead to further difficulties for the Group's developing new synergies between the different entities of the Group or proposing new competitive offers.

EDF has certain obligations, in particular public service obligations, that are remunerated by mechanisms that may not provide complete compensation for additional costs incurred in connection with such obligations, or that are subject to change.

The public service contract entered into by the French government and EDF on 24 October 2005 specifies the objectives and terms for performing the public service obligations that EDF is appointed to perform under law (in particular Articles L. 121-1 *et seq.* of the French Energy Code), and also sets out the mechanisms under which EDF is compensated for the performance of these obligations (see section 1.5.2 "Public service in France").

The development of renewable energies connected directly to the distribution network may, in certain regions, saturate the reception capacities of the source substations and networks. This situation may possibly generate local imbalances, or disputes if Enedis must disconnect certain producers or connect them with significant delays. New investments may be required in these regions, with the risk that the costs associated therewith may not be taken into account.

EDF cannot be certain that the compensation mechanisms provided in the laws and regulations applicable to it for performing these public service obligations will fully compensate additional costs incurred to perform such obligations. Furthermore, EDF cannot guarantee that these compensation mechanisms will never be subject to change or that existing mechanisms will fully cover potential additional costs that may be incurred in relation with new duties imposed on EDF in connection with its public service obligations, in particular when a new public service contract is negotiated.

The occurrence of any of these events may have an adverse impact on EDF's activities and financial results and on the Group's financial position.

The provisional amount of expenses that can be attributed to public service energy missions and are to be compensated to EDF reaches €7,430.9 million in 2017, which represents an increase compared to previous years (decision of the French Energy Regulatory Commission (CRE) dated 13 July 2016 relating to the assessment of expenses that can be attributed to public service energy missions for 2017).

2.1.2 RISKS ASSOCIATED WITH THE GROUP'S ACTIVITIES

The Group operates facilities that may cause significant harm to the natural or human environment or for which accidents, natural disasters or external attacks may have serious consequences.

The risks specific to nuclear facilities are described separately below in section 2.1.3 "Specific risks related to the Group's nuclear activities".

Persons working in or near electricity transmission and distribution facilities may, in the event of an accident, error or negligence, be exposed to the risks of electric shock and electrocution. In this field, the Group implements accident prevention and safety measures. However, the Group cannot guarantee that these measures will prove sufficient in all cases.

Questions concerning the risks to human health from exposure to electromagnetic fields (EMF), in particular, from power lines operated by the Group, have been raised both in France and abroad. Based on studies completed over the past 20 years, the existence of health risks due to exposure to EMFs has not been proven. Furthermore, in a report published in June 2007, the World Health Organisation (WHO) considers that health risks, if any, are low and that adopting arbitrarily low exposure limits is unjustified. At this time, results from 30 years of research is available, but it cannot be excluded that medical knowledge about health risks related to exposure to EMFs may evolve, public sensitivity about such risks could increase or the precautionary principle could be applied very broadly. Despite these efforts, the possibility remains that the EDF group could be exposed to increased litigation or that the issue may lead to the adoption of more stringent and costly measures for the operation or construction of transmission or distribution networks (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety").

More generally, the Group operates or has operated in France and abroad facilities which, as currently operated, could be or could have been the source of industrial accidents or environmental and public health impacts (such as inadequately controlled emissions, leakages in electricity supply lines insulated with pressurized oil, a failure of decontamination facilities, pathogenic micro-organisms, asbestos, polychlorinated biphenyls (PCBs), greenhouse gas emissions, etc.). In particular, large quantities of hazardous materials (in particular, explosive or flammable materials, such as gas and fuel oil) are stored in certain facilities (thermal power plants, electrical transformers, exploration and generation of hydrocarbons, storage capacities, etc.). These facilities may be located in industrial areas where other activities subject to similar risks are conducted, which means that the Group's own facilities may be impacted by accidents occurring at neighbouring facilities owned by other operators and not under the Group's control.

In accordance with ISO 14001 (see section 2.2.1.5.2 "Environmental quality approach"), the Group implements appropriate measures to prevent and, if necessary, repair any industrial accidents or environmental damage caused by the facilities that it operates. These measures are intended, in particular, to protect the Group not only from the risk of an accident (such as explosion, fire, etc.) occurring in its own facilities, but also from the impact of such an accident occurring in a neighbouring facility owned by a third party. However, in general, the Group cannot guarantee that the measures taken to control these risks will prove fully effective if any of the events listed above were to occur. An accident of the type described above could have serious consequences for persons, property and business continuity, and the Group could be found liable. Insurance policies for civil liability and damages taken out by the Group could prove to be significantly inadequate, and the Group cannot guarantee that it will always be able to maintain a level of cover at least equal to current cover levels and at the same cost. The frequency and magnitude of natural disasters seen over the past few years could have and have had a significant impact on the capacities of the insurance and reinsurance market and on the costs of civil liability and damage insurance cover for the Group. Such accidents could also lead to the shutdown of the facility affected and, possibly, of similar facilities that may be considered to present the same risks (see section 2.5 "Insurance").

Lastly, facilities or assets operated by the Group or its employees may be the target of external attacks or malicious acts of any kind. Safety measures were incorporated into the design of the facilities and sites, and protective measures have been taken by EDF. Moreover, safety measures to counter various forms of attacks have been implemented in conjunction with the public authorities. Nonetheless, like any safety measures intended to counter an external threat, the Group cannot guarantee that these will prove fully

effective in all cases. An attack or malicious act committed on these facilities could have consequences such as injury to persons and damage to property, the Group being held liable on the grounds of measures judged to be inadequate and interruptions to operations. In addition, the Group cannot guarantee that European and national legislation regarding the protection of sensitive sites and critical infrastructure will not become more restrictive, which could generate additional investments or costs for the Group.

Any one of these events may have material negative consequences on the Group's image, activities, results and financial position.

The Group's activities require numerous administrative permits that may be difficult to obtain or that may be obtained only subject to conditions that may become significantly more stringent. Administrative appeals may also be filed against such permits, which may hurt the Group's business.

The operation and expansion of the Group's industrial activities – generation, transmission and distribution – require numerous administrative permits, at both local and national levels, in France and abroad. The procedures for obtaining and renewing these permits can be drawn-out and complex. These permits are not obtained systematically and the requirements for obtaining them may change and are not always predictable. Even when these permits have been granted, stakeholders may file administrative appeals against them (see section 2.4 "Legal proceedings and arbitration"). Accordingly, the Group may incur significant expenses in complying with the requirements for obtaining or renewing these permits (for example, costs of preparing permit applications, investments associated with installing equipment required before a permit will be issued, setoffs of environmental impacts of structures to be built). This may also handicap the Group's industrial activities. Delays, overly high costs or the suspension of its industrial activities due to the inability to retain or renew permits may have an adverse impact on the Group's activities and profitability. In addition, the Group may have also used resources without obtaining necessary permits and authorisations and therefore have to cancel or withdraw from a project, which may have an adverse impact on the Group's business, expansion or financial position.

At times, the Group operates its generation, transmission, distribution or supply businesses pursuant to public service concession arrangements and it is not always the owner of the assets it operates.

The Group does not always own the assets that it uses for its activities and, in such case, frequently operates them pursuant to a public service concession arrangement.

In France, for example, Enedis does not own all distribution network assets, but operates them under concession agreements negotiated with local authorities (see section 1.4.4.2.2 "Distribution activities"), which grant it the exclusive right to engage in expansion actions and operate the public electricity distribution network. These public electricity distribution concession agreements are tripartite agreements between the licensing authority, the operator of the distribution network and the supplier at the regulated rate. Under the law, only Enedis and Local Distribution Companies (LDC) in their service areas (and EDF for areas not connected to the continental metropolitan network) may be appointed to operate the public energy distribution networks and only EDF and LDCs in their service areas may be appointed to provide the supply at the regulated rates. Therefore, at this time, when a concession agreement is renewed, Enedis and EDF do not compete with other operators. However, the Group cannot guarantee that such provisions will not be amended by law in the future (see section 1.5.5 "Public electricity distribution concessions"). Furthermore, the Group may not obtain the renewal of these contracts under the same financial terms and conditions (see section 1.4.4.2.2 "Distribution activities").

Enedis's deployment of "communicating" meters (Linky) began in December 2015 and will continue until up until 2021 (see section 1.4.4.2.4 "Future challenges"). It is possible however that these time frames and associated costs may need to be revised owing to technical or administrative problems, or acceptability problems regarding the supply of equipment or their installation.

In France, RTE is both the owner and operator of the public transmission system pursuant to the standard concession terms of reference signed by the Minister of Industry (Decree no. 2006-1731 of 23 December 2006 – see section 1.4.4.1 "Transmission – Réseau de Transport d'Électricité (RTE)" and section 1.5.3.2 "French legislation: the French Energy Code").

In France, hydropower generation facilities are operated under concessions awarded by the French State for structures of 4.5MW or more and within the framework of prefectural authorisations for structures of less than 4.5MW (see section 1.5.6.2.4 "Regulations applicable to hydropower facilities"). The challenges associated with the renewal of hydraulic concessions in France are specified in section 1.4.1.4.1.4 "Hydropower generation issues".

The EDF group cannot guarantee that each of the concessions that it currently operates will be renewed, or that any concession will be renewed under the same financial terms and conditions as the initial concession. Furthermore, the Group cannot guarantee that the compensation paid by the government in the event of early termination of a concession's operation will fully compensate the Group's consequent loss of revenue, or that future regulations regarding the limitation of fees will not change in a way that could negatively affect the Group. These factors could have an adverse impact on its activities and financial position.

Outside France, the Group also operates under electricity distribution or generation concessions in other countries where it does business, particularly in Italy in the field of hydropower generation. Depending on the conditions in each country, the transmission, distribution or generation concessions may not be continued or may not be renewed in its favour with changes to the financial terms and conditions of the concession specifications, which would have an adverse impact on the Group's activities and financial position.

In order to sell its output directly or indirectly, the Group is exposed to the prices of European energy wholesale markets and capacity markets in the course of deployment, the levels of which thus might impact its financial position.

In conducting its production and marketing activities, the Group does business in deregulated energy markets, primarily in Europe. Therefore, the Group is exposed to price fluctuations in the wholesale energy markets (electricity, gas, coal, petroleum products). These fluctuations are particularly significant in the current context of wholesale energy prices in Europe (see section 5.1.2 "Economic environment").

In France, the termination of regulated tariffs for business companies in late 2015 increased EDF's exposure to market prices. With regard to electricity on the French market, the level of exposure depends on the subscription level to the ARENH mechanism, which in turn depends on the level of market prices: the exposure to the French market is therefore at its maximum level when no ARENH volume is subscribed, estimated at approximately 65% of EDF's French production.

In France, electricity spot prices stood at €36.7/MWh on average in 2016, representing a €1.7/MWh decrease (or -4.5%) compared to 2015, with a strong volatility during the year, and such decrease was mainly driven by the situation in the first quarter of the year, and to a lesser degree in the second and third quarters, with average spot prices €19.2/MWh higher in the final quarter of 2016 compared to the same period in 2015.

In the United Kingdom, electricity spot prices decreased by 11.8% compared to 2015 to reach €49.1/MWh on average for 2016. However, peaks were observed in that country between September and November, rising up to €199/MWh on September 19. In Italy, average spot prices for 2016 fell by 18%, compared to the previous year, to €42.8/MWh.

The context in recent years of the low prices of the European energy markets, should they continue indefinitely, exposes the Group both in terms of its turnover and the valuation of its assets. The persistently low price levels create strong uncertainty regarding the turnover, the expected margin and the result. Should these price levels continue, they may also affect the profitability of the Group's generating units, mainly in Europe, and the conditions governing their maintenance or even their renewal.

Various factors affect these price levels: commodity prices in world markets, the balance between supply and demand, but also tariff, fiscal or subsidy policies allocated to certain means of production. Accordingly, the Group cannot guarantee that it will be able to avoid adverse impacts on the development of its business, the valuation of its assets and its financial position, following changes in electricity market prices.

The Group manages its exposure to these risks primarily through purchases and sales on wholesale markets. With the exception of petroleum products markets, these are recent markets that are still under development. Therefore, a lack of liquidity may limit the Group's ability to hedge its exposure to risks in the energy market. Moreover, certain of these markets continue to be partially partitioned by country due to, in particular, a lack of interconnections. Furthermore, these markets may experience significant price increases or decreases that are difficult to foresee, as well as liquidity crises.

Energy market risks are managed in accordance with the "Energy market risks" policy adopted by the Group (see section 2.2.3.1.1.1 "Control of energy market risks"). The Group hedges its positions on these markets through derivatives, such as futures, forwards, swaps and options traded on organised markets or over the counter. However, the Group cannot guarantee that it is totally protected, in particular against liquidity risks and significant price fluctuations, which could have an adverse impact on its financial position and the valuation of its assets (see note 40 "Management of market and counterparty risks" in the notes to the consolidated financial statements for the year ended 31 December 2016).

Furthermore, the current context of prices in the European wholesale energy markets has an impact on the profitability of certain production tools, in particular fossil fuel-fired power plants, for all European producers. Capacity markets are currently being set up in several European countries, but with different approaches. This may limit the risk that certain power generation assets necessary to secure the supply will be closed or mothballed.

The variation in the prices of CO₂ emission quotas is likely to affect the Group's profitability and its objectives in terms of low-carbon energy solutions.

As part of its business activity, the Group operates on the European market for CO₂ emission quotas, and is thus exposed to price changes in this market which contribute to the formation of the wholesale electricity price (see the risk factor "In order to sell its output directly or indirectly, the Group is exposed to the prices of European energy wholesale markets and capacity markets in the course of deployment, the levels of which thus might impact its financial position."). There is a risk of CO₂ prices remaining low and not permitting sufficient development of low-carbon energy solutions to the detriment of both the fight against the planetary greenhouse effect and the EDF group.

The Group must comply with increasingly restrictive environmental and public health regulations, which generate costs and are sources of potential liability.

The Group's activities are subject to environmental protection and public health regulations, which are increasingly numerous and restrictive. These regulations relate to the Group's energy generation, transmission and distribution industrial activities, as well as to energy supply and energy-related services, which must, for example, incorporate the concept of demand management into their offers (for a description of the environmental, health and safety regulations applicable to the Group, as well as future regulations likely to have an impact on its activities, see sections 1.5.6.1

“General regulations that are applicable to the environment, health, hygiene and safety” and 1.5.6.2 “Regulation applicable to EDF group facilities and activities”). Moreover, the French regulatory framework could soon be strengthened following the entry into force of the law on the duty of care of parent companies and subcontracting companies requiring them to implement measures relating to the activity of the company and of all the companies it controls aimed at identifying risks and preventing serious infringements of human rights and fundamental freedoms, the health and safety of persons and the environment arising directly or indirectly from the activities of the parent company and subcontracting companies, as well as companies it controls or its subcontractors or suppliers. In the field of occupational health, European regulation applies to the Group, *i.e.* Directive no. 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, Directive no. 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work and Directive no. 2004/37/EC of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.

Failure to comply with these current or future regulations could expose the Group to significant litigation (see section 2.4.1 “Legal proceedings against EDF”, paragraph “Environmental litigation”). The Group could be found liable, even if it is not at fault or has not breached applicable regulations. Furthermore, the Group may be compelled to compensate breaches, damage or injuries caused by entities that were not part of the EDF group at the time they were committed, if the Group thereafter takes over their facilities.

Furthermore, these regulations may be significantly reinforced by national or European authorities (see sections 1.5.3.1 “European Legislation” and 1.5.3.2 “French Legislation: the French Energy Code”), which would have an adverse impact on the Group’s activities and financial position. The Group continuously performs a monitoring in order to assess the impact of regulatory changes on its activity.

The Group follows an environmental risks management and prevention policy (see section 3.2 “Environmental and societal requirements” and in particular section 3.2.5.3 “Management and prevention of environmental risks” as well as section 1.3.2.5 “Sustainable development”). The Group maintains in this regard its ISO 14001 certification, obtained for the first time on 9 April 2002. The certified scope includes EDF (including all its operational entities and most of its functional entities), several French subsidiaries (such as Dalkia, Électricité de Strasbourg, EDF Énergies Nouvelles...), as well as many international subsidiaries including EDF Energy, EDF Luminus, EDF Trading, Edison. The processes set forth within this certification’s framework contribute to strengthen the Group’s environmental risks management, in particular for regulatory aspects and key environmental issues, providing guaranteeing a structured and adapted organization for stakeholders. Moreover, in order to better assess the risks and opportunities related to the impacts and dependencies of the Group’s activity on ecosystems, EDF experiments in each line of business the Ecosystem Services Review (ESR) method¹.

Similar approaches are also conducted by operating facilities. Their impacts on the environment and biodiversity are monitored by public entities (Ifremer, IRSN, Irstea, Onema). Results are published and accessible.

The Group’s compliance with current regulations, and future changes to such regulations, has resulted and could continue to result in an increasing level of operating costs and investments necessary for such compliance.

The Group may even be required to close facilities that cannot be made compliant with new regulations. In addition, other regulations, which may be more restrictive or which may apply to new areas which are not currently foreseeable, may be adopted by the competent authorities and have a similar effect.

Lastly, stakeholders’ external perception of the Group’s Sustainable Development policy may change, resulting in a deterioration of the Group’s non-financial rating and image.

Changes to regulations concerning energy savings certificates (ESC) could impose additional obligations on EDF and generate costs in relation thereto.

In France, the energy savings certificates (ESC) measure, which is set out in Article L. 221-1 *et seq.* of the French Energy Code, imposes energy savings obligations on energy sellers. It sets a three-year energy savings target in terms of volumes for those bound by the obligations and financial penalties in case of failure to meet the targets. The Energy Transition for Green Growth Act of 17 August 2015 amended the EEC scheme for the third period of the scheme by adding to the original obligation a supplementary scheme for energy savings for households in situations of fuel poverty. It also provides for a fourth period of the scheme from 1 January 2018 to 31 December 2020 (see section 1.5.6.1 “General regulations that are applicable to the environment, health, hygiene and safety”). An upward shift in this three-year target, increased competition among energy suppliers, the economic crisis, or the reduction of major deposits may create additional difficulty in achieving this three-year target. The Group cannot guarantee that the commercial costs incurred in meeting the three-year target will be fully passed on in energy prices, which would be detrimental to the Group’s financial position.

Repeated or widespread blackouts in an area served by EDF SA or a Group subsidiary, particularly if they are attributable to the Group, may have consequences for the Group’s activities, financial position and image.

The Group may be exposed to repeated or widespread blackouts or be blamed for such blackouts, even if the causal event occurred in another network or was attributable to another operator, particularly in view of the unavailability of certain reactors associated with the additional controls undertaken by EDF (see section 2.1.3 “Specific risks related to the Group’s nuclear activities” – “The nuclear power plants that the Group operates may require significant or costly repairs or modifications.”).

The causes of blackouts vary: local or regional imbalances between electricity generation and consumption, accidental interruptions to the power supply or transmission, cascading power failures (more difficult to circumscribe in a market with cross-border exchanges), interconnection problems at borders and difficulty in coordinating operators, particularly in a market that is evolving or insufficiently regulated.

The initial impact of such power failures would be repair costs incurred to re-establish power or restore the network. Power failures may also generate capital expenditures if it were decided, for example, to install additional generation or network capacity. This could also cause a decline in the Group’s turnover. Lastly, power failures may have an adverse impact on the Group’s image with its customers, particularly if the blackouts are attributable to the Group.

¹. Method developed by the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

Natural disasters, significant weather changes, industrial accidents of any kind or any major event on a scale that is difficult to predict may have a material adverse impact on the Group's industrial and commercial activities.

EDF and its subsidiaries have developed crisis management plans to deal with natural disasters or major events. These crisis management plans are assessed and tested on a regular basis (see section 2.2.2.3 "Crisis management policy").

As was the case with storms Klaus (2009) and Xynthia (2010) in France, natural disasters (floods, landslides, earthquakes, etc.), other significant weather changes (droughts, etc.), or any other event on a scale that is difficult to predict (large-scale epidemics, etc.) may affect the Group's activities. Based on its national and international experience with these types of events, the EDF group implements measures aimed at reinforcing the resistance of the generation, transmission and distribution facilities and limiting the impacts and consequences in the event of large-scale events. Experience feedback for major nuclear accidents at the international level is discussed in section 2.1.3 "Specific risks related to the Group's nuclear activities". In the event of an exceptional event, the measures that are adopted may generate costs in addition to the costs of repairing the damage caused by the natural disaster and the loss of earnings from the interruption to supply.

As part of the renewal of the storm insurance coverage, Enedis has signed with Swiss Re a parametric insurance policy covering its aerial distribution network against the consequences of high-intensity storms (see section 2.5.5.3 "Storm cover"). Island Energy Systems's aerial distribution networks are not covered for property damage. Damage to these networks could have an adverse impact on the Group's financial position in the absence of insurance cover or if cover is inadequate. In addition, renewing or taking out these specific covers may be difficult or costlier due to the impact, frequency and magnitude of natural disasters experienced in recent years by the alternative risk transfer markets.

In the event of a wide-spread health epidemic, EDF has created a plan intended to ensure the continuity of electricity supply, depending on the intensity of the crisis, while guaranteeing the safety of facilities and reducing the health risks to which its employees are exposed.

Despite having set up a crisis management structure that enables it to react promptly to such events (see section 2.2.2.3 "Crisis management policy"), the Group cannot guarantee that the occurrence of a natural disaster, a weather event or any other event on a scale that by its nature is difficult to predict will not have material adverse consequences on its activities, income and financial position.

The Group is exposed to risks associated with weather conditions and seasonal variations in the business and more specifically the physical effects of climate change.

Electricity consumption is seasonal and depends to a great extent on weather conditions. For example, in France, electricity consumption is generally higher during winter months. Furthermore, available power may also depend on weather conditions. Thus, low water levels or heat waves may limit nuclear power generation due to the requirement that rivers downstream of facilities not exceed maximum temperatures. Hydropower generation is also sensitive to rainfall (quantity and annual distribution) and snowfall with respect to mountain ranges (see section 1.4.1.4.1 "Hydropower generation in France"). Similarly, power generated by wind power or solar plants depends on wind conditions or hours of sunshine at the sites where such facilities are installed (See section 1.4.1.4.3 "EDF Énergies Nouvelles"). This is also true for service business activities, frequently associated with the winter heating period.

Therefore, the Group's results reflect the seasonal character of the demand for electricity and may be adversely affected by exceptional weather conditions or by rain, snow, wind or sunshine conditions that are less favourable than anticipated. For example, the Group may have to compensate the reduced availability of economical power generation means by using other means with higher production costs, or by having to access the wholesale markets at high prices.

Furthermore, the activities of the EDF group are likely to be significantly affected by the possible physical effects of climate change (see section 3.2.1.3 "Adapting the Group's business to climate change"). Such effects are generally unpredictable and could have an adverse effect on the Group's financial condition, operating results, cash flows or facilities. New regulatory developments associated with climate change could also have a negative impact on EDF's activity.

The Group's activities may be handicapped by unfavourable economic conditions.

The Group's activities are sensitive to economic cycles and economic conditions in the geographical areas in which the Group does business. An economic slowdown in these areas would result in a drop in energy consumption, investments and industrial production by the Group's customers and, consequently, would have a negative effect on the demand for electricity and other services offered by the Group. Such economic conditions could, for example, threaten the profitability of certain of the Group's existing or planned power generation assets or weaken certain of the Group's counterparties (see section 5.1.2 "Economic environment"). The current situation of overall excess capacity of European energy power plants is further weakened by the arrival of new heavily subsidised means of production in an economic context of stable or even declining consumption. The Group cannot guarantee that the effects of an economic downturn in the geographical areas where it does business will not have a significant adverse impact on its activities, operating income, the value of its assets, its financial position or outlook.

In addition, the Group is exposed to fluctuations in cycles of economic growth and in the respective levels of investment in the various countries in which it operates. A slowdown of the general or local economy, significant fluctuations in prices and the availability of energy and raw materials, a decrease in demand for energy and related services in the Group's main markets, events affecting its main customers, significant imbalances between supply and demand in the Group's main markets and, more generally, any major deterioration in the macroeconomic or microeconomic environment in which the Group operates are all risks that could directly or indirectly affect the Group's business volumes, margins, the value of its assets, its financial position or outlook.

The Group is exposed to risks related to the control of major projects.

As part of its activity, the Group may consider or carry out, as project owner or prime contractor, projects that are inherently complex and require significant investments. Examples of such projects include EPR projects of Flamanville 3 (see section 1.4.1.2.2 "Update on the Flamanville EPR project"), Hinkley Point C (see section 1.4.1.2.3.1 "Hinkley Point C EPR"), and Taishan (see section 1.4.1.2.3.2 "Taishan EPR"). The completion of these projects is subject to numerous constraints such as the control of costs and construction delays.

Thus, the implementation schedule and the budgetary envelope for the Flamanville EPR project have been reviewed in the past, but did not evolve since 2015. The Taishan EPR implementation schedule has been amended and the commercial commissioning of the first reactor is scheduled in the second half of 2017. The commercial commissioning of the second reactor is

scheduled in the first half of 2018. In addition, the total cost of the Hinkley Point C project is estimated at £18 billion in nominal¹, EDF group's share being estimated at £12 billion. The forecast return rate is estimated at approximately 9% and the sensitivity of this return rate is approximately 45 basis points based on a 12-month delay in construction (see section 2.1.3 "Specific risks related to the Group's nuclear activities", including risk factor entitled "Construction of EPRs may encounter problems meeting the implementation schedule or the budgetary envelope or not be completed").

Moreover, the completion of such projects is subject to numerous technical, operational, economic or environmental contingencies which might delay or prevent the completion and thereby negatively impact the Group's activities, its income, the value of its assets, its financial position and outlook.

Technological choices made by the Group may be outperformed by more efficient technologies.

In order to anticipate technological developments, the Group at all times seeks to stay abreast of sustaining and disrupting technological innovations. However, the Group can not foresee with certainty how these developments could ultimately affect the Group's activities or claim to identify these developments in a comprehensive manner. The Group's business activities rely on a certain number of choices, which may be outperformed by other technologies that prove more efficient, more profitable, safer or more pertinent in light of possible future standardisation and standards than the technologies used by the Group.

The use of new technologies by the Group's competitors or the development by these competitors of new, more efficient and more competitive technologies could have the effect of reducing or eliminating the competitive advantage that the Group enjoys as a result of certain of its technologies and its experience. Similarly any delay or failure in the Group's development of technologies, planning or allocation of the Group's technology development resources could have a similar effect on the Group's competitive advantage and thus negatively impact its business, financial position and outlook.

Due to the geographic scope of its activities, the Group may be vulnerable to political, macroeconomic or financial conditions or circumstances in specific regions or countries

The Group is exposed to "country risk", meaning that economic, financial, political or social conditions of a country in which it operates may affect its financial interests. Recent relevant examples of such "country risk" include uncertainty with respect to policies that may be implemented by the new administration in the United States following the 2016 Presidential election and political uncertainty in Italy following the rejection in December 2016 of the referendum on constitutional reform and the subsequent change in government. Moreover, upcoming elections in France, Germany and other euro zone countries in 2017 may contribute to an environment of political unpredictability and a potential deterioration of economic conditions in case of an exit of a country from the euro zone or the European Union. A material change in the political or macroeconomic environment may require EDF to bear additional charges and/or expenditures in order to adapt to and comply with such new environment.

The results of the referendum in the United Kingdom on the withdrawal from the European Union are likely to have a negative effect on EDF's overall economic conditions, financial markets and activities.

In June 2016, a majority of UK citizens voted in favour of withdrawing from the European Union in a national referendum. The consequences of this referendum, as well as the arrangements of the United Kingdom's withdrawal, will be negotiated over a period of up to two years (excluding any extensions) from the date on which the British government formally initiates the withdrawal procedure provided for in Article 50 of the Treaty on European Union. Numerous policies are likely to evolve (monetary, tax,

economy, energy...). The impact of these evolutions on the economic and financial environment (notably in terms of growth, exchange rates and inflation) and on the Group may exist from the transition phase or once the course of events is stabilized. These consequences will depend on the content of the negotiations, not only between the United Kingdom and the European Union, but also with other parties involved, such as the Commonwealth, the United States and China.

The referendum created significant uncertainty about future relations between the United Kingdom and the European Union, including in terms of which laws and regulations of European origin the United Kingdom will decide to replace or replicate in the event of withdrawal. This referendum also led to several governments of other Member States of the European Union expressing criticism of the current institutional and political framework of the European Union. Furthermore, the United Kingdom's withdrawal from the European Union could lead to changes in energy policy both within the European Union and the United Kingdom along with changes to texts relating to nuclear activity.

The draft law empowering the British Prime Minister to implement the right of withdrawal in accordance with Article 50 of the Treaty on European Union, which was approved by the House of Commons on 1 February 2017, provides for the joint exit from the European Atomic Energy Community established by the "Euratom" treaty, of which the United Kingdom became a member on 1 January 1973 at the same time as its becoming a member of the European Economic Community. Specific agreements will be studied accordingly in order to allow for continued cooperation in the nuclear field and operational continuity. However, delays in setting up or deploying the new provisions could disrupt the implementation of ongoing or future projects.

The impact of all these evolutions on the Group activity in the United Kingdom appears limited on a short-term basis. It may however result in the worsening of the economic conditions leading to a restriction of the energy market. The evolution of the monetary and economic environment, the deflationary or inflationary context, as well as potential fluctuations in exchange rates or new adjustments by economic players may lead both to new risks and new opportunities for the Group in the United Kingdom market.

This new context may lead to a modification of the profitability conditions of the projects and to solicit or walk away from investors associated with the Group's future projects in the United Kingdom or in Europe, these investors being Europeans, Asians, Americans or others.

These developments, the uncertainty that they create, as well as the belief that any of them might occur, are likely to weaken European economic activity, threaten the stability of its regulatory environment and cause significant fluctuations in exchange rates (see the risk factor "exchange rate risk" below). This could have a material adverse effect on global economic conditions, and in particular on the Group's business, financial condition, and operating results, in particular in the United Kingdom.

The Group's results are sensitive to fluctuations in the price and availability of materials and services (other than nuclear fuels) that it purchases in connection with its business operations.

In the event of significant and sustained increases in the prices of raw materials, the Group may experience higher procurement costs for certain critical products or services. Such increases may also lead certain suppliers to reduce supply due to reduced profit margins. In addition, Group's results may be affected by fluctuations in commodity prices, such as gas and coal.

Moreover, there is increased demand for certain equipment or services, which may have an impact on their availability, in particular equipment used for Gas-fired Combined Cycle power stations, wind turbines and services and equipment in the nuclear sector.

1. Nominal costs or current costs refer to the costs expressed in terms of their value when they are spent. They include the cost of inflation each year. Excluding interim interests.

The Group is exposed to risks in the financial markets.

As a result of its activities, the EDF group is exposed to risks in the financial markets:

- liquidity risk: the Group must at all times have sufficient financial resources to finance its day-to-day business activities, the investments necessary for its expansion and the appropriations to the dedicated portfolio of assets covering long-term nuclear commitments, as well as to deal with any exceptional events that may arise. The Group's ability to raise new debt, refinance its existing indebtedness or, more generally, raise funds in financial markets, and the conditions that can be negotiated to this effect, depend on numerous factors including the Group's rating by rating agencies. EDF and EDF's existing debt are periodically rated by independent rating agencies that assign such ratings (see section 5.1.6.1.2 "Credit rating"). EDF's rating was downgraded in 2016. Any downgrading of EDF's rating could increase the cost of refinancing existing loans and have a negative impact on the Group's ability to obtain financing;
- furthermore, in accordance with the practice in the organised energy and financial markets, some Group entities have set up a margin call system for certain over-the-counter transactions in order to limit counterparty risk. In light of the regulations in the process of being implemented in the derivatives markets, these margin call systems may in the near future have a broader scope for the Group. This may require the Group to mobilise cash in the event of high volatility on financial and energy markets (See section 5.1.6.1.1.2 "Management of liquidity risks");
- exchange rate risk: due to the diversity of its activities and the geographical distribution thereof, the Group is exposed to the risks of fluctuations in foreign exchange rates, which may impact currency translation adjustments, balance sheet items and the Group's financial expenses, equity and financial position. In the absence of hedging, currency fluctuations between the euro and the currencies of the various international markets in which the Group operates can therefore significantly affect the Group's results and make it difficult to compare performance levels from year to year. If the euro appreciates (or depreciates) against another currency, the euro value of the assets, liabilities, income and expenses initially recognized in that other currency will decline (or increase). Moreover, insofar as the Group is likely to incur expenses in a currency other than that in which the corresponding sales are made, fluctuations in exchange rates could result in an increase in expenses, expressed as a percentage of turnover, which could affect the Group's profitability and income (see section 5.1.6.1.3 "Management of foreign exchange risk").

An adverse fluctuation of 10% in exchange rates related to currencies in which the EDF group's debts are denominated (USD, GBP, other currencies) would have an impact amounting to around 2% on the EDF group's indebtedness after hedging instruments.

Due to the exchange rate hedging policy implemented within the Group, the income statements of the companies controlled by the EDF group are marginally exposed to exchange rate risk;

- equity risk: the Group is exposed to equity risk on securities held primarily as dedicated assets constituted to cover the cost of long-term commitments in relation with the nuclear business, in connection with outsourced pension funds and, to a lesser extent, in connection with its cash assets and investments held directly by the Group (see section 5.1.6.1.5 "Management of equity risks"); and

- interest rate risk: the Group is exposed to risks associated with changes in interest rates in the various countries in which it operates. These rates depend partly on the decisions of the central banks. Changes in interest rates could affect the Group's ability to obtain financing under optimum conditions. The Group's exposure to changes in interest rates involves in particular two types of risks: (i) the risk of changes in the value of fixed-rate financial assets and liabilities along with the risk of changes in Group's discounted liabilities and (ii) the risk of changes in cash flows associated with variable-rate financial assets and liabilities. Such changes in provisions could impact the Group's financial position by (i) affecting the financial rating of its debt securities and (ii) generating an obligation to pay for dedicated hedging assets. (See risk factor below entitled "Provisions made by the Group for spent fuel treatment operations and for the long-term management of waste may increase significantly if assumptions are revised") (see section 5.1.6.1.4 "Management of interest rate risk").

Due to the split between fixed and floating-rate debts of the EDF group, a fluctuation of 1% in interest rates would result in a €303 million fluctuation in income before tax.

As for the financial assets held by the EDF group and classified as floating-rate bonds and negotiable debt securities, the impact on income before tax of a 1% fluctuation in interest rates would amount to €15 million.

Besides, the EDF group's exchange rate risk relates, in particular; to the value of the EDF group's long term nuclear commitments (see note 29 to the consolidated financial statements for the fiscal year ended 31 December 2016) and its commitments for pensions and other specific employee benefits (see note 31 to the consolidated financial statements for the fiscal year ended 31 December 2016), which are discounted to their present value using rates that depend on interest rates at various time horizons, and debt instruments held for the management of the dedicated assets constituted to cover these commitments.

For the specific case of nuclear provisions in France, given the decline in rates over the past few years, the discount rate could be reduced over the next few years by applying the method used by the Group, in accordance with regulation on the ceiling discount rate. The importance of this decline will depend on the future rates evolution. An increase in nuclear provisions due to a decrease of the discount rate may require allocations to the dedicated assets and may result in an adverse effect on the Group's results, cash flow generation and net debt. On the basis of assumptions made for the TEC 30 in 2017 and 2018, the new computation formula contemplated for the regulatory ceiling may result in a discount rate of 4.1% as at late 2017 and 3.9% as at late 2018. All other things being equal, such evolution would generate an increase of the provisions (excluding related tax effects), estimated at €735 million as at late 2017 (including 588 million for provisions to be covered by dedicated assets) and at €1.470 million as at late 2018 (including €1.176 million for provisions to be covered by dedicated assets). As the case may be, this increase in provisions, including those covered by dedicated assets, does not mean however a mechanical impact on the amount to be allocated to dedicated assets as of the considered dates, as the former depends on:

- the profitability of dedicated assets and the resulting coverage rate: there is no need to allocate to the dedicated assets if the coverage rate reaches 110%;
- the period within which the allocation is made as applicable rules provide for the possibility to set a maximum 3-year time period to proceed to the allocation.

In addition, an increase in nuclear provisions results in part in an increase of the corresponding assets, when the counterparty to the provision had initially been recorded as an asset, and in part as financial income. Note 29.1.5.2 "Analyses of sensitivity to macro-economic assumptions" to the consolidated financial statements as of 31 December 2016 indicates that, based on a 20 basis points discount rate decrease, the estimated impact on the value of the nuclear provisions would be an increase of €1,357 million, including a €690 million cost on the income statement, the difference increasing the assets' value on the balance sheet.

Regarding regulation on the ceiling discount rate, the ministers for economy and finances, and for environment, energy and the sea, indicated on 10 February 2017 their decision to amend the calculation formula of the discount rate regulatory ceiling, as from 2017. This decision will result in an evolution of the order dated 21 March 2007, as amended by the order dated 24 March 2015. This amendment follows the works of nuclear operators and public authorities, designed to adopt a ceiling rate formula which takes into account the significant duration of nuclear liabilities and prudential targets in terms of securitization of the financing of long term nuclear liabilities. The new formula would lead, progressively on a period of ten years, from the regulatory ceiling as of 31 December 2016 (4.3%), to a regulatory ceiling equal, in 2026, to the average on the four previous years of the thirty year constant maturity rate (TEC 30), increased by 100 basis points.

Given the rates evolution, past and anticipated, this new formula, which would take into account progressively the transition from the 4.3% regulatory rate to an average rate calculated on 4 years, including a 100 basis point spread, should lead to a steadier evolution of the regulatory ceiling rate during the next few years, as opposed to the previous formula.

As a reminder, changes in nuclear provisions estimates resulting from a variation of the discount rate are recorded (see notes 1.3.2.1 and 29.1.5.2 of the consolidated financial statements presented in chapter 6 of this reference document):

- as an increase or decrease of the corresponding assets, within the limit of their net book value, when the counterparty to the provision has been initially recorded as an asset;
- as a financial income for the period in other cases.

Therefore any change of the discount rate therefore has a punctual impact on the financial results of the year during which the discount rate change occurred, without equivalence for the following years.

The manner in which these risks are organised and the management principles applied thereto are described in sections 2.2.2.1 "Risk management and control approach" and 2.2.3.1.1.2 "Financial risks and investments control" and the measures taken to control these risks are explained in section 5.1.6.1 "Management and control of financial risks". However, the Group cannot guarantee that it is totally protected, in particular in the event of significant fluctuations in foreign exchange rates, interest rates and the equities markets.

Changes in financial regulations may adversely affect the profitability of trading activities and increase the cost of energy and financial markets risk hedging operations and more generally increase the risk of non-compliance with the new regulations.

International derivatives markets underwent extensive reforms following the financial crisis of 2008. In Europe, this reform has led in particular to the adoption of EMIR (European Market Infrastructure Regulation, Regulation no. 648/2012 adopted on 4 July 2012 by the European Parliament and Council). This European initiative has been followed in other jurisdictions in different forms, such as the Dodd-Frank Act in the United States. These reforms are gradually being implemented under the supervision of financial regulators. They seek *inter alia* to impose general clearing or collateral exchange requirements on derivatives transactions, but contain exemptions for companies that do not engage in bank-like activities.

In connection with its energy markets risk management activities (which are part of the Group's "Energies Markets Risks" policy (see section 2.2.2.1 "Risk management and control approach" and section 2.2.3.1.1.1 "Control of energy market risks")) and financial risk management (as part of the policies internal controls described in section 2.2.2.1 "Risk management and control approach" and section 2.2.3.1.1.2 "Financial risks and investments control"), the EDF group carries out derivatives transactions for hedging and trading purposes.

Current financial regulations may be amended or made more stringent by the European authorities, which may significantly restrict the scope of these exemptions for trading activities.

Therefore, the Group cannot guarantee that, either due to the direct impact of these regulations or because market practices evolve in this direction, it will not be required to clear or exchange collateral for a greater share of its derivative transactions. If this were the case, this would ultimately require that the Group furnish additional financial guarantees (in the form of cash, bank guarantees, equity, etc.) to execute its energies and financial market risk hedging and trading transactions, which would increase hedging costs and reduce trading profitability.

Moreover, Regulation (EU) no. 1227/2011 (REMIT regulation) on the integrity and transparency of wholesale energy markets (see section 1.5.7 "Regulations on the wholesale energy markets") and Regulation (EU) no. 596/2014 (MAR regulation) on market abuse, are designed to prevent market abuse and manipulation and to enhance consumers and market players confidence. These regulations impose control- and transparency-related requirements on the issuers. Notwithstanding the fact that the Group has implemented all the necessary measures to ensure that its practices comply with these two regulations, a risk of non-compliance with the provisions of these regulations cannot be totally ruled out, particularly in view of the recent nature of the MAR Regulation and the new or divergent ways in which national regulators may construe them.

A default by the Group's counterparties (partners, subcontractors, service providers, suppliers or customers) may have an impact on its activities and results.

Like all economic operators, the Group is exposed to possible default by certain counterparties (partners, subcontractors, service providers, suppliers or customers). A default by these counterparties may impact the Group financially (loss of receivables, additional costs, in particular if EDF is required to find satisfactory alternatives or take over the relevant activities or pay contractual penalties). Such defaults could also impact the quality of work performed, completion deadlines or the procurement of certain critical products or services, and exposes the Group to reputational risk, business continuity risk for certain projects or the loss of contracts.

The monitoring and oversight procedures applied within the Group in connection with its exposure to the counterparty risk inherent in its contractual relationships are described in section 2.2.3.1.1.2 "Financial risks and investments control".

The Group is involved, and could be involved in the future, in litigation or regulatory investigations which may adversely affect the Group's reputation, as well as its relationship with regulatory bodies and results.

As a result of its activities, the Group is involved in several litigation and arbitration cases and regulatory investigations, of which material ones are described in section 2.4 "Legal proceedings and arbitration". In the future, the Group may be involved or exposed to such proceedings. The potential adverse outcome of these proceedings may entail the payment of damages, or result in other civil or criminal adverse consequences (including financial consequences) for the Group. The implementation of class actions in France in 2014 and similar developments in other European jurisdictions, as well as recent or future regulatory changes, may increase litigation risks and related costs, which could have a negative impact on the Group's results and reputation.

Prohibited and unethical practices carried out by employees or third parties in the conduct of business could, in certain circumstances, adversely affect the Group's reputation and shareholder value.

The globalisation of the Group's activities and the strengthening of regulatory frameworks repressing unethical practices in the conduct of business could expose the Group, its employees, or third parties acting on the Group's behalf to criminal and civil sanctions that could adversely affect EDF's reputation and shareholder value.

In France, Act no. 2016-1691 of 9 December 2016 on transparency, the fight against corruption and the modernization of economic life requires companies to take measures to prevent and identify acts of corruption or trading in influence, under the control of a French Anti-Corruption Agency established under the Act and under penalty of administrative or criminal penalties. This Law incorporates a system for protecting whistleblowers from possible criminal or disciplinary prosecution and provides, within a corporate framework, an internal alert reporting system (see section 1.5.6.1 "General regulations that are applicable to the environment, health, hygiene and safety"). These regulations could increase our compliance costs. Moreover, any failure to comply in any way with these regulations could lead to prosecutions being brought against EDF, which could have a negative impact on the Group's result and reputation.

The Group could be held liable for the occurrence of occupational illnesses or accidents.

Although the Group has for many years taken the steps necessary to comply with the health and safety laws and regulations in the various countries in which it operates, and considers that it has taken the measures required to ensure the health and safety of its employees and that of its subcontractors', the risk of occupational illnesses or accidents cannot be excluded. The occurrence of such events may lead to lawsuits against the Group and may result in the payment of damages, which could be significant.

For a description of the measures taken by the Group with regards to ionizing radiation, see section 1.4.1.1.3 "Environment, nuclear safety, radiation protection".

Regarding asbestos, the Group has taken measures to treat materials, as well as information and protection measures, as described in section 3.3.2 "The health and safety of our employees and our service providers' employees: an absolute priority". For a description of on-going legal proceedings, see sections 2.4.1 "Legal proceedings against EDF", paragraph "Asbestos" and 2.4.2 "Legal proceedings against EDF's subsidiaries and holdings", paragraph "Measures taken by employees concerning exposure to asbestos or other harmful chemical substances".

For its business, the Group depends on information systems which may fail or be subject to malicious attacks.

The Group operates multiple and very complex information systems (servers, networks, applications, databases, etc.) which are essential for the conduct of its commercial and industrial activities and which have to adapt to a rapidly changing environment. Indeed, the Group's business depends heavily on the efficiency of its technology and its information systems. The risk involved with operating such systems and technologies can take numerous forms, including disruption, malfunction or failure of any of these systems, computer viruses, piracy, identity theft, diversion of sensitive data, corruption of electronically stored data, violations of regulations, human errors and terrorist attacks. The increased frequency and sophistication of recent hacking incidents demonstrates the importance of these computer risks, as well as the financial and reputational damage that may result from such incidents.

The Group has implemented procedures to test these systems in order to guarantee as far as possible that any new versions provide a level of

functionality suited to the Group's needs and has set out procedures for managing incidents and crises in order to be able to provide solutions in the event of one-off failures. These procedures also address potential malicious attacks. Despite the Group's multiple security measures, none of these events may be completely excluded, which could have significant adverse consequences for the Group.

The Group has also implemented a policy to strengthen and improve its back-up programmes and information systems, which are tested annually, and crisis management procedures have been set out which are regularly improved through feedback from incidents. However, the Group cannot guarantee that these programmes will not encounter technical difficulties during deployment or delays affecting their real-life implementation or that such programmes will make it possible to limit, in the event of a major disaster, the negative impact on the activity and the Group's financial position.

2.1.3 SPECIFIC RISKS RELATED TO THE GROUP'S NUCLEAR ACTIVITIES

EDF's nuclear business creates specific risks for the following reasons:

- as with any nuclear operator, the latter's obligations means giving ongoing priority to nuclear safety, based on technical and organizational provisions in order to guard against a nuclear accident and, in the hypothetical event of an accident occurring, to limit the consequences of such an accident. The nuclear business is carried out under the control of nuclear safety authorities in countries where the Group exercises nuclear operator responsibility;
- as the nuclear business inherently requires substantial and long-term investments, special care must be taken with regard to the soundness and efficiency of the maintenance and upgrading projects for the fleet in operation, new reactor projects and compliance with very long-term commitments;
- the nuclear business is an industrial activity that brings together a large number of industrial partner in France, Europe and throughout the world. In France, the public authorities have entrusted EDF with its leadership role in the nuclear sector, which entails specific risks associated with these orchestration and management obligations;
- in light of the fact that EDF is the world's largest nuclear operator, exploiting global feedback and making comparisons with best practices internationally represents an ongoing challenge to ensure that the EDF group is best situated to be able to sustainably manage the risks and opportunities associated with being world leader;
- the nuclear business requires that the EDF group be able to control large complex projects which might continue over a number of years. In turn, such projects require that modern and innovative technologies be acquired and mastered;
- increased number of requests emanating from the French Nuclear Safety Authority and enhanced controls may increase EDF's compliance costs and risks.

The EDF group is the world's leading nuclear operator in terms of the number of plants in operation (73 reactors for which the EDF group is the nuclear operator, among 449 operating reactors in the world¹). Nuclear-generated electricity accounts for 48.3% of installed electrical power and 72.3% of total electricity generation in France². EDF also operates nuclear assets in the United Kingdom with 19% of production in 2015³. In addition, the Group holds minority stakes in nuclear power plants in the United States (through CENG), Belgium and Switzerland, which it does not operate. The

1. Source: Agence Internationale de l'Énergie Atomique, "Power Reactor Information System", source: <https://www.iaea.org/pris> indicates that there are 449 nuclear reactors in operation worldwide as of 8 February 2017.
 2. Source: 2016 Electricity Report, RTE, p. 13 – <http://www.bilan-electrique-2016.rte-france.com/>.
 3. Source: <http://www.iaea.org/pris/>.

share of nuclear energy in the EDF group's electricity mix is thus a major competitive advantage. The Group also plays an active role in construction projects for new nuclear plants in France, the United Kingdom, China and potentially in other countries.

Any event adversely affecting nuclear power at the global level is likely to have a greater impact on the Group's image, activities, productivity, financial position, results and outlook than for its competitors who use this source of energy proportionally less. As from the first analyses following the accident at the Fukushima nuclear power plant, EDF decided to strengthen its crisis management organisation in France through a national mechanism capable of rapidly providing material and human assistance to a site experiencing great difficulty, known as the Nuclear Rapid Action Force (FARN) (see section 1.4.1.1.3 "Environment, nuclear safety, radiation protection").

Due to its nuclear activities, the Group is exposed to significant liability risks and potentially significant additional operating costs.

Although the Group has adopted strategies and procedures to control risks and incorporate international feedback for its nuclear activities that are consistent with best international standards¹, such activities, by their nature, still present potential risks. Therefore, the Group may face significant liability as a result of *inter alia* incidents and accidents, security breaches, malicious or terrorist acts, aircraft crashes, natural disasters (such as floods or earthquakes), equipment malfunctions or problems in the course of storing, handling, transporting, processing or packaging nuclear substances and materials. Such events could lead to significantly stricter operating requirements for nuclear plants, or to a partial or total halt of the operation of the Group's power generation plants, and may have serious consequences, especially in the event of radioactive contamination or irradiation of persons working for the Group, or the general population and the environment, as well as a material adverse impact on the Group's activities, strategy, outlook and financial position.

Indeed, a nuclear operator is responsible for the nuclear safety of its facilities.

The nuclear civil liability scheme that applies to nuclear facility operators of States Parties to the Paris Convention, and the insurance applicable thereto, are described in section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities" and section 2.5.6 "Specific insurance for nuclear facility operations". This scheme is based on the principle of the operator's strict liability. Accordingly, if an event occurs that causes nuclear damage, the Group would be automatically liable up to a monetary maximum set by the law applicable in the country, regardless of the source of the event that caused the damage and any safety measures that may have been taken.

The Group cannot guarantee that in countries where it operates nuclear facilities the maximum liability set by law will not be increased or cancelled. For example, the protocols amending the Paris Convention and the Brussels Convention, not yet in force (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities"), provide for these maximum amounts to be increased and a substantial expansion of the damage to be covered. The new amounts are applicable as of 18 February 2016 under Act no. 2015-992 of 17 August 2015 on the Energy Transition for Green Growth and the amount of the operator's liability in France now amounts to €700 million in the event of a nuclear accident in a facility and €70 million for nuclear accidents during transport. The entry into force of the other changes laid out in these protocols is likely to increase yet again the cost of insurance and the Group cannot guarantee that insurance covering this liability will always be available or that it will always be able to maintain such insurance.

The insurance cover for the Group's civil liability as a nuclear operator is described in section 2.5.6.1 "Civil liability of nuclear facility operators" and for insurance coverage for transport of nuclear materials in section 2.5.6.2 "Civil liability for transport of nuclear substances".

Property damage to EDF's nuclear facilities is covered by insurance programmes (see section 2.5.6.3 "Damage to nuclear facilities"). Despite this cover, any event that may cause significant damage to a nuclear facility of the Group could have an adverse impact on the Group's business and financial position.

Lastly, the Group cannot guarantee that the insurers that cover both its liability as a nuclear plant operator and property damage to its facilities will always have available capacity or that the costs of cover will not significantly increase, particularly in light of the impacts on the insurance market of events such as the nuclear accident in Japan that occurred on 11 March 2011.

A serious nuclear accident anywhere in the world may have significant consequences for the Group.

Despite the measures taken during their design or operation, a serious accident at a nuclear facility cannot be excluded, such as the nuclear accident in Japan, following the earthquake and tsunami that devastated the north of the country on 11 March 2011. This type of accident may turn public opinion against nuclear power and lead the competent authorities to substantially tighten power plant operating requirements or to refuse authorisation for proposed extensions of the operating life of power plants, leading to a temporary or permanent suspension of the operation of one or more nuclear facilities, or leading the authorities to consider a moratorium on the use of nuclear power to generate electricity and, therefore, to suspend or cancel all on-going nuclear power plant development projects. Such decisions were taken in Germany (suspension of nuclear power generation) and Italy (suspension of nuclear power plant construction projects) following the Fukushima accident. Such decisions could be taken even if no accident occurs.

If such an accident were to occur near one or more of the Group's facilities, it could also contaminate the environment and thus jeopardise their operation.

Such events would have a major adverse impact on the business model, strategy, activities, results, financial position and outlook of the Group.

The Group's nuclear business is subject to particularly detailed and demanding regulations that may become more stringent.

The Group's nuclear business is subject to detailed and demanding regulations, with a system in place, in particular in France, that monitors and periodically re-examines operating conditions, which focus, firstly, on nuclear safety, environmental and public health protection, but also on national security considerations (terrorist threats, in particular). These regulations may be significantly tightened by national or European authorities (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities"). Furthermore, stricter regulations or possible non-compliance with current or future regulations could result in the temporary or permanent shutdown of one or more of the Group's plants or financial penalties as stated in Article L. 596-4 of the French Environment Code. Cases of non-compliance with regulations are also likely to be used by third parties against EDF and brought before the courts.

Such events may result in a significant increase in the costs of the Group's nuclear power plants, which may have an adverse impact on its financial position.

1. *Exploitation of standards and feedback from the International Atomic Energy Agency and the World Association of Nuclear Operators WANO.*

For example, EBITDA was adversely affected by the -32.8TWh decrease in nuclear generation in 2016 compared to 2015, which mainly resulted from shutdowns and extensions of outages in connection with additional inspections, with an estimated impact of -€1,274 million.

For its nuclear business, the Group depends on a limited number of contractors.

Although the Group has adopted a policy to diversify the suppliers and service providers for its nuclear business, it is currently dependent on a limited number of contractors and persons who have the necessary qualifications and experience. This limits competition in the markets in which EDF is a buyer and exposes the Group to the risk of a default of one or more of these suppliers or service providers with specific expertise, which could have an adverse impact on the Group's results and financial position. This is especially the case for AREVA, Westinghouse and Alstom (which was acquired by General Electric in November 2015), but also for most nuclear industry manufacturers and the principal maintenance service providers (see section 2.3 "Dependency factors"). Changes to the shareholding or governance of these various providers may also have an impact on the cost or quality of the services carried out and products delivered.

The failures observed in 2015 and 2016 in the AREVA Manufacturing plants have had and will continue to have a significant impact on the availability of the nuclear power plants in operation and on the provision of equipment for new nuclear projects (see sections 1.4.1.1 "Nuclear electricity generation" and 1.4.1.2 "New Nuclear Projects").

Following the irregularities highlighted in 2016 in the AREVA plant in Le Creusot, systematic controls, which take place over several months, are now planned, which could negatively impact the availability of the nuclear units and the Group's financial performance.

These anomalies are subject of specific risk control clauses in the AREVA reactors business acquisition transaction. The contract signed on 15 November 2016 between EDF and AREVA setting the terms of the sale of a stakeholding giving EDF exclusive control over an entity ("New NP"), a fully-owned subsidiary of AREVA NP, provides that AREVA SA will continue to guaranteeing the contractual obligations associated with the discovery of irregularities in the quality control of manufacturing equipment in the Le Creusot plant, and, if need be, the Saint-Marcel and Jeumont plants and that the conclusion of the transaction, scheduled for the second half of 2017, remains subject to obtaining favorable conclusions from the ASN regarding the outcome of the tests on the primary circuit for the Flamanville 3 reactor and completion and satisfactory conclusions of the quality audits at le Creusot, Saint-Marcel and Jeumont plants. Notwithstanding such clauses, these defects could have unfavorable consequences, notably on the business of New NP. The EDF group's dependency on AREVA's performance levels or the occurrence of a risk not covered by the guarantee granted by AREVA SA could negatively impact its financial position.

The Group is exposed to changes in the conditions for procuring uranium and conversion and enrichment services.

The Group's operating costs include nuclear fuel purchases.

For its nuclear power plants in France and the United Kingdom, EDF purchases uranium and conversion and enrichment services through long-term contracts containing hedging mechanisms that mitigate and smooth price fluctuations over time. Its main supplier is the AREVA group, but EDF pursues a diversification policy by also buying supplies from other industrial companies (see section 2.3 "Dependency factors" and section 1.4.1.1.4 "The nuclear fuel cycle and related issues"). Prices and availability of uranium and conversion and enrichment services are subject to fluctuations due to factors that are *inter alia* political and economic and that the Group cannot control (in particular, the profitability outlook of mining investments, imbalances between supply and demand or supply shortages associated with, for example, an operating accident in a uranium mine or a combined

cycle plant, delays in commissioning new mines or events leading to political instability in a uranium producing country).

However, the Group cannot guarantee that its contracts, in France and abroad, will completely protect it from sudden or significant price increases. The Group cannot guarantee that when these long-term contracts expire, it will be able to renew them, in particular at an equivalent price. This could have an adverse impact on the Group's financial position.

To operate its nuclear power plants, the Group relies on proper functioning of road and rail transport, in particular for the transport of fuel.

The transport of new or spent nuclear fuel is a very particular operation that requires specific and restrictive safety and security measures. These constraints could become more stringent, generating additional difficulties and costs for the Group. Furthermore, several factors that are beyond the Group's control (such as opposition by local residents or anti-nuclear associations, for example, in the form of manoeuvres to prevent nuclear material from being shipped) may slow these operations. Operations may also be interrupted, in particular, in the event of an accident. In such case, the Group may be required to slow or halt some or all power generation at the relevant sites, either due to non-delivery of new fuel assemblies or the saturation of onsite storage facilities, which may have an adverse impact on the Group's financial position (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues").

The nuclear power plants that the Group operates may require significant or costly repairs or modifications.

The group of nuclear facilities that the Group currently operates in France is highly standardised (see section 1.4.1.1.1 "EDF's nuclear fleet"). This enables the Group, in particular, to achieve economies of scale in equipment purchases and engineering, to apply improvements made to its newest power plants to all plants and, in the event of a malfunction in a facility, to anticipate the measures to be taken in other plants. However, such standardisation carries the risk of a malfunction that is common to several power plants or series of power plants (see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet"). The Group cannot guarantee that it will not be required to make significant or costly repairs or modifications to all or some of its plants, or that events will not occur that may have an impact on the operation of its plants or their output or cause a temporary or permanent shutdown of all or some of its plants.

Thus, at the time of the safety re-evaluations conducted during the ten-year inspections and following the Fukushima accident, the Group was led, both on its own and as a result of the requirements of the French Nuclear Safety Agency (ASN), to draw up a substantial work programme. This programme, called the "Grand Carénage" is intended to renovate existing plants, increase the safety level of reactors and, if the conditions are met, extend their operating life. This programme, which was approved in principal by the Board of Directors, involved additional investments as from 2015 and the upcoming years and bringing forward certain expenditures that were already planned before the Fukushima accident (see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet" and section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France". Industrial implementation of these works in power generation facilities will involve increased costs and a greater use of internal resources and the industrial fabric, and may also result in a loss of availability in future years. Implementation-related uncertainties affecting the *Grand carénage* program include possible delays in the examination of the authorisations required to initiate operations, in particular as regards the authorisations to be granted by the French Nuclear Safety Agency. Such uncertainties may also concern the manufacture and delivery on site of new equipment or work carried out on-site in a situation where a large number of industrial operations are being carried out at the same time.

In France, further controls are ongoing to confirm that certain steam generators are capable of functioning safely, requiring the shutdown of a number of nuclear reactors operated by EDF. This had led, and could lead in the future, to the Group's nuclear production and/or financial targets being revised downward (see section 1.4.1.1 "Nuclear electricity generation"). Furthermore, the Group operates or holds equity interests in nuclear power plants elsewhere in the world, in particular the United Kingdom, Belgium and the United States, and it may also be required to make costly repairs or modifications to these units or it could be faced with events that may impact their performance, power generation or availability. Like in France, the nuclear safety authorities in these countries may take decisions that require additional works or controls, in particular as regards exploiting feedback from international experience and anticipating potentially precursory events. This was the case in 2014 and 2015 in the United Kingdom, where a fault detected on a "RAG" type reactor (advanced gas-cooled reactor) led to further tests being conducted on three other similar reactors and where, as a precaution, pending the results of the on-going expertise, the four reactors were authorised to restart only at reduced power.

Furthermore, despite the quality of operations and the changes made by the Group to its power stations, it cannot be ruled out that some of these power stations will be subject to special operating conditions to reinforce the operating safety margins at the initiative of the nuclear operator responsible for nuclear safety or at the request of the French Nuclear Safety Agency.

All such events may have an adverse impact on the Group's financial position and activities.

The Group may not be able to obtain the authorisations necessary to extend the operating life of its power plants beyond the periods currently planned or it may not be authorised to operate its power plants until the end of such periods.

In France, in connection with the studies associated with the third ten-year inspections of the 900MW units, in early July 2009 the ASN publicly stated that it had not detected any generic problem calling into question EDF's ability to ensure the safety of its 900MW reactors for up to 40 years. As required by the regulations, the ASN's position has been supplemented by a decision made for each reactor following each of the third ten-year inspections (see section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France"). Accordingly, at the end of 2016, more than 80% of the 900MW segment units have undergone their third ten-year inspection and, for 9 of them, the ASN has already submitted its final advice to the Minister and has not objected to their continued operation, subject to their complying with additional requirements.

To postpone construction of new units and the investments associated therewith, and to continue to receive cash flows from its existing fleet, the Group seeks to extend the operating life of its nuclear power plants in France beyond 40 years. In 2012, the ASN had the improvement proposals submitted by EDF reviewed by the permanent "reactors" group, which judged these proposals positively, although it recommended that they be supplemented and, in certain cases, reinforced. Discussions with the ASN are continuing on this basis. The French Nuclear Safety Agency (ASN) clarified in a letter dated 20 April 2016 its opinion regarding the generic guidelines for the periodic re-evaluation associated with the fourth ten-year inspections of the 900-MWe reactor (VD4-900), which was the subject of the permanent "Guidelines" group meeting of April 2015. This re-evaluation, like previous ones, will include, on the one hand, verifying that the facilities comply with the current standards and, on the other hand, carrying out a safety reassessment in order to further improve the level of safety by taking into account best international practices and the state of the facilities, the experience gained during the operation and developments in knowledge and rules which might apply to similar facilities.

A final opinion on the "generic" phase of this re-evaluation is expected in 2018/2019 (see section 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France"), and the final post-40-year operating authorisation will be made on a reactor-by-reactor basis. Solutions are being developed to show

that non-replaceable equipment (*i.e.* containment enclosures and reactor vessels) are capable of functioning for up to 60 years. These studies are designed to confirm the availability of safety margins for operating lives of nuclear power plants after 40 years under review.

In 2016, all the technical, economic and governance conditions necessary for the amortization period of France's nuclear fleet with the Group's industrial strategy to match were met (see notes 1.3.2 "Management judgments and estimates" and 3.1 "Extension to 50 years of the depreciation period of the 900MW PWR series in France" of the appendix to the consolidated financial statements as of 31 December 2016). The consolidated financial statements dated 31 December 2016 incorporate the 40 to 50 year extension of the amortisation period of the REP 900MW units (except Fessenheim) as of 1 January 2016, without prejudice to any decisions which might be made by the French Nuclear Safety Agency following each ten-year inspection regarding authorisations to continue operations for each level following each ten-year inspection.

The amortization period for the other levels of the France nuclear power plant (1,300MW and 1,450MW), which are more recent, is at this point maintained at 40 years, since the conditions for an extension have not been met at this stage. The subsequent extension of these other levels continues to be part of the Group's industrial strategy.

However, the Group cannot guarantee that it will receive the expected extension from the competent authorities in France. Furthermore, such extensions could also be obtained under certain conditions, the financial impact of which, in particular in terms of investments, could affect the Group's strategy with respect to extending the operating life of its power plants or the Group's ability to pursue its global investment strategy.

In the United Kingdom, the current projected operating life of EDF Energy's nuclear power plants ranges between 41 and 47 years for advanced gas-cooled reactor (RAG) power plants and is 40 years for the pressurised water reactor (PWR). Since EDF Energy acquired them, the operating life of the RAG power plants has been extended by 10 years on average and the objective is to increase the operating life of the PWR power plants by 20 years (see section 1.4.5.1.2.1 "Nuclear generation"). However, in light of the safety rules applicable in the United Kingdom, the Group cannot guarantee that EDF Energy will obtain the necessary authorisations at the appropriate time to operate its existing nuclear power plants until the end of their currently projected operating life, or that such authorisations will not be obtained subject to conditions that entail significant expenditures or investments for the Group.

For nuclear power plants where EDF is not responsible for the operation, but in which it has financial interests (United States, Belgium, Switzerland), the Group is exposed to the same risks financially: loss of revenue and depreciation of assets in the event of a stoppage or necessity of making additional investments to continue to operate. However, the Group cannot guarantee that these power plants will be actually operated for the periods currently anticipated, particularly in the event of an incident affecting the safety or availability of the facilities.

If any of these events occur, they may have a material adverse impact on the Group's financial position.

A decision by the French public authorities to halt one or more nuclear power generation units could have material adverse consequences for the Group.

The Act no. 2015-992 of 17 August 2015 on the Energy Transition for Green Growth calls for the nuclear component in electricity generation to be reduced by 50% before 2025. It also caps at current levels (63.2GW) the total authorised capacity of nuclear electricity generation. In practical terms, this provision forces EDF, in order to obtain permission for the commissioning of any new nuclear generating capacity (such as permission from the Flamanville EPR), to shut down any equivalent capacity. Accordingly, it might be decided to prematurely terminate one or more units in the EDF fleet owing not to an industrial choice but rather to the need to apply legislation. Such decisions

might result in EDF receiving compensation for the damage suffered, as recalled by the French Constitutional Council in its decision of 13 August 2015, provided that the payment of compensation is compatible with applicable European regulations. To this end, discussions with the French government concerning the compensation protocol for the closure of the nuclear capacity at Fessenheim have been taken into account for 2016 in Amending Finance Law no. 2016-1918 dated 29 December 2016. Such discussions have resulted in a draft protocol defining the compensation provisions described in section 1.4.1.1.6 "Decommissioning of nuclear power plants". Lastly, it may be decided that new nuclear construction projects, in which the Group has already invested considerable sums, should be halted. This issue potentially concerns all the Group's nuclear assets. This protocol, approved by EDF's Board of Directors, provides for a compensation scheme based on a fixed part estimated to date at approximately €490 million with a payment forecast of 20% in 2019 and 80% in 2021 and an additional variable part which may, as the case may be, result in further payments, as a consequence of the loss of earnings incurred for EDF until 2041 (see section 1.4.1.1.6 "Decommissioning of nuclear power plants").

Such events would have material adverse consequences on the outlook, financial position, results and image of the Group, which would lead the latter to request compensation that it is not certain to obtain.

Construction of EPRs may encounter problems meeting the implementation schedule or the budgetary envelope or not be completed.

The Group initiated the construction of the European Pressurised water Reactor (EPR) in Flamanville (see section 1.4.1.2 "New Nuclear Projects") in order to renew its nuclear fleet in France and to use it as a prototype for the construction of new plants abroad.

In September 2015, EDF submitted a new timetable and updated construction costs for this project for a total amount of €10.5 billion. The loading of nuclear fuel and initial launch of the reactor is expected to occur during the 4th quarter of 2018. The new organization adopted and progress made for this project are presented in section 1.4.1.2.2 "Update on the Flamanville EPR Project".

The implementation of this timetable remains nonetheless dependent on specific authorisations which remain to be issued by the French Nuclear Safety Agency (equipment qualification, loading authorisations, commissioning authorisations, etc.). The Group may not obtain the necessary authorisations or these authorizations may be challenged by court or administrative rulings. With respect notably to the Flamanville EPR Project, which is a new reactor, difficulties, technical or other, may yet occur during the control of manufacturing quality (as for components of AREVA NP from Le Creusot plant) and during the equipment qualification that follows, throughout onsite construction, with suppliers who operate activities regulated by new EUNP requirements (Equipments Under Nuclear Pressure – *équipements sous pression nucléaire*) on a large scale, and finally during testing or early stages of the operation of the EPRs.

These difficulties could slow or prevent the construction of other EPRs, alter the schedule for commissioning them or affect their performance. Stricter regulatory constraints (such as the implementation of the ESPN Decree on nuclear pressure equipment) may have similar effects. In addition, total construction costs, which have already been reassessed, could be higher than EDF currently estimates.

Two EPR reactors are under construction and in the start-up phase in Taishan, China. The Group has a 30% stake in these reactors alongside its Chinese partner CGN within TNPJVC (Taishan Nuclear Power Joint Venture Company Limited). The first reactor entered the hot-testing phase in November 2016 (see sections 1.4.1.2.3.2 "Taishan EPR" and 1.4.5.3.6. "Asia-Pacific"). Events affecting the start-up or commissioning of these two reactors may have an impact on the Flamanville 3 reactor (additional design or operational provisions).

In the United Kingdom, on 15 September 2016, the UK Government confirmed its intention to implement its commitments relating to the Hinkley Point C project under the terms and conditions approved by the EDF Board of Directors. On 29 September 2016, EDF signed the Hinkley Point C contracts in London with the UK Government and its Chinese partner CGN. The final decision to invest in the Hinkley Point C project by the EDF Board of Directors resulted in a number of legal proceedings (see section 2.4.1 "Legal proceedings against EDF", paragraphs "Application to the Regional Court in Paris by EDF SA's central works council", "Application to the urgent applications judge sitting at the Regional Court in Paris by EDF SA's central works council" and "Application to the Commercial Court in Paris by five EDF SA employee representative directors"). The total cost of the Hinkley Point C project is estimated at £18 billion in nominal¹, EDF group's share being estimated at £12 billion.

EDF also signed two other agreements with CGN concerning studies on two nuclear construction projects in the UK, Sizewell C and Bradwell B. Agreements that secure the income of Hinkley Point C specify the price revision in the Contract for Difference in the case of an investment decision concerning Sizewell C. EDF's ability to make a final investment decision and to finance these projects beyond the development phase may depend on the existence of partners.

The technical and regulatory risks, along with the risks of not meeting the schedule and budgetary envelope of the EPR projects in the UK are described in section 1.4.5.1.2.5 "Nuclear New Build business",

The Group is responsible for most spent fuel and radioactive waste from its nuclear power plants, especially Long Life Medium- and High-level waste from spent fuel.

The nuclear fuel cycle is described in section 1.4.1.1.4 "Nuclear fuel cycle and related issues". In France, as an operator of nuclear power plants and radioactive waste producer, EDF is legally responsible for spent fuel from the time it leaves the power plant and for radioactive waste processing and long-term management operations. EDF assumes this responsibility both on the technical and financial levels in accordance with guidelines laid down by the public authorities and under their supervision. EDF is also responsible for all nuclear waste generated during plant operations and decommissioning.

The Group's liability may be alleged, in particular as a nuclear power operator or producer of radioactive waste within the meaning of applicable legislation on waste, in the event of an accident or any damage to third parties or the environment from spent fuel or waste, even if they are handled, transported, kept, warehoused or stored by contractors other than the Group (especially, in France, the AREVA group and the French National Agency for the Management of Radioactive Waste (ANDRA)), in particular in the event of a breach by such contractors. If the Group were held liable for damage to third parties, the specific strict liability scheme applicable to nuclear plant operators would apply, up to the maximum amounts specified by this scheme (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities").

In France, the long-term management of radioactive waste has been the subject of various initiatives under the programme Acts no. 91-1381 of 30 December 1991 on research on radioactive waste management and no. 2006-739 of 28 June 2006 on sustainable management of radioactive materials and waste (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues" – "Long-Lived High-Level Waste (HLW-LL)"). The Group cannot guarantee that all long-life high- and medium-level waste will constitute "final radioactive waste" within the meaning of Article 6 of the Act of 28 June 2006 and, therefore, that such waste may be directly stored in deep geological layers, especially as the nuclear order of 10 February 2016 adopted pursuant to Act no. 2015-992 on the Energy Transition for Green Growth empowers the administrative authority to reclassify radioactive material as radioactive waste and radioactive waste as radioactive material.

1. Nominal costs or current costs refer to the costs expressed in terms of their value when they are spent. They include the cost of inflation each year. Excluding interim interests.

Furthermore, the Group cannot guarantee the timeframe in which the public authorities will authorise such storage, or predict certain technical instructions related to such authorisations, which creates uncertainties about the future of the waste, the resulting liability and costs for EDF (See section 1.4.1.1.4 "The nuclear fuel cycle and related issues" – "Storing conditioned ultimate waste").

In the United Kingdom, when British Energy was restructured, agreements were entered into with the authorities concerning the management of certain radioactive waste from existing nuclear power plants (see section 1.4.5.1.2.1 "Nuclear generation"). Under the terms of these agreements, the liability and certain costs associated with the management of certain radioactive waste are transferred to the British government. However, EDF Energy Nuclear Generation Ltd. remains financially, technically and legally liable for the management, storage and processing of waste that does not come within the scope of the aforementioned agreements.

Directive no. 2011/70/Euratom of 19 July 2011 confirms the Council's intention to establish a shared European framework for the responsible and safe management of spent fuel and radioactive waste (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities").

For nuclear power plants which EDF does not operate, but in which it has financial interests (United States, Belgium, Switzerland), the Group is exposed financially in proportion to its shareholding to contribute to future expenditures related to the management of spent fuel and waste. The Group cannot guarantee that it will have available, in a timely manner and under acceptable financial conditions, long-term storage and treatment solutions for the radioactive waste generated by the power plants which it operates in the relevant countries, which could have an adverse impact on the Group's financial position.

Provisions booked by the Group for spent fuel processing operations and long-term waste management may increase significantly in the event that the assumptions for the costs and work time sequencing are revised.

In France, EDF has booked provisions for spent nuclear fuel management operations (transport, processing, conditioning for recycling) (see note 29.1.1 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016) based on the price and volume conditions of the master agreement signed with AREVA in December 2008 and broken down in the successive implementation agreements. The implementation agreement for the period from 2016-2023 was signed in February 2016 (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues"). The amount of provisions currently booked to cover the period not covered by the current agreement should be reassessed if the terms under which this agreement is renewed prove more onerous than those currently applicable. EDF has also booked provisions for long-term waste management based on an assumption of geological storage, and on a reasonable interpretation of the work conducted in 2006 by a working group comprising ANDRA, the public authorities and radioactive waste producers (see note 29.1.2 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016 and section 1.4.1.1.4 "The nuclear fuel cycle and related issues"). Following new calculations of the costs of deep storage under the supervision of the DGEC in conjunction with EDF, the Minister of Ecology, Sustainable Development and Energy, in an order of 15 January 2016, set the new reference cost at €25 billion under the economic conditions of 31 December 2011. This change in cost was reflected in the Group's late-2016 financial statements (see note 29.1.2 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016). The current estimate is based on the assumptions of the preliminary design and will be regularly revised based on the progress of the project, as stated in the Ministerial order.

The amount of the provisions currently booked is nonetheless subject to change in the upcoming years. Determining the amount of these provisions is sensitive to assumptions made in terms of costs, inflation rate,

long-term discount rate and payment schedules. Pursuant to the French Environmental Code, the amount of these provisions may be controlled by the administrative authority formed jointly by the Ministry for the Economy and the Ministry of Energy, which shall verify in particular the adequacy of the provisioned expenses and imposes a cap on the discount rate for the provisions. Given these sensitivity factors, changes in certain parameters may require significant adjustments of the provisions booked. In such case, any insufficiency of provisions for long-term nuclear commitments may have a material adverse impact on the Group's financial position (see note 29.1.5 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016).

Note 29.1.5.2 "Analyses of sensitivity to macro-economic assumptions" of note 29.1 "Nuclear provisions in France" to the consolidated financial statements as of 31 December 2016 indicates the connection between "costs based on year-end economic conditions", which represent estimated amounts as at 31 December 2016, and "provisions made at present value". Regarding spent fuel management, costs based on year-end economic conditions are estimated at €18.460 million and amounts in provisions at present value are valued €10.658 million. As for long-term radioactive waste management, costs based on year-end economic conditions are estimated at €29.631 million and amounts in provisions at present value are valued €8.966 million, as the discounting effect is very significant due to distant waste storage maturities. Note 29.1.5.2 indicates the analyses of sensitivity of the provisions and the Group's results to a discount rate change, for the different types of provisions.

Provisions booked by the Group for decommissioning operations for nuclear power plants may increase significantly if assumptions are revised. In particular, decommissioning existing nuclear facilities may present currently unforeseen difficulties or be much costlier than currently anticipated.

Given the size of the Group's nuclear fleet, decommissioning presents a significant technical and financial challenge. Although the Group has assessed the challenges, in particular the technical challenges, involved in decommissioning (particularly decommissioning the first-generation power plants in France), and has identified the solutions to be developed, it has not yet decommissioned nuclear power plants similar to those currently in service. Chooz A is a pressurised water reactor already being decommissioned, similar in technology to the 58 units in operation but of older design. The whole decommissioning programme for the first generation of reactors is ongoing (see section 1.4.1.1.6 "Decommissioning of nuclear power plants").

In France, the Group has booked provisions to cover the anticipated costs of decommissioning and managing the last cores. However, the amount of current provisions is likely to change in the next few years. Indeed, determining the amount of these provisions is sensitive to assumptions made in terms of technical processes, costs, inflation rates, long-term discount rates and payment schedules. The amount of these provisions, in accordance with the French Environment Code, is subject to control by the administrative authority, which verifies in particular the adequacy of the provisioned expenses and imposes a cap on the discount rate for the provisions. The timeframe and costs of these works also depend on administrative authorisations and the availability, at required times, of radioactive waste storage centres or other facilities required for conditioning or storing waste packages (see section 1.4.1.1.6 "Decommissioning of nuclear power plants"). The Act no. 2006-739 of 28 June 2006 provided for a dedicated storage centre for Low-Level Long-Life waste (FAVL), such as graphite. The initial search for a site was unsuccessful, and in 2013 ANDRA initiated a new search and submitted a progress report in July 2015 in connection with the National Radioactive Materials and Waste Management Plan (PNGMDR). This report assesses several storage concepts and allows for the possibility of storage of graphite waste on the Soulaïnes site (see section 1.4.1.1.4 "The nuclear Fuel Cycle and Related Issues"). Given these sensitivity factors, changes in certain parameters may require significant adjustments of the provisions booked and, therefore, the Group cannot

guarantee that the provisions booked will equal the costs actually incurred at the relevant time, which would have an adverse impact on the Group's financial position (see note 29.1.3 to the consolidated financial statements for the financial year ended 31 December 2016). The Group regularly conducts an update of the key assumptions underlying the provisions (see note 29.1.5 to the consolidated financial statements for the financial year ended 31 December 2016). Accordingly, for the preparation of its financial statements as at 31 December 2016, the Group revised the estimate and the resulting provisions for the decommissioning of the operating fleet, making it possible to take into account the recommendations of the audit of these provisions made at the request of the administrative authority formed jointly by the Ministry for the Economy and the Energy Ministry whose conclusions were made public in January 2016 by the aforementioned authority.

Regarding the provision for decommissioning operations, costs based on year-end economic conditions are valued €26.616 million and provisions at present value amounts to €14.122 million. As for the last core provision, costs based on year-end economic conditions are estimated at €4.334 million and provision at present value amounts are valued €2.287 million, as the discounting effect is very significant due to distant waste storage maturities. Note 29.1.5.2 "Analyses of sensitivity to macro-economic assumptions" indicates the analyses of sensitivity of provisions and Group's results to a discount rate change, for the different types of provisions.

In the United Kingdom, under the agreements concluded in connection with the restructuring of British Energy, the costs of decommissioning EDF Energy Nuclear Generation Group Ltd.'s existing nuclear power plants will be paid by the Nuclear Liabilities Fund. If the assets of this Fund prove insufficient, these costs will be borne by the UK Government (see section 1.4.5.1.2.1 "Nuclear Generation").

For nuclear power plants which EDF does not operate, but has financial interests (United States, Belgium, Switzerland), the Group is exposed financially in proportion to its participation to contribute to future decommissioning costs.

The amount of dedicated assets in France allocated by the Group to cover the costs of its long-term nuclear business commitments (radioactive waste and decommissioning) might need to be revised upwards and require additional expenditures.

In France, as of 31 December 2016, the market value of EDF's portfolio of dedicated assets was €25.7 billion, compared to €23.5 billion on 31 December 2015 (see sections 1.4.1.1.7 "Assets available to cover long-term nuclear-related commitments (outside the operating cycle)" and 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities" and note 47.3 to the consolidated financial statements for the financial year ended 31 December 2016).

In the event of a significant change in the provisions determining the reference base of the dedicated assets, it might prove necessary to make additional disbursements to adjust the value of these assets, which could have a material adverse impact on EDF's financial position. Moreover, stricter regulations at the national level (in particular those that impact the base for determining the dedicated assets to be constituted by EDF) or European level may lead to more stringent requirements regarding the constitution of dedicated assets and have a significant impact on EDF's financial position.

Lastly, although these assets are constituted and managed in accordance with strict prudential rules (see section 1.4.1.1.7 "Assets available to cover long-term nuclear commitments (outside the operating cycle)"), the Group cannot guarantee that price fluctuations in the financial markets or changes in valuation will not have a material adverse impact on the value of these assets (see section 5.1.6.1.6 "Management of financial risk on EDF's dedicated asset portfolio" for a sensitivity analysis), which could require EDF to disburse additional amounts to restore the value of these assets; such events could have a material adverse affect on the Group's financial position.

In the United Kingdom, funds to finance nuclear commitments are managed by an independent organisation created by the UK government (Nuclear Liabilities Fund – NLF). Operators therefore have no assets to manage for this purpose (see section 1.4.5.1.2.1 "Nuclear generation").

2.1.4 RISKS RELATED TO THE GROUP'S STRUCTURE AND CHANGES WITHIN THE GROUP

The Group's expansion strategy may not be implemented in accordance with the objectives set by the Group.

The Group intends to continue its expansion in the electricity, gas and energy services industries, both in France and abroad, in line with the CAP 2030 strategy, in accordance with its business model for each geographical area and in light of any relevant experience (upstream/downstream balance, marketing strategy, development of energy sources that produce low levels of greenhouse gases: nuclear, hydropower, wind, photovoltaic, etc.). In order to procure the resources for its strategy, the Group thus implements programmes that focus on expansion, reorganisation, increasing profitability (see the discussion below of the risk factor entitled "The Group has set up programmes that aim to improve its operating and financial performance and increase its financial flexibility. The objectives set for these programmes may not be achieved") and disposals.

In the field of nuclear power generation, the Group may not achieve the expansion it anticipates, or it may be unable to carry out projects it has initiated abroad or it may be unable to carry out such projects under satisfactory economic, financial and legal conditions.

Through partnerships or equity investments, the EDF group is committed to international projects for the construction and operation of nuclear power plants (in particular, in China and the United Kingdom). During the development phase, these projects require obtaining administrative authorisations, licences, permits and, in certain cases, setting up additional partnerships. These are major projects involving significant investment, and their funding conditions are subject to confirmation. Given the current economic climate, obtaining such funding may be delayed. Furthermore, the regulatory framework in some countries is in the process of being updated, which could have an impact on EDF's commitments and liability. Even when it has negotiated protective contractual arrangements, the Group cannot guarantee that any or all of these projects will be carried out in accordance with the anticipated schedules, under satisfactory economic, financial, regulatory or legal conditions or that they will, in the long term, generate the profitability anticipated at the outset, which could have a material adverse impact on the Group and its financial position.

In the new energies field, EDF relies primarily on its EDF Énergies Nouvelles subsidiary (see section 1.4.1.4.3 "EDF Énergies Nouvelles"), which does business in numerous countries. The profitability of these developments is often dependent on the support policies adopted in the various countries. The Group cannot guarantee that the support programmes will not change in some of these countries and adversely impact the profitability of investments made.

Furthermore, the expansion of the Group's gas business is an important issue, both in terms of the use of gas in power generation and the development of gas offers (see section 1.4.6.2 "Gas activities"). The outlook for global supply and demand for gas is changing (the boom in unconventional sources of gas, particularly in the United States, rising demand in emerging countries, etc.). The competitive environment for the gas sector is evolving in France and in Europe with the emergence of new operators and the mergers of energy companies. The dependence of European countries on imports of natural gas is already high and continues to increase, due mainly to the depletion of local resources and increasingly distant supply sources. To implement its

gas strategy, the Group must not only have access to competitive sources of supply, but also to logistical infrastructure (such as storage, gas pipelines and LNG terminals) that allow it to transport its gas to locations near points of consumption, have the requisite flexibility and generate synergies between the various entities of the Group, including those which it does not control. The Group cannot guarantee that it will always, under competitive financial conditions, have access to gas supply sources (through long-term contracts or the acquisition of gas fields, for example) or to gas infrastructure, or be able to generate the synergies anticipated. All of these factors may slow the expansion of the Group's gas strategy, which could have an adverse impact on its activities, financial position and outlook. Moreover, in the event of a harsher global geopolitical context, the Group cannot guarantee that it could withdraw from projects in which it has committed itself either rapidly or under acceptable economic conditions (see section 1.4.5.3.2 "Central and Eastern Europe").

Lastly, the Group also intends to develop and reinforce its offer of integrated services, including eco-efficiency energy services, as part of a sustainable development approach. The energy services market is very competitive, and the energy efficiency market has strong development potential (see section 1.4.6.1 "Energy Services"). The integration of Dalkia into the Group since 25 July 2014 reinforces this expertise and development sector (see section 1.4.6.1.1 "Dalkia"). However, the Group cannot guarantee that its service offer will be successful or that it will always be able to implement its expansion policy in this area, which may have an adverse impact on its financial position and outlook.

More generally, the Group may face unexpected changes in its regulatory, economic and competitive context, which may render its decisions inappropriate, or it may encounter difficulties in implementing or changing its strategy, which may have an adverse impact on the Group's business, financial position and outlook.

The Group's acquisition and disposal transactions carry risks and may not always achieve the objectives pursued.

As part of its development strategy, the Group is required to carry out transactions involving the acquisition of assets or equity interests, as well as the creation of joint ventures and, more generally, all types of external growth transactions (See sections 1.4 "Description of the Group's activities" and 5.1.3.11 "New investments and partnerships").

External growth transactions involve *inter alia* the following risks: (i) the assumptions used by the Group in valuing an acquisition may not prove accurate, particularly concerning anticipated market prices, cost savings, profits, synergies and profitability; (ii) difficulties concerning the quality and performance of assets acquired may be encountered or the liabilities of acquired companies may be undervalued; (iii) difficulties integrating the businesses or companies acquired may occur; (iv) the Group may not be able to retain certain key employees, customers or suppliers of the acquired companies; (v) the Group may be required or wish to terminate certain pre-existing contractual relationships on costly or unfavourable financial terms; (vi) the Group may increase its debt to finance these acquisitions, thus limiting its financial flexibility and the opportunity to obtain additional loans in the future; and (vii) the Group may be required to make commitments to the antitrust authorities, which may be implemented on terms that are less favourable than anticipated by the Group.

Consequently, the benefits expected from external growth operations may be lower or may not be obtained as quickly as expected, which could have an adverse impact on the Group's financial position and outlook.

The Group has also carried out and may carry out transactions involving the disposal of assets or equity investments, in particular as part of its plan for disposals announced on 22 April 2016 (see risk factor below, "The Group has set up programmes that aim to improve its operating and financial performance and increase its financial flexibility. The objectives

set for these programmes may not be achieved"). In connection with such disposals, the Group may provide guarantees concerning the assets sold and, consequently, may have to pay compensation or make price adjustments to the purchaser, which could have an adverse impact on the Group's financial position and outlook.

The Group may also decide to not carry out the external growth transactions and disposals it has planned, or to carry them out for a price other than the desired price, due *inter alia* to contractual, financial or regulatory limitations, or political intervention. This may have an adverse impact on the Group's financial position and outlook.

The Group may not hold a controlling majority or it may share control in certain of its subsidiaries and equity interests.

Certain of the Group's business activities are conducted, or may in the future be conducted, through entities in which the Group shares control or in which it is the minority shareholder. In such situations, the Group may experience a deadlock if the partners are unable to agree, or decisions may be taken that are contrary to its interests, which may limit the Group's ability to implement the strategies it has adopted and have an adverse impact on its business activities, financial position and outlook.

The various reorganisations required by market liberalisation could have operational and financial consequences for the EDF group.

The organisation that has been put in place since the market has been liberalised, in which regulated activities are separated from competing activities, may yet generate difficulties for customers or confusions regarding the respective roles that may impact the image of the Group and, in particular, the energy supplier. This separation could also have an impact on the Group's ability to deploy its strategy and financial objectives.

As the Group's majority shareholder, the French government may influence the activities or decisions made by the Group.

Pursuant to Article L. 111-67 of the French Energy Code, the French government is EDF's principal shareholder and must retain ownership of at least 70% of its share capital. Under French law, a majority shareholder controls most corporate decisions, including resolutions that must be adopted by general meetings (in particular, the appointment and dismissal of members of the Board of Directors, the distribution of dividends and amendments to the articles of association, including in the context of share capital increases, mergers or asset contribution deals). In addition, the legal restriction on dilution of the French government's stake may limit EDF's capacity to access capital markets or carry out external growth transactions.

The price of EDF shares could be subject to significant fluctuations.

In recent years, the stock markets have undergone considerable fluctuations which have not always been commensurate with the results of companies whose shares are traded. Such fluctuations in the French and international financial markets could significantly affect the market price of EDF shares. Changes in energy prices, significant regulatory constraints surrounding the energy and nuclear markets, and the increasing demands of nuclear safety authorities also contribute to the volatility of EDF actions.

The EDF share price could also be significantly affected by many factors affecting the EDF group, its competitors, economic conditions in general or the energy sector in particular, for example as a result of political decisions on energy policy.

A share of the Group's workforce is employed by organisations common to EDF and Engie. Therefore, the Group depends in part on management mechanisms set up within these joint structures.

A share of the Group's workforce is employed by organisations common to EDF and Engie (almost all of them by the joint department of Enedis and GRDF, the two distribution subsidiaries of the EDF and Engie groups). Therefore, certain decisions made within these joint organisations can have

an impact on EDF, in particular on its costs and on the manner in which its resources are managed. Furthermore, EDF and Engie may have divergent interests or views concerning these joint structures, which may have an adverse impact on the Group's labour relations, financial results and financial position (see section 1.4.4.2.3 "Service shared by Enedis and GRDF").

The Group does business in numerous countries and may face periods of political, economic or social instability.

Group's activities are described in section 1.4.5 "Group's international business". Certain Group investments and commitments are exposed to risks and uncertainties associated with doing business in countries that may experience, or have experienced, periods of political or economic instability. Several countries in which the Group operates have regulations that are less advanced and less protective, practice or may introduce controls or restrictions on repatriation of profits and capital invested, levy or may levy specific taxes and fees affecting energy businesses and impose or may impose restrictive rules on the business of international groups. In these countries, identified in particular by assessments performed by credit insurance groups (including Coface) the electricity sector is also subject to sometimes rapidly changing regulations or regulations which may be influenced by political, social and other considerations, which may affect the operations or financial position of Group subsidiaries in a way that is contrary to its interests. The occurrence of any of these events may have an adverse impact on the Group's activities, and financial position.

Lastly, the Group has developed or built a portfolio of Independent Power Plants (IPPs) in different parts of the world, including Brazil, Vietnam, Laos and China, in which it plays one or more roles (engineering, project owner, project manager, investor, operator). In these different capacities, the Group may incur liability or its financial performance may be affected, especially if the return on capital employed for the IPPs is lower than expected, if long-term electricity contracts or pass-through clauses, if applicable, are challenged, or in the event of major changes to electricity market rules in the relevant country.

The Group must continually adapt its expertise in a rapidly changing environment and renew a significant share of its workforce, while ensuring experience and skills are transferred to new employees.

The challenges associated with achieving the Group's strategic objectives in a rapidly changing environment (in particular, the full liberalisation of markets, the international development of nuclear power, the development of renewable energies, etc.) require continuously adapting and planning its expertise requirements, especially in functional and geographic areas.

In France, a large number of EDF employees leave the labour force each year, despite the impact of the reform of the special pension scheme for Electricity and Gas Industry employees on average retirement age. For example, within the scope of EDF, around 20% of the workforce could retire between 2015 and 2020 (see section 3.3.1 "Professional excellence: employment and skill development"). Although this situation represents an opportunity to adapt employees' expertise to the Group's new challenges, the renewal of this workforce requires planning the transfer of knowledge and involves competing in the market to recruit the most competent people.

The EDF group considers skills development to be a major challenge and, therefore, takes all necessary measures to recruit, retain, redeploy or renew such skills in a timely manner and under satisfactory conditions. However, it cannot guarantee that the measures adopted will always prove sufficient, which may have an impact on its activities and financial position.

The Group may be required to meet significant commitments related to pensions and other employee benefits.

The pension plans applicable in the various countries in which the Group operates involve long-term commitments to pay benefits to the Group's employees (see note 31 in the appendix to the consolidated financial

statements for the financial year ended 31 December 2016). In France, in addition to these pension commitments, the Group also owes obligations for post-employment benefits and long-term benefits for employees currently in service.

To cover these commitments, the Group has set up outsourced funds or pension funds, as appropriate. At the end of 2016, such assets only partially covered these commitments, although, for the Group, the maturity dates of these obligations are relatively smoothed over time. At 31 December 2016, the average duration of employee benefits commitments was 19.4 years in France and 20.8 years in the United Kingdom.

The amounts of these commitments, the provisions booked, the outsourced funds or pension funds set up and the additional contributions required to make up insufficient funding are calculated based on certain actuarial assumptions, including a discount rate subject to adjustment depending on market conditions and, in the event of any employee-related commitments in France, on the rules governing retirement benefits paid out by the general retirement scheme, and amounts owed by the Group. These assumptions and rules may be adjusted in the future, which could increase the Group's current commitments for pensions and other employee benefits and, therefore, require a corresponding increase in provisions.

Furthermore, if the value of outsourced funds or pension funds proves insufficient to meet the corresponding commitments, in particular in the United Kingdom or France, primarily due to calculation assumptions or developments in the financial markets, (see risk factor above, "The Group is exposed to risks related to financial markets"), the Group may be obliged to make additional contributions to the relevant funds, which may have an adverse impact on its financial position.

Labour disputes could have an adverse impact on the Group's business.

The Group cannot exclude that labour disputes or unrest, such as strikes, walk-outs, claims or other labour disturbances, could disrupt its business. The Group has not taken out any insurance to cover losses due to business disruptions caused by labour movements. Consequently, its financial position and operating results may be adversely affected by labour unrest.

The Group has set up programmes that aim to improve its operating and financial performance and increase its financial flexibility. The objectives set for these programmes may not be achieved.

The Group has set up and may set up programmes that aim to improve its operating performance and increase its financial flexibility. The Board of Directors meeting of 22 April 2016 adopted a performance plan which includes a control of net investments (excluding Linky, excluding HPC and excluding new developments), a reduction in operating expenses and a plan to sell assets by 2020, reiterated by the Board of Directors on 14 December 2016. However, the Group cannot guarantee that the programmes to improve performance that it implements will have the expected results or that those results will be achieved on schedule.

Risks associated with amendments to the IFRS standards applicable to the Group.

The EDF group's consolidated financial statements for the financial year ended 31 December 2016 have been prepared in accordance with the applicable international accounting standards published by the International Accounting Standards Board (IASB), as approved by the European Union as at 31 December 2016 (see note 1.1 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016).

This accounting standards framework evolves and new standards and interpretations are currently in the process of being drafted or approved by the competent international bodies. The Group is studying the potential impact of these standards and interpretations, but cannot foresee their development or potential impact on its consolidated financial statements.

2.2 Internal control within the EDF group

The objective of this section is not to comprehensively present all the control procedures existing within the Group companies, but to focus on control procedures related to activities or risks deemed significant, and on the main long-term procedures in place in 2016, highlighting changes and key initiatives developed during 2016. These internal control and risk management procedures comply with the general principles set out in the AMF risk management and internal control reference framework¹ (published on 22 January 2007 and updated 22 July 2010).

2.2.1 CONTROL ENVIRONMENT

2.2.1.1 Executive Management Steering bodies

The organisation of EDF's Executive Management reflects two major principles: improve integrated group operation while maintaining the independence of the management of regulated subsidiaries and strengthen the role of operational staff in making decisions.

Executive Committee

The Chairman and Chief Executive Officer relies on an Executive Committee in which all of the Group's businesses are represented.

Its composition is set out in section 4.3.1 "Members of the Executive Committee" of this reference document.

This Committee is a decision-making body which reflects and consults on Group operational and strategic matters. It reviews all substantive issues and significant events for the Group, monitors operational objectives and results and contributes to the management and anticipation of major challenges for the EDF group. In principle, the Executive Committee meets weekly.

Meetings of the Executive Committee acting as a "risk committee" are devoted to reviewing and steering risks and reviewing audit activities.

The Chairman/CEO and the Executive Committee launched in early 2015 the "CAP 2030" project to set EDF's course for 2030. Various missions corresponding to the discussions and actions to be undertaken in priority in order to ensure the success of this project were set up. The executive committee regularly reviews these missions.

The Group Executive Committee Commitments Committee

To strengthen the appraisal and monitoring of projects, an Executive Committee's Commitments Committee² thoroughly examines the most significant projects in terms of the extent of the commitments or the risks incurred before decisions are made by the Executive Committee (see section 2.2.3.1.2.1 "Commitments approval process").

Risk Committee

The Risk Committee³ was created at the beginning of 2015. It represents an area for making decisions in order to better manage the risks to which the Group is exposed: it reviews the Group's risk map, identifies among the risk map risks that are a priority for the Group and shares the strategy for dealing with them. It is also a place for exchanging information and passing on alerts regarding emerging risks. Each Executive Committee member sponsors one or more priority risks and, as such, is responsible for defining the strategy for handling the risk and the corresponding action plans, including those defined as a result of audits. It also reviews the Group's audit programme. The committee met twice in 2016 and examined in particular the progress and effectiveness of the action plans aimed at controlling the Group's priority risks.

The General Inspector for Nuclear Safety and Radiation Protection

A General Inspector for nuclear safety and radiation protection is appointed by the Chairman and CEO of EDF, to which he or she reports and whose mission is to carry out inspections in their areas of expertise and to make an annual review of the overall safety of the Group's nuclear fleet. The General Inspector for Nuclear Safety and Radiation Protection proposes areas for improvement to Executive Management.

EDF group Hydropower Safety Inspector

An EDF group hydropower safety inspector is appointed by the Chairman and CEO of EDF to which he or she reports and whose mission is to carry out inspections in their areas of expertise and to make an annual review of the overall safety of the Group's hydropower fleet. The EDF group Hydropower Safety Inspector proposes areas for improvement to Executive Management.

2.2.1.2 Description and management of the internal control system

The Group internal control system is defined in policy "Group functioning principles – Risk management and internal control" (*Principes de fonctionnement du Groupe – Maîtrise des risques et contrôle interne*), approved following the Executive Committee of 23 January 2017.

In the field of EDF's risks management, internal control and audit, the aims of this policy are the followings:

- identify and reinterrogate periodically the significant risks overview and opportunities likely to impact the targets of the Group, in order to ensure the existence and control of existing actions plans;
- ensure on a permanent basis: the compliance with laws and regulations; the respect of the Group's policies; the proper functioning of the internal processes, notably those contributing to the protection of the Group's assets; the reliability of financial information; and more generally the control of risks and activities of all nature.

1. When drafting this section, EDF ensured its consistency with the AMF reference framework, which itself is based on the changes observed in the main international standards, especially COSO II and ISO 31000.

2. The composition of the Executive Committee's Commitments Committee is the same as that of the Executive Committee.

3. The composition of the Risk Committee is the same as that of the Executive Committee. It met for the first time on 13 April 2015.

The fundamental principles of execution are based on the three lines of control model:

- 1st control line: this control rests on each manager of the Group for the missions they have been assigned to;
- 2nd control line: the support functions define common requirements for the Group and supervise their control. Amongst them, functions risks and internal control ensure the supervision of the global control system;
- 3rd control line: this control is the independent audit system (see section 2.2.1.3.2 "Group audit unit").

All the Risks, Internal Control, and Audit processes provide to the Group's managers and governance bodies a "reasonable insurance" with regards to the identification and coverage of the main risks.

These key principles apply to all Group entities, but the procedures for their implementation may be different based on the entities concerned (size, governance conditions, and level of control).

Thus, for the area controlled (excluding regulated subsidiaries), these principles are implemented by Executive Managements with regard to the subsidiaries they control and with regard to EDF's main Operating Divisions, which, in their turn, control several operational units or subsidiaries.

Each Director concerned has appointed an "internal control manager." The network formed by these managers (around 80 individuals) is managed by the Group's Risk Management Department.

An internal control manual in line with AMF's reference framework, which is itself based on developments in the main international benchmarks, in particular COSO II and ISO 31000, has been updated and offered to each entity to serve as a reference in the implementation of its own internal control system. This guide identifies the various cross-functional risk areas throughout the Group and specifies the key control requirements. It is updated annually on the basis of feedback or new control requirements including those related to compliance with Executive Management policies and decisions.

At the end of 2016, each of the 69 entities concerned produced an annual internal control report comprising primarily a self-assessment of risk management and activities under their purview and a description of the progress actions. Each self-assessment gives rise to a commitment by the Director of the entity on the level of control achieved and the actions undertaken. The self-assessments report on the control of the "business line" activities and all the cross-cutting areas identified in the internal control manual, including in particular the areas of action set out in the AMF's terms of reference. New self-assessment templates were tried out at the end of 2015 and generalised in 2016. The self-assessment templates aim to better emphasise managerial responsibility (Director's commitment), prioritisation by risks, and a demonstration of control supported by facts. As is the case each year, the Chairman and Chief Executive Officer and the Audit Committee (23 March 2016) and thereafter the Board of Directors, received a report summarising all these documents and their possible interpretation in terms of the state of internal control within the Group.

The Audit Department conducts comprehensive audits of these entities including a review of the soundness of their internal control at the rate of three to five years depending on their importance.

For other Group subsidiaries (regulated subsidiaries and subsidiaries in which the Group has significant shareholdings), risk management is carried out by EDF representatives within the governance bodies. Thus, they ensure that risk mapping is implemented for each subsidiary, the internal control and audit systems are set out in detail, and information is regularly provided concerning the risk map and audit activities (programme and main results); they also ensure the effectiveness and relevance of each of these systems through periodic audits¹.

The Group's Audit Department and Risk Department provide support:

- to EDF representatives in major subsidiaries to assist them in implementing and steering the approach within the governance bodies;
- to the Directors of the associated Departments, tasked with providing the same support to EDF representatives within smaller subsidiaries falling under their area of responsibility and to report on said matters in their annual self-assessment report.

Since 2015, in connection with the "CAP 2030" project launched by the Executive Committee, a project to modify the internal control was initiated. Its main objectives were validated by the Chairman and CEO in September 2015. This project covers:

- internal control: by strengthening the responsibility of managers, simplifying self-assessment tools and clarifying the various requirement standards set out in the internal control manual. At the end of 2016, this project had been deployed to all entities;
- on Group policies: inventory of existing documents with cross-functional requirements, overhaul and simplification in order to develop and maintain a corpus of about 40 Group policies over the long term. The target corpus was validated by the Executive Committee on 9 May 2016. Policies are being drafted/validated for phased implementation. The policy *Principes de fonctionnement du Groupe – Maîtrise des risques et contrôle interne* presented at the beginning of this section results from this ambition.

2.2.1.3 Participation in the internal control of the Group Risk Department, the Group Audit unit, the Financial Department, the Legal Department, and the Contract Management Department

2.2.1.3.1 Group Risk Department

For many years, EDF has set up policies to manage its operational risks (industrial risks, environmental and health risks, etc.), financial risks and organisational risks.

In addition to these sector-based policies and in the context of a changing environment, EDF decided, as of 2003, to set up an overall risk management and control process reinforcing the existing procedures, in particular by creating the Group Risk Department which is tasked, *inter alia*, with:

- having each Group entity carry out a risk map, either directly within the scope of EDF and the controlled subsidiaries or via the governance bodies for the regulated or co-controlled subsidiaries; and draw up and update the consolidated risk map for the Group's major risks (see section 2.2.2.2 "Risk mapping process");
- alert the Chairman and CEO and the Executive Committee on emerging risks and risks that have not been sufficiently observed;
- lead the implementation of risk management within the different entities, either directly within the scope of EDF and the controlled subsidiaries or via the governance bodies for the regulated or co-controlled subsidiaries (see section 2.2.2 "Group risk management and control") ensuring in particular the completeness and coherence of the various sector-based risk control mechanisms (see section 2.2.3.1.1 "Sector-based risk control mechanisms");
- ensure the internal control policy is deployed and manage the internal control function (see section 2.2.1.2 "Description and management of the internal control system");

1. For regulated subsidiaries, these responsibilities are exercised within the limits set by the regulations in force.

- ensure the energy market risks policy is deployed throughout the scope of EDF and the controlled subsidiaries and, more generally, ensure the control of these energy markets risks, either directly within the scope of EDF and the controlled subsidiaries or via the governance bodies for the regulated or co-controlled subsidiaries (see section 2.2.3.1.1.1 “Control of energy market risks”);
- define and deploy the control of financial risks (rate, exchange, liquidity, equity, credit risks) and counterparty default risk within the scope of EDF and the controlled subsidiaries, ensure that these financial risks are controlled via the governance bodies for the regulated or co-controlled subsidiaries (see section 2.2.3.1.1 “Sector-based risk control mechanisms”);
- verify the comprehensiveness and relevance of the risk analyses carried out for long-term investment and commitment projects which are submitted to the Executive Committee-level bodies for decision;
- ensure the crisis management policy is deployed within the scope of EDF and the controlled subsidiaries and that the crisis organisation is maintained in operational condition at the Group level (see section 2.2.2.3 “Crisis management policy”).

2.2.1.3.2 Group audit unit

The Group Audit unit consists of all the Group, EDF and subsidiary audit resources that conduct internal audit activities. Pursuant to a decision of the Chairman and CEO this function is supervised by the Group Audit Director. The Group audit unit includes the Audit Department and audit teams specific to each of the main French and foreign subsidiaries. Relations between the Audit Department and the various audit teams and their respective powers take into account whether the teams belong to EDF or controlled or regulated subsidiaries. The Audit Department carries out functional supervision of the business line (co-appointment and peer assessment of audit directors of the subsidiaries by the Audit Department – excluding RTE and Enedis-, exchanging best practices, training, sharing tools and methods, etc.). At the end of 2016, the Group audit unit consisted of 65.75 FTE¹.

One of the avenues of the “CAP 2030” project covers audits. In line with the internal control improvement actions which management is asked to carry out, the objective approved by the Executive Committee in September 2015² consists of refocusing the Group audit on its role as third line of defence. In this spirit, some business audit teams which had more of a role of second level of internal control have been reallocated to strengthen the internal control of the structures concerned³.

Performance standards for EDF and the controlled subsidiaries

The Audit Department applies international standards defined by the Institute of Internal Auditors, promotes these standards and monitors compliance with the standards within the controlled scope.

The missions, powers and responsibilities of the auditors as well as the rights and duties of the audited parties are set out in a charter which was updated in May 2016. This charter, signed by the Chairman and CEO reiterates the independent nature of the audit function and specifies the missions and commitments of the internal audit function, the duties and rights of the auditors and audited parties. It is accompanied by a code of ethics applicable to all the Group audit unit as a whole. This code is intended to promote a culture of ethics and serves to reiterate that the auditor must comply with and apply certain basic principles relevant to the profession and the conducting of internal audits.

The Audit Department reports to the General Secretary; the Director of the Audit Department enjoys direct access to the Chairman and CEO and

reports on audit works to the Audit Committee to which it provides with information necessary to determine the adequacy of the audit staff with regard to the implementation of the supervision missions it has to carry out.

All auditors of the Audit Department and Audit Departments of EDF and its controlled subsidiaries (excluding regulated subsidiaries) are trained in the same methodology consistent with international standards. They are recruited from the various businesses of the EDF group as well as from external audit firms. Each auditor is assessed at the end of each mission. Experience as an auditor is part of a path that is both recognised and provides career-oriented qualifications. A memorandum of understanding was signed to this effect in March 2006 between the Audit Department and the Company Executives Development Department.

The key processes relevant to the proper functioning of the Audit Department for the entire chain of its activities (from the drafting of the audit programme up to monitoring of the implementation of recommendations) are set out and coordinated.

In 2014, the audit unit voluntarily submitted to assessment by the IFACI⁴ which certified that its practices comply with international standards for the profession, as it did in 2008 and thereafter in 2011-2012.

Operating procedures for EDF and the controlled subsidiaries

The Audit Department and the Audit Departments of the subsidiaries monitor the internal control systems of the various Departments and controlled subsidiaries. In particular, the Audit Department conducts cross-departmental corporate-level audits and the audit departments of the subsidiaries conduct audits within their scope of responsibility. The Audit Department is the sole entity empowered to carry out audits of subsidiaries for corporate-level risks.

The audit programme is reviewed by the Chairman and CEO, the Risk Committee, and thereafter by the Board of Directors. It is drawn up to reflect:

- the need to audit the main Group entities (Departments and subsidiaries) at intervals suited to their importance in order to assess in particular their internal control is correctly implemented;
- the main accounting and financial processes and “Group Head” processes (human resources, information systems);
- major projects;
- risks of the Group’s risk mapping which were not addressed by the aforementioned audits at intervals suited to the critical nature of the risk;
- monitoring of Executive Management decisions.

The programme of the audit teams of the subsidiaries is coordinated with the Audit Department programme.

All audits give rise to recommendations which, once validated by the audited parties and their management, become the subject of action plans drafted by the aforementioned management and audited parties and are sent to the Audit Department. In the next 12 to 18 months, the Audit Department will ensure the application of these corrective actions or any other action decided by management in order to put a halt to any irregularities detected by the audit. The audit is deemed to be concluded satisfactorily only when the irregularities have been corrected. Conversely, any unsatisfactory conclusion or conclusion with reservations will result in an appropriate management alert.

These principles are applied in the same terms by the entire audit unit.

The Audit Department prepares a biannual summary report summarising the highlights of the audits for the entire scope of the Group audit unit, the main corporate audit findings and the corresponding recommendations, and the result of the corporate audits closed during the period. Furthermore, it identifies any recurring or generic problems observed in several audits

1. “Full-time equivalents” in 2016 on a like-for-like basis compared to the end of 2015.

2. After review by the Executive Committee meeting as the transformation committee and submission to the Audit Committee.

3. Business audit teams for EDF SA (Production, Engineering, Commerce, Asia Pacific), audit EDF Polska, EDF Trading, EDF Luminus.

4. Institut Français de l’Audit et du Contrôle Interne (The French Institute of Audit and Internal Control).

over the period which merit special attention on the part of Management. It provides an audit-based vision of the level of control of the Group's risks. This report is presented to the Chairman and Chief Executive Officer, the Risk Committee and thereafter to the Audit Committee and the Board of Directors.

2.2.1.3.3 Finance Department

The Group's Finance Department is made up of five Departments:

- The Performance Steering and Finance Unit Management Department is tasked with:
 - contributing to the management of the performance of the Group's entities by helping define the Group's performance plans and by challenging the measures implemented by the entities and business lines. To this end, it sets up a set of management indicators adapted to the economic model of each Group activity;
 - contribute to the monitoring of the implementation of the budget through generalised regular performance review within the Departments and the controlled subsidiaries;
 - conducting portfolio reviews and economic and financial optimisation analyses;
 - developing and disseminating financial management methods and processes, contributing to the dissemination of the management culture within the Group; and
 - facilitating the Finance unit.
- The Reporting Plan and SI Finance Departments are tasked with:
 - overseeing the processes of the Group's management cycle (budgets, revisions of forecasts and medium-term plans) to synthesize them and propose arbitrations at Group and subsidiary level for the Group as a whole. Its role is to alert and make propositions in the pre-decision-making analysis of the financial consequences of the operations envisaged, or the performance levels proposed;
 - developing medium- and long-term financial trajectories;
 - conducting internal control and risk management for the entire Finance Department;
 - supervising the work of Finance's information systems.
- The Accounting and Tax Department is tasked with:
 - preparing EDF's parent company financial statements and the Group's consolidated financial statements;
 - ensuring accounting compliance by developing Group standards that reflect accounting standards and the chart of accounts to be applied;
 - defining and updating the internal accounting and financial control policy, updating, for EDF, the internal control materials relating to the control of accounting and financial information;
 - ensuring the consistency of tax policies within the Group;
 - ensuring that legal and declaratory obligations have been properly fulfilled, in particular by carrying out monitoring of the legal and regulatory obligations;
 - ensuring the accounting follow-up of the deferred tax position and the periodic justification of the accounts;
 - identify and controlling the Group's tax risks.
- The Finance and Investment Department is tasked with:
 - ensure the financing of the Group and its subsidiaries;
 - managing the investments and acquisitions and disposals as well as the listed or unlisted dedicated assets;

- appraising the investment projects submitted during Executive Committee Commitment Committee meetings in order to anticipate the impacts and to make the potential financial trajectories more reliable on the Group's balance sheet and profit and loss accounts;
 - coordinating all the actions inherent in the Group's balance sheet and financial result, with the aim in particular of controlling the exposure of the Group's hedging assets, debt and the Group's overall balance sheet to financial risks;
 - developing and implementing innovative insurance coverages at the best market standards designed to support the development of the Group in all its dimensions.
- The Investors and Markets Department is tasked with:
 - ensuring the financial communication of the Group;
 - overseeing with the Legal Department the organisation of general meetings of shareholders;
 - ensuring the overall relationship with individual and institutional shareholders.

The control mechanisms for the Management Control, Accounting and Taxation business lines are part of the Group's internal control policy in the operating entities. These mechanisms relate to the implementation of sector policies, which concern, in particular, for the management control area, the management cycle and steering – monitoring of investments – and for accounting and taxation area, the reliability of accounting and tax information and the fight against fraud.

The Finance Management Directors of the Departments of the business lines and Subsidiaries sit on the Management Committee of the entities to which they belong. They are appointed and assessed jointly by operational management and management of the Management Control business line.

For subsidiaries, accounting internal control policies are the responsibility of each corresponding legal structure.

2.2.1.3.4 Legal Department

The Legal Department, which reports to the General Secretary, is tasked with protecting the Group's interests and securing its activities, by providing support, advice and expertise. It is also tasked with anticipating and planning on a long-term basis how to protect the Group's interests and contributing to its performance, in particular by optimising contractual issues and legal solutions.

In order to strengthen the overall control of the Group's legal risks, the Chairman and CEO decided, pursuant to a decision dated 23 September 2014 to create a Group Legal Unit whose supervision has been entrusted to the Group Legal Director.

In addition to the Legal Department's contribution to the Group's internal control as referred to in section 2.2.1.3.4 "Legal Department" and section 2.2.3.3 "Internal control procedures relating to compliance with laws and regulations", quarterly Group legal reporting covering litigation and major or sensitive cases has been set up.

Furthermore, a contract library ensures the dissemination and control of sensitive EDF contracts. This contract library, forming part of the internal control system, is a secure process identifying and digitising major contractual commitments for EDF and certain subsidiaries (excluding regulated and jointly-controlled subsidiaries). This system has been completed by a decision and an implementing memorandum regarding the control of major contracts stipulating that originals of major contracts meeting specific criteria are to be centralised in secure national facilities.

Lastly, the Legal Department has set up a knowledge management system to ensure the Legal Department's doctrine is consolidated, standardised and shared and establish a legal watch for legislative topics and case-law of major interest to the Group.

2.2.1.3.5 Contract Management Department

Improved management of contracts entered into by EDF is a major issue in controlling operations, delays and associated costs. The Group therefore wished to create a "Contract Management" support function within the Group aimed at improving risk management and creating opportunities in the management of its contracts. This function calls upon Contract Managers positioned in the business lines throughout the contractual process.

The Contract Management Department, which was created in August 2014 and reports to the Group Legal Director, is responsible for structuring this support function, managing the Contract Management unit, measuring its performance and professionalising the Contract Management stakeholders.

In order to set up and guarantee contractual control as a performance lever, the Contract Management Department ensures in particular:

- the assignment of Contract Management Managers in the Business Line Divisions/Departments. These managers help deploy the Contract Management unit and monitor contractual risks and steering indicators;
- the hedging, by a Contract Manager, of contracts exceeding €10 million through a reporting tool;
- the provision of Contract Management reference materials and methodological tools; and
- the professionalisation of Contract Managers.

2.2.1.4 Delegations of authority and technical authorisations

The Chairman and CEO delegates some of his or her powers to certain members of the management team.

The organisation put in place for procurement is designed to ensure proper control of the purchasing processes. Procurement contracts are signed, depending on the thresholds, either by the Chairman, a Group Executive Director or any of their delegates following signature by the Procurement Department Director or any of their delegates. Signature by the Procurement Department Director or their delegates formally recognises that the instrument complies with the procurement process. Each Group Executive Director is expected to reinforce the internal control system for procurement instruments submitted for their signature and those procurement instruments directly handled by their Management. The Chairman and CEO has delegated the nuclear operator liability to the Group Executive Director for the Nuclear and Fossil-fuel Fleet Department and the Group Executive Director for the New Nuclear Engineering and Projects Department, who then sub-delegated it to the Directors of the Divisions involved which have, in their turn, sub-delegated it to unit managers.

Authorisations are issued by each facility manager, who must ensure beforehand that the associated skills have been assessed. These requirements apply to all persons carrying out work, both for staff of EDF and service providers.

The Legal Department prepares and updates delegations of authority whenever required by changes in the organisation of EDF. Moreover, a handbook on delegations of authority drafted by the Legal Department was updated and distributed in 2016. This handbook is designed to serve as a tool to inform and educate EDF entities on the nature and consequences of delegations of authority along with their management rules.

2.2.1.5 Ethics and environmental quality approaches

2.2.1.5.1 Ethics and compliance approach

The Group Ethics Charter, which has been deployed since the end of 2013, defines the rules and principles that must guide the actions and conduct of Group employees on a daily basis. It is available on the Group's website in French and English. At the end of 2016, the Charter had ten other language versions: German, Spanish, Hungarian, Italian, Mandarin, Dutch, Polish, Portuguese, Russian and Vietnamese.

In December 2015, the Ethics and Compliance mechanism of the EDF group was strengthened with the creation of a Group Ethics & Compliance Department (DECG), the appointment of a Group Ethics and Compliance Director who, together with their team, assists officers and, more generally, all the Group's employees, and the implementation of a Group Ethics and Compliance Programme. This programme was created to meet the requirements of national and international regulatory authorities and local practices.

On 17 May 2016, the EDF group Executive Committee adopted the EDF group Ethics & Compliance Policy (PECG), which brings together the main rules that Officers must imperatively know, observe and enforce in their entities, which are strictly aligned with the risks of these entities. This is a single document which complements the Group Ethics Charter. It is subject to audits and may be updated on the basis of any new regulations which might become applicable. The EDF PECG covers: prevention of the risk of corruption (control of the integrity of business relations, supervision of gifts and invitations); financial ethics (prevention of the risk of money laundering and financing of terrorism, prevention of market abuse, compliance with the EMIR regulation); prevention of breaches of competition Law; prevention of conflicts of interest; protection of personal data security; the fight against fraud; the fight against harassment and discrimination; compliance with sectoral regulations (REMIT regulations, dual-use goods); compliance with international sanctions programmes.

Preventing the risk of corruption is a priority for the PECG. An instruction note on the verification of the integrity of business relations clarified this issue. A training programme "Prevention of Corruption Risk" meeting the requirements of the supervisory authorities has been specifically set out from mid-2016 for officers and managers. The programme has been validated through UN-recognised certification. An e-learning "Preventing corruption" module aimed at all employees is also available.

In 2016, the Ethics and Compliance Department created a network of some 40 Heads of Ethics and Compliance (RECs) in entities in France and abroad. The RECs report directly to entity officers and attend management committees for updates and follow-ups on management of ethics and compliance issues. They have the means to deploy and enforce the PECG.

In 2016, the existing ethics alert system was strengthened and expanded. It now includes themes related to compliance and enables any whistleblower acting in good faith to report a breach of the commitments contained in the Group Ethics Charter or the Ethics & Compliance Policy in a confidential and secure manner. The Ethics & Compliance Department leads the Group Ethics Commission and reports to the Board of Directors' Ethics Committee. It responds to any internal or external consultations and any alerts at the Group level (so-called "central" warnings) addressed to it.

A chapter specifically covering Ethics and Compliance is included in section 3.1.3.3 "Group ethics and compliance rules" of this reference document.

2.2.1.5.2 Environmental quality approach

For many years, the EDF group has taken into account issues relating to sustainable development and made sustainable development a real dimension of its overall strategy.

The CAP 2030 strategic project aiming to make EDF “an efficient and responsible electrician, championing low carbon growth” established new prospects for the Group’s sustainable development and environmental dynamics.

Six Corporate Responsibility Objectives, backed by CAP 2030 and specifying the Group’s trajectory, were developed and implemented in 2016:

- go beyond the requirements of the 2°C trajectory set by COP 21 by drastically reducing our CO₂ emissions;
- incorporate the best practices of industrial groups in the field of human development: health/safety, gender equality and internal social promotion;
- propose information and solutions in terms of energy consumption and access to rights to assist all sections of the population experiencing difficulties;
- innovate through digital energy efficiency solutions so that customers can optimise their consumption;
- organise, on a systematic basis throughout the world, transparent and debated discussions and consultations around each project;
- launch a positive approach to biodiversity, not merely being aware of or decreasing the impacts of our activities in order to have a positive effect.

The Sustainable Development Committee (SDC) serves as the environmental Management Board at the Group level and is in charge of coordinating the environmental management system in accordance with ISO 14001.

The EDF group maintains its ISO 14001 certification obtained for the first time on 9 April 2002. The scope of certification encompasses EDF (including all its operational entities and most of its functional entities), several French subsidiaries (including Dalkia, Électricité de Strasbourg, EDF Énergies Nouvelles, etc.), and a number of international subsidiaries including EDF Energy, EDF Luminus, EDF Trading, Edison.

The processes implemented as part of this certification help to reinforce the control of the Group’s environmental risks, in particular with regard to regulatory aspects and environmental issues at stake by assuring its stakeholders of a structured and tailored organisation.

2.2.1.5.3 Control of financial risks associated with climate change

The EDF group has identified, through its risk mapping process, the physical and financial risks associated with the effects of climate change. To help reduce these risks, since 2010, EDF has been implementing a strategy to adapt its existing assets to the consequences of climate change, and assesses its investments, in particular during review by the Executive Committee Commitment Committee, in terms of both their contribution to climate change and susceptibility to the consequences of climate change. Finally, as a result of the CAP 2030 strategy designed to make EDF the champion of low-carbon growth (see section 1.3 “EDF group strategy” in the Reference Document), climate change represents both an opportunity and a risk for the Group.

2.2.1.6 The organization and management of Information Systems (IS)

Each of the Group entities (Departments or subsidiaries) is responsible for oversight within their perimeter and the Group Information Systems Department is responsible for oversight for shared infrastructure and services. Depending on the guidelines adopted in conjunction with each Department, oversight responsibilities are distributed between the relevant Department and the Shared Information and Telecommunications Services Department, which plays a cross-departmental role for EDF and certain subsidiaries.

The Finance Information System (IS) comprises a common basis for all the Group’s departments, as well as tools specific to each of the entities or subsidiaries according to the specificities of the country or activity and raises several important issues in terms of data integrity and application availability. The Group Executive Director for Finance has delegated oversight of the Finance Information System to the Finance Information Systems Department, which coordinates the daily operation of central applications, manages changes, and implements all necessary steps to ensure the security of the Information System.

Governance of the Information System unit is characterised by a scope being extended to all non-regulated Group subsidiaries. Coordination is entrusted to the Group Information Systems Department to ensure Information System synergies and performance to serve business strategies.

Strategic decisions and trade-offs are reviewed, depending on their nature and the related scope, by one of the EDF Committees mentioned in section 2.2.1.1 “Executive Management Steering bodies” or by the France Information Systems Directors Committee, or by the IS Group Committee (ISGC) which also comprises Information Systems Directors of Group subsidiaries, excluding regulated subsidiaries. An IT Industrial Policy Committee makes decisions regarding IT industrial strategies for EDF SA and makes recommendations for subsidiaries.

Moreover, the Group Information Systems Department also ensures that the Information System strategy is coherent in the medium term; in this context, the vision for the Information System for 2020 and the associated strategic guidelines were updated in 2016.

Lastly, the Group Information Systems Director is responsible for coordinating, on behalf of the Group Executive Director for Innovation Strategy Programming, the deployment of the Group’s internal digital transformation. As such, the Group Information Systems Director relies on the persons appointed throughout the various businesses as his or her Correspondents.

2.2.1.7 External controls

Like all listed companies, EDF is subject to review by the AMF (French Financial Markets Authority).

As a company majority owned by the French government, EDF is subject to control by the *Cour des comptes* (French Court of Auditors), State controllers, the Inspectorate of Finance, Economic Affairs Committees or ad hoc committees of inquiry of the French National Assembly and Senate and Markets Committee.

According to law, the Statutory Auditors certify the annual financial statements (parent company and consolidated financial statements) and perform a limited review of the Group’s half-yearly condensed consolidated financial statements. They issue a report on the annual report of the Chairman of the Board of Directors prepared pursuant to Article L. 225-37 of the French Commercial Code (*Code de commerce*).

In light of its activity, EDF is also subject to control by the Energy Regulatory Commission (*Commission de Régulation de l’Énergie*) and the Nuclear Safety Authority (*Autorité de sûreté nucléaire, ASN*).

The findings of these various external controls feed into the internal control and audit programmes, among others.

2.2.2 GROUP RISK MANAGEMENT AND CONTROL

2.2.2.1 Risk management and control approach

The objectives of the risk management and control approach are to:

- contribute to securing the Group's strategic and operational progress by:
 - identifying and ranking risks in all fields (operational risks, external risks, strategic risks, including risks related to the consistency of actions with the Group's values, including any associated opportunities and any risks related to the preservation of the Group's value, assets and reputation), in order to ensure increasingly firm control thereof,
 - increasing awareness and mobilising all Group entities to identify, assess and handle risks in order that all managers are aware of the risks inherent in their activities and take the actions necessary to control such risks;
- provide the EDF's officers and directors and governance bodies with a consolidated, regularly updated view of major risks and their level of control;
- meet stakeholders' increasing need for information regarding management of the company's risks.

The operational and functional entities are responsible for managing risks within the scope of their activity, under the responsibility of the Group's Executive Management. Management of the Group's risks is regularly reported during Risk Committee meetings.

The Group's risk management and control approach is applied either directly to EDF and its controlled subsidiaries or through the governing bodies of regulated subsidiaries or jointly-controlled subsidiaries.

This approach is based on a system of risk control that is independent¹ of the risk management functions. This system ensures in particular a standard approach with respect to the identification, assessment and control of risks.

2.2.2.2 Risk mapping process

Under those principles, the EDF group prepares a consolidated mapping of its major risks for the scope of EDF and its controlled and jointly-controlled subsidiaries. This consolidated risk mapping is prepared by each operational or functional entity using a shared methodology (typology, principles for identifying, assessing and bringing risks under control, etc.). Each identified risk gives rise to a detailed action plan. Priority risks are placed under the responsibility of one or more sponsors within the Executive Committee.

The updating of the risk mapping is the subject of extensive discussions conducted regularly between the Group Risk Department (see section 2.2.1.3.1 "Group Risk Department") and each of the contributing operational and functional entities. These discussions aim to question the relevance of the identification of risks and the soundness of the control additions undertaken.

The consolidated mapping completed at the end of the year is approved by the Risk Committee and presented to EDF's Board of Directors after review by the Audit Committee.

Since 2015, the Risk Committee has identified within the Group risk mapping a smaller set of "priority risks" selected as a result of their operational or strategic importance. The connection between these risks and the CAP 2030 strategic project has been given priority so that risk control action plans may be included in the corresponding works as much as possible.

The risk mapping and control measures are closely associated with the Group's internal control and internal audit functions, and the audit programme is prepared, *inter alia*, on the basis of the major risks identified. Moreover, the overall risk mapping process provides support for numerous other processes, such as the policy concerning insurance and its implementation, the crisis management policy and the analysis of risks concerning matters examined by EDF's steering bodies (the Executive Committee, the Group Executive Committee Commitments Committee (CECEG), etc.), in particular, the risk management process, through risk mapping, contributes to securing the long-term investment and commitments process by ensuring the quality of the risk analyses for the matters presented to the Executive Committee's commitments committee. Lastly, the major risks to which the Group is exposed are set out in section 2.1 "Risk factors and control framework" of the 2016 reference document in line with the late-2016 Group consolidated risk map.

2.2.2.3 Crisis management policy

The new version of the crisis management policy, approved by the Executive Committee in January 2017 sets out the crisis management and organisation principles for the scope of EDF and its controlled subsidiaries and specifies all the measures required for its implementation. This policy consists in particular of:

- ensuring that crisis management structures and permanent systems for reporting alerts exist in all Group entities;
- verifying the existence and regular updating of relevant crisis management procedures in each EDF Department and in the controlled subsidiaries for the risks involved;
- defining, for the crisis periods, the procedures for coordinating with all the subsidiaries² – possibly via the Departments to which they report;
- ensuring feedback from crises and crisis exercises is systematically applied in order to avoid or reduce the consequences of similar crises;
- verifying that professional development actions exist for all those involved in crisis situations.

The internal control system of the crisis management policy is integrated into the Group internal control system. Moreover, a crisis exercise programme allow these mechanisms to be tested in terms of their effectiveness and overall consistency. Lastly, the crisis organisation is regularly readjusted to reflect any significant changes in the internal organisation or external environment and based on feedback following major crises.

1. Units composed of heads responsible for mapping and risk control (see section 2.2.3.1.1 "Sector-based risk control mechanisms").

2. Coordination in times of crisis for RTE is organised under the auspices of the public authorities.

2.2.3 GROUP CONTROL ACTIVITIES

2.2.3.1 Control procedures associated with the proper functioning of internal processes

2.2.3.1.1 Sector-based risk control mechanisms

2.2.3.1.1.1 Control of energy market risks

Each year, Senior Management validates the entities' hedging strategies, as well as the associated risk limits, submitted for its approval by the Group Risk Management Department. These strategies are based on a Group energy market risk policy approved by the Executive Committee. This policy sets out the management of these risks for the scope of EDF and any subsidiaries for which it carries out operational control and specifies all the mechanisms necessary for its implementation and the monitoring of its enforcement. For jointly-controlled subsidiaries and companies that are not under the Group's operational control¹, the energy markets risks policy and the control process are reviewed within the context of the governance bodies of these companies.

This policy describes:

- the governance and measurement system, clearly separating the risk management and control responsibilities and making it possible to monitor exposure over the scope defined above;
- the risk control processes involving EDF's Senior Management in the event that risk limits are exceeded; a strengthened control system has been put in place for the EDF Trading subsidiary in light of the specific nature of trading activities;
- the two-tiered organisation of the energy markets risk control unit, the entities carrying out operational control and the Group Risk Management Department ensuring second-level control.

The EDF Audit Committee issues an opinion to the Board of Directors regarding the energy markets risk policy and any changes to the policy proposed by the Group Risk Department. The expectations, main provisions and procedures for implementing this policy are described in section 5.1.6.2 "Management and control of energy market risks".

2.2.3.1.1.2 Financial risks and investments control

In particular, the Group Risk Department is responsible for the control of market risks (rates, exchange, equity, credit), liquidity risks and counterparty risks for EDF and the controlled subsidiaries. This control is exercised through:

- verification that the financial management framework and Group counterpart default risk policy principles have been properly applied, in particular through support and control missions (methodology, organisation, monitoring of exposure, regular calculation of risk indicators and monitoring Group risk thresholds compliance);
- control of market positions of the EDF trading room in charge of cash management. For these activities, a system of indicators and risk thresholds checked daily and on a weekly basis has been set up to monitor and control exposure to financial risks. This involves the Finance and Investment Department, the trading room of the Group Risk Department and the Group Risk Department, which are immediately called upon to take action in the event the thresholds are exceeded.

The Markets Committee (body bringing together the various Finance and Investments Department entities concerned and the Group Risks Department) checks and reviews on a quarterly basis, where necessary, requests for exemptions to the work management framework and requests for new product investments;

- control of financial and counterparty risks associated with investments for the "Dedicated Assets" portfolio, managed by the Listed Assets Management Divisions (financial portfolio) and EDF Invest (unlisted portfolio – real assets: investment funds, infrastructure and real estate) of the Financing and Investments Department. Regarding the "Dedicated Assets", the policy governing the creation, management and control of EDF SA's financial risks was updated and approved by EDF's Board of Directors on 11 February 2015. An annual risk mandate along with specific frameworks have been set up by the Group Risk Department to set out the risk management principles and admissible risk thresholds for both portfolios as well as at the overall level. The Operational Management Committee chaired by the Financing and Investments Director is the steering body for the financial portfolio (listed assets), whereas the Investment Committee chaired by the Group Executive Director responsible for Group Financial Management is the steering body for the unlisted portfolio. The Group Risk Department participates in these two committees for the purpose *inter alia* of preparing alongside managers the risk management strategy for both portfolios. Furthermore, the Dedicated Assets Monitoring Committee monitors the portfolio as a whole. It is configured as a Risk Committee chaired by the Group Executive Director responsible for Group Financial Management;
- control of the completeness and relevance of the risk analyses performed for long-term investment and commitment projects, submit to the Executive Committee-level bodies for decision.

To ensure the independence of the financial risk control structure with regard to the management activities for these risks, the Financial Risks and Investments Control Department reports to the Group Risk Department, which itself reports to the General Secretariat.

2.2.3.1.2 Specific controls

2.2.3.1.2.1 Commitments approval process

The Group Executive Committee Commitments Committee which is composed of all Executive Committee members, will review, following tentative approval by any of its members, all projects committing the Group (excluding regulated subsidiaries and jointly-controlled subsidiaries) covering:

- investment, divestment, and merger and acquisition projects exceeding €50 million (excluding strategic disposals);
- expenditure covering supplies, works or services in an amount exceeding €200 million;
- long-term purchase or energy and emission credits and CO₂ quotas for annual volumes or amounts exceeding 5TWh for electricity, 10TWh for gas and €150 million for coal, oil, emission credits and CO₂ allowances;
- the multiannual programme to supply back-end reactors and services of the nuclear fuel cycle;
- operations transferring obligations concerning the decommissioning or back-end of the nuclear fuel cycle;
- budget envelopes associated with certain programmes;
- strategic decisions likely to commit the group over the long term through several investments not exceeding €50 million each.

1. In the case of regulated subsidiaries, these responsibilities are exercised within the limits set by the regulations in force.

Group Executive Committee's Commitments Committee meetings are systematically preceded by meetings attended by corporate-level experts (Group Risk Department, Legal Department, Finance Department, Sustainable Development Department, Strategy Department, Procurement Department, etc.) and project developers in order to verify compliance with the "Commitments and Investment Monitoring" policy and the comprehensiveness of the risk analyses of the projects that are presented. This work relies upon methodological standards for analysing the risks of developments projects.

Whenever necessary, the proposed commitments are then reviewed by the Board of Directors as described in section 4.2.2.4 "Powers and duties of the Board of Directors".

The policy stipulates that proposed commitments in an amount less than that for which the Group Executive Committee Commitments Committee must be consulted are to be reviewed by governance bodies specific to each entity.

Strategic disposal projects are covered under separate instructions in order to preserve confidentiality and responsiveness. These projects are under the responsibility of a member of the Executive Committee and the Group Executive Director in charge of the Group Finance Department once the Executive Committee has issued tentative approval after consulting the Strategy Department. The system involves the support departments necessary for the proper examination of the project and the decisions on the assignments are supervised by an ad hoc committee, the "Assignments Committee".

2.2.3.1.2.2 Control of the Information Systems (IS)

Organisation of the internal control of the information systems unit

The internal control system of the IS unit forms part of the Group Internal Control Policy (propositions for joint key requirements for the Group) and covers control of the implementation of information systems policies and the control of major cross-departmental IS risks. The main requirements concern shared infrastructures and services, security of the Information Systems, governance of IS projects, management of IS risks and compliance with the French Data Protection Act.

As a reminder, the internal control information framework of EDF's IS is based on the external COBIT (Control Objectives for Information and related Technology) information framework.

Internal control and cover of the risks specific to IS issues is coordinated by the Group Information Systems Department at two levels in the unit's organisation: a network of IS risk and internal control correspondents and the Information Systems Directors Committee, which represents the departments. The Group Information Systems Department ensures close coordination between the networks of IS risk and internal control correspondents and IS security managers, strengthening coverage of risks and internal control for EDF. These networks are progressively being extended to subsidiaries.

In France, the France Information Systems Departments Committee appoints the Security Committee to plan and steer cross-departmental security-related work. In particular, it performs the following roles:

- contribution to the preparation and updating of the EDF-SA security reference documents. Coordination of the management, awareness building, training, and support for the IT unit and business lines in the areas of Information System security;
- incorporating institutional and technical monitoring with regard to the security of the overall feedback (application, compliance, efficiency, incidents, reporting, reviews, audits);
- examining complex dossiers requesting an exemption from the security policy.

The EDF group Information Systems Security policy structures the guidance and organisation of the group's IS security. Two dedicated committees monitor for EDF SA and in Group subsidiaries any changes to this policy and the level of security:

- monthly for EDF SA within the framework of a committee chaired by the EDF group IS Security Manager, including the Information Systems Security Managers for the entities falling within the scope;
- quarterly for the major subsidiaries by a committee chaired by the EDF group IS Security Manager, including *inter alia* the Information Systems Security Managers for the major subsidiaries.

Actions in the field of IS security

2016 was marked by:

- a decision by the Executive Committee on the setting of cybersecurity targets in the annual performance contracts of the entities and securing the budgetary elements in order to reinforce the level of security;
- the finalisation of a new IS user charter (end users and administrators) taking into account the development of digital uses; its deployment is planned for 2017;
- the approval by the business lines of mapping of high-security applications and of the corresponding requirements to be applied;
- a new "cyber attack" exercise being conducted with active participation of part of EDF's Top Management from the Information Systems and Business Lines unit;
- the implementation of two "Business Continuity Plan" exercises for the EDF data centres;
- support for decisions to implement outsourced IS through systematic analysis of the risks;
- an increased number of vulnerability reviews of the most critical infrastructures and applications;
- the enhancement and extension of cyber surveillance capabilities by upgrading the Security Operational Center (SOC).

2.2.3.1.2.3 Administration and monitoring of subsidiaries

Under the new "Corporate Officers" policy signed by the Chairman and CEO on 15 January 2015, any EDF subsidiary or entity in which EDF holds an interest (excluding regulated subsidiaries) is monitored by a corresponding Director who is a member of the Executive Committee or by their Delegate. The Director or their Delegate proposes corporate officers representing EDF on the governance bodies of these companies; the appointments are lastly approved by EDF's Chairman and CEO.

This policy also requires that the approval of Executive Management be obtained before incorporating any subsidiary or acquiring any holdings in France and abroad.

The Administrators and Companies Delegation, which reports to the Group Legal Department, ensures in particular:

- updating of the corresponding risk map for the companies pursuant to decisions made by the relevant Management;
- monitoring of the "target compositions," shared prior visions of skills, profiles necessary for satisfactory representation of EDF in the governance bodies of the subsidiaries and entities in which EDF holds an interest;
- compliance with the appointment process for corporate officers;
- professional development of corporate officers (initial training seminar for new corporate officers with support from the Group University, information via the intranet site of the community of administrators).

2.2.3.1.3 Other control policies

The EDF group Insurance Policy, approved by the Chief Financial Officer in October 2012, was implemented in 2013.

A genuine tool for integrating Group entities and subsidiaries, this policy defines the scope of coverage by covering all Group missions and perimeters.

In addition to the governance mechanism:

- since 2004, in the Audit Committee, the Director of the Group Insurance Division reviews the situation and the costs of EDF's risks hedging through insurance or transferring risks to financial markets;
- since 2011, a Committee of Strategic Operations (COSA) chaired by the Group Executive Director in charge of Finance, fosters reflection between business lines and financiers on any developments to and terms of implementation of the Insurance Policy, in particular, with regard to the main features of the insurance coverage programmes.

2.2.3.2 The internal control procedures relating to reliability of financial and accounting information

2.2.3.2.1 The AMF reference framework

The internal control manual was entirely restructured in 2011 with regard to control of accounting and financial information in order to bring it into line with the AMF (French Financial Markets Authority) reference framework as revised in 2010. It was also revised in 2015 and 2016 to fit into the Group's new internal control dynamic. The fundamentals of governance, roles and responsibilities remain unchanged.

2.2.3.2.2 Group accounting principles and standards

The accounting standards used by the EDF group (the scope of the consolidated financial statements are included in the notes to the consolidated financial statements (see chapter 6 of this reference document) comply with the international standards published by the International Accounting Standards Board (IASB) approved by the European Union and applicable as at 31 December 2016. These international standards include the IAS (International Accounting Standards), IFRS (International Financial Reporting Standards) and the SIC and IFRIC interpretations. The accounting rules and methods are described in the Group accounting principles manual and summarised in the notes to the consolidated financial statements.

A network of correspondents from the operational Departments and subsidiaries facilitates dissemination of the instructions and harmonised accounting implementation throughout the various Group entities.

2.2.3.2.3 Procedures for preparing and controlling the consolidated financial statements

The consolidated financial statements are prepared by the Group Accounting and Taxation Department on the basis of the data entered locally by each entity (entities of the parent company and subsidiaries) in accordance with the Group standards and closing instructions, according to a single plan of charts. The scope of consolidation is closed after noting all companies of significance that are controlled, jointly-controlled or under significant influence. The non-significant nature of entities for which EDF holds an interest and which might fall under the Group's scope of consolidation is reviewed on a quarterly basis and submitted to the statutory auditors for assessment once a year.

The half-year consolidated financial statements are presented to the Audit Committee and then approved by the Board of Directors.

The annual consolidated financial statements are reviewed by the Audit Committee, then closed at 31 December of the fiscal year by the Board of Directors of EDF and lastly approved by the General Meeting of Shareholders.

Each annual and semi-annual results in the drawing up of instructions specifying the key deliverables expected from each stakeholder to the publication of the financial statements, the management report and the reference document for the annual closings. Meetings with EDF departments and the subsidiaries facilitate the preparation of these financial statements and make it possible to anticipate changes with regard to certain treatments thereby increasing the reliability of the accounting and financial information published. An analysis of the conditions of preparation (compliance with deadlines, quality of information, etc.) after the event allows for regular improvement of the consolidated financial statements preparation and analysis process.

Monthly reporting of information covering the balance sheet accounts and the income statement has been in place since 2011 and has helped anticipate the treatment of complex transactions and contribute to more reliable results.

Forecasts and management acts are implemented using a single reference framework and tools shared between accounting and management. This system contributes to the coherence of Group management and facilitates dialogue at all levels of the organisation and helps promote exchange of information between actors and the quality of the information produced.

2.2.3.2.4 Procedures for preparing and controlling the financial statements

The financial statements are prepared annually and semi-annually by the Parent Company Financial Statements Department of the Accounting Consolidation Division.

The annual financial statements are closed on 31 December of the fiscal year, approved by the Board of Directors of EDF and then approved by the General Meeting of Shareholders.

The condensed half-year financial statements are closed on 30 June of the fiscal year by the Board of Directors. EDF's transactional accounting (excluding Nuclear Fuel Division, Decommissioning and Waste Projects Department, and Executive Managers Department for the accounting component of payroll) is entrusted to the shared "Accounting" service centre of the Shared Services Department. The processing of the transactional accounting is organised by process. "Governance pacts" set the respective responsibilities of the operational Departments, the shared "Accounting" services centre or, where applicable, the accounting operators in the operational businesses and the Accounting Consolidation Division.

Meetings are organised on a quarterly basis with the EDF SA departments to prepare the financial statements and anticipate changes with regard to certain treatments thereby increasing the reliability of the accounting and financial information published.

Each operational and functional Director makes a commitment each year with regard to the quality of the Internal Control system in the Accounting and Financial fields, the improvement goals for the coming period and the truthfulness and exhaustiveness of the accounting information for which they are responsible by preparing a commitment letter sent to the Group Accounting and Taxation Director.

The internal control system in the accounting field is integrated into the Group internal control system as a whole. An indicator reference framework is used within EDF making it possible to measure the areas of conformity of the accounting information for each process.

2.2.3.3 Internal control procedures relating to compliance with laws and regulations

The Legal Department carries out a monitoring mission as regards legislative and regulatory developments: it issues alerts and carries out awareness training for the concerned Departments on changes which might impact the Group.

By a joint decision of 1 June 2007 supplemented by a decision of 12 May 2011, the Legal Department and the Audit Department adopted an action plan formalising the role of the Legal Department in the definition of control objects prescribed in the various EDF entities, so as to incorporate them in their own internal control plan. The purpose of these control objects is to ensure that these entities:

- provide the Legal Department with the regulatory fields specifically concerning them, so that it can carry out its watch mission as effectively as possible, taking care to include cross-departmental legal issues (competition, insider trading, etc.);
- systematically call upon the Legal Department as early as possible to assist with cases comprising major legal risks and issues;
- ensure that the delegations they grant within their entity reflects their actual organisation and are updated as necessary;
- ensure that draft "major contracts" are prepared with the assistance of legal experts, and, once signed, sent to the Legal Department for inclusion in the Group's contract library;
- ensure that the legal proceedings initiated by the entities are periodically reviewed by the Legal Department;
- identify their needs, in terms of legal awareness initiatives in their specific fields, including cross-departmental needs, and notify the Legal Department of these needs.

2.2.3.3.1 Regulations related to industrial regulations

2.2.3.3.1.1 The nuclear field

Many control procedures exist in the field of industrial exploitation.

Nuclear regulations in force are different for each country in which the facilities are situated and external controls are organised by the local authorities (Nuclear Safety Authority (ASN) in France, Nuclear Directorate within the Health and Safety Executive and The Office for Nuclear Generation in the United Kingdom, the Nuclear Regulatory Commission in the United States, the National Nuclear Safety Administration in China, etc.).

For EDF, the following entities or managers are in place:

- the Nuclear Safety Council, chaired by the Chairman and Chief Executive Officer of the EDF group, meets several times a year and examines in February the annual "Nuclear Safety, Radiation Protection and Security" report;
- the Inspector General for Nuclear Safety and Radiation Protection (IGSNR), which ensures, on behalf of the Chairman and Chief Executive Officer, that all aspects involving safety and radiation protection concerns are fully taken into account for nuclear facilities operated by EDF, whose annual report is made available to the public;
- the Nuclear Inspectorate, department which reports directly to the Director of the Nuclear Production Division (DPN), and the Audit Evaluation Mission, which reports functionally to the Director of the Engineering and New Nuclear Projects Department (DIPINN), whose verifications regularly assess the level of safety of all the different operating and engineering entities;
- the Audit unit conducts several audits per year in the nuclear field (engineering, fuel and operation).

Articles L. 594-1 *et seq.* of the French Environmental Code and the implementing texts (Decree of 23 February 2007 and order of 21 March 2007) relating in particular to securing the financing of nuclear charges, require the company to describe in a report the procedures and arrangements for assessing the costs of the sustainable management of radioactive materials and waste, the methods used to calculate the relevant provisions and the choices made for the composition and management of the assets allocated to the coverage of the provisions.

2016 saw the publication of several laws, orders and implementing texts transposing European directives (Council Directive no. 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, as amended by Council Directive no. 2014/87/Euratom of 8 July 2014; Council Directive no. 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste; Council Directive 2013/59/Euratom of 5 December 2013 laying down basic standards for health protection against the dangers arising from exposure to ionizing radiation) and specifying the two laws promulgated in 2015 (Act no. 2015-992 of 17 August 2015 on Energy Transition for Green Growth, Act no. 2015-990 of 6 August 2015 for Growth, Activity and Equal Opportunities, known as the "Macron" Act), in particular:

- Order no. 2016-128 of 10 February 2016 on various nuclear provisions;
- Order no. 2016-1058 of 3 August 2016 to amend the rules applicable to the environmental assessment of projects, plans and programmes;
- Order no. 2016-1060 of 3 August 2016 reforming procedures to ensure public information and participation in the drafting of certain decisions likely to have an impact on the environment;
- Act no. 2016-1015 of 25 July 2016 laying down detailed rules for the establishment of a reversible deep geological repository for long-lived high- and medium-level radioactive waste;
- Act no. 2016-1087 of 8 August 2016 for the restoration of biodiversity, nature and landscapes.

These legislative provisions are accompanied by various implementing texts currently being drafted, in particular with regard to environmental assessment, biodiversity protection and public participation, which are very much at stake for the completion of the Group's industrial projects and are covered by two of the six corporate responsibility objectives established by the EDF group in 2016.

As from June 2007, and in accordance with the legislative and regulatory framework, EDF sends a three-year report to the administrative authority and an annual update letter. These reports and update letters are the subject of an opinion issued by the Nuclear Commitments Monitoring Committee, a report of which is submitted to the EDF Board of Directors, before being sent to the administrative authority. The report on internal control contained in the annex to the update letter is the subject of a vote by the Board of Directors.

The order of 7 February 2012 laying down the general rules for basic nuclear installations (BNIs) forms part of the overhaul of the general regulations applicable to BNIs. With the amended Decree no. 2007-1557 of 2 November 2007, known as the "Procedures" Decree, partially amended in 2016, this order, most of which came into force on 1 July 2013, constitutes a major text implementing the TSN Act, which is now included in the French Environmental Code and whose application methods are specified in ASN decisions and manuals. Both texts will be updated in 2017.

Finally, the ASN has initiated a major project to overhaul the general technical regulations applicable to BNIs. Since 2014, 11 regulatory decisions covering more than 270 articles and 6 manuals have been published, with the programme planning to include 13 other decisions and 16 manuals, all of which have been drafted in part.

From the first days following the Fukushima accident, on 11 March 2011, EDF exercised its responsibility as a nuclear operator by drawing the first lessons for its fleet in March 2011.

The ASN submitted to the French government its conclusions in a report on 3 January 2012 alongside an opinion (no. 2012-AV-0139) in which it states in particular:

“Following additional safety assessments of the priority nuclear installations, the ASN considers that the installations examined present a sufficient level of safety so as not to warrant the immediate shutdown of any of them. At the same time, the ASN considers that their continued operation requires that their solidity in the face of extreme situations be promptly reinforced (beyond the safety margins already in place).”

The implementation schedule for the technical regulations issued by the ASN on 26 June 2012 has been observed. It should be noted in particular that since 1 January 2016, the FARN (Nuclear Rapid Action Force) is able to intervene on 6 units of the same site in less than 24 hours to deliver and implement additional human and material means to cool reactors and pools.

The WANO (World Association of Nuclear Operators) carried out 6 international peer reviews on French nuclear power plants in 2016: Gravelines, Nogent, Saint Laurent, Flamanville, Chinon and Cruas. The annual program consists of reviewing each plant on average every 4 years. These reviews allow experienced professionals from around the world to concretely observe our work practices in the field. Comparisons can thus be made with international best practices in all areas of nuclear power plant operation. Since 1 January 2014, the WANO has implemented the new international benchmarks (Performance Objectives and Criteria) during its reviews. The changes to these international benchmarks focus even more on the safety of installations. Following the review, the Unit Director for the site agrees to an action plan drawn up in conjunction with the WANO team. The aim of these actions is to respond to the recommendations. Two years after the review, a team of around ten WANO experts will come follow up and evaluate the effectiveness of the action plan implemented by the site. The recommendations made during the peer review will once again be assessed. In 2016, three follow-up reviews were conducted in Belleville, Chooz and Paluel. This follow-up allows the site to reinforce its actions for any possible areas of weakness, with the help of international experts who, when requested by the site, will also carry out technical support missions (TSM). In 2016, the fleet requested the WANO to carry out 3 TSMs (Corporate, Chooz and Fessenheim). All these approaches enable the sites to learn from the external viewpoint of experts and accordingly benefit from best international practices.

An OSART (mission to evaluate the safety of nuclear power plants organised by the IAEA) was carried out in Golfech in 2016 as well as a follow-up of the Corporate OSART and a follow-up of the OSART of Flamanville 1-2.

2.2.3.3.1.2 The hydropower field

For hydropower, safety is comprised of all the provisions taken during the design of the hydropower installations and during their operation to ensure the protection of persons and property against water-related hazards owing to the presence or operation of the structures. As the producer's chief and permanent concern, hydropower safety revolves around three main activities:

- control of operational risks: changes in the level of the water bodies or the flow of watercourses downstream of the works;
- management of structures during floods, to ensure the safety of installations and populations;

- the prevention of the major risk posed by the breakdown of a hydraulic structure, by the supervision and maintenance of structures under the control of government services, mainly the Regional Directorates for Environment, Planning and Housing (DREAL). Of the largest dams, 68 of them are subject to a special administrative procedure (“special intervention plan”) implemented by the competent prefect.

EDF regularly monitors and maintains its dams, including through continuous monitoring. The real-time readings and analysis at each site of multiple data (settlement, pressure, leakage measurements, combined with the visual inspection of the concrete and a control of the mechanical parts, etc.) enable EDF to conduct a regular diagnostic on the state of its dams. In Grenoble and Toulouse, EDF teams can analyze the largest dams or those dams that are the hardest to access, remotely and in real time, using a series of sensors.

In addition, for each of the 150 large dams, a complete technical examination is carried out every 10 years, depending on the method of emptying or inspecting the submerged parts using underwater equipment. These operations are carried out under the strict supervision of the government services (DREAL and STEEGBH – Technical Service for the electrical energy of large dams and hydropower).

In 2016, EDF carried out 134 safety reviews on the works in operation out of the 156 to be carried out by 2018 (see Chapter 1 “Presentation of the EDF group” in this document reference).

At the organisational level, the Hydropower Safety Inspector prepares an annual report for the Chairman and CEO of EDF, to which he or she reports directly, as well as to those involved in hydropower safety. Issued after analyses, inspections and assessments carried out by the Hydropower Safety Inspector, this report aims to give an opinion on the level of hydropower safety of the Group's installations and provide a basis for reflection and progress to ensure its improvement and consolidation. This report is made public on the Group's website.

Each entity is responsible for defining and implementing appropriate control procedures in the other areas related to operations.

2.2.3.3.2 Other regulations

As regards the safety of its facilities, EDF implements the measures prescribed by the public authorities for the protection of all the sites concerned.

Controls are also carried out with regard to the implementation of social security and labour regulations.

Since January 2014, the Group health and safety policy has defined a shared coherent framework reflecting the policies of the various Group subsidiaries along with their action plan. This Group policy applies to all the companies controlled by the EDF group in all countries in which EDF does business, and concerns both its employees and those of its subcontractors working in its facilities and premises. It provides for the establishment of an annual health and safety review within EDF's Executive Committee.

In 2015, during the first annual Group review, the main strategic health and safety guidelines of the CAP 2030 program were defined. The three-year action plan will be drawn up on the basis of these guidelines and implemented in each of the Group's companies.

In December 2015, the Executive Committee set up a new Group body, the Strategic Health and Safety Committee, in charge of coordinating Health and Safety, preparing the guidelines to be approved by the Executive Committee and monitoring progress. These members were directly appointed and assigned by the members of the Executive Committee. This committee met four times in 2016.

2.2.3.4 Internal control procedures relating to application of the instructions and guidelines set by Executive Management

In connection with the deployment of the internal control system within the Group, implementation of the major decisions and policies is monitored by ensuring that they are incorporated into the internal control manual, and audits may be carried out under the Group audit programme in order to verify that these decisions and policies have been properly implemented and that the objectives set within this framework have been met.

2.2.4 DISCLOSURE AND DISSEMINATION OF INFORMATION

In addition to the communication and reporting actions mentioned throughout this report, special emphasis may be given to the following specific actions:

- Following its IPO in 2005, EDF has established procedures aimed at regulating and improving the reliability of the process and the content of EDF's financial disclosures and preventing market offenses. Accordingly,

a procedure was defined organising the respective roles within the company with regard to the preparation, approval and dissemination of financial disclosures. A financial information validation system was set up, aimed at ensuring the validation and consistency the different sources of EDF's financial disclosures, as well as examining and validating the content of all the financial information channels. This Committee includes representatives from the Finance Department, the Communications Department and the Legal Department. Furthermore, the EDF group has adopted a code of market ethics, which was revised during 2016, reiterating the principles and rules applicable to transactions involving securities of the EDF company or listed companies of the EDF group. Alongside the dissemination of this code, awareness-raising actions on exchange rules have been carried out among Group employees, especially as regards precautions and obligations related to inside information and black-out periods during which leaders and certain employees holding inside information must refrain from making transactions involving the company's shares.

- The Code of Good Practice: compliance with the codes of good practice for the regulated subsidiaries is controlled each year by these subsidiaries and checked by the Energy Regulation Commission, which publishes the results of its audits in its annual report.

2.3 Dependency factors

The EDF group does not consider itself to be dependent on any single customer.

With regard to suppliers, EDF and Enedis use 25,143 suppliers in 2016 (compared with 26,121 in 2015 and 26,349 in 2014). The top five suppliers of EDF and Enedis account for 10.9% in 2016 (10.8% in 2015 and 15% in 2014) of total EDF purchases (not including fuel purchases) and Enedis purchases, and the top ten suppliers account for 15.8% (15.1% in 2015 and 20.8% in 2014).

Certain suppliers and subcontractors that provide products or services that the Group purchases in conjunction with its operations cannot be replaced.

The issue of EDF's dependency vis-à-vis its suppliers arises primarily in the nuclear sector and, to a lesser extent, in IT and telecommunications in respect of specific and secure means of transmission.

The EDF group has developed expertise as an architect-builder of its power generation plants and as a nuclear fuel cycle integrator, which gives EDF technical expertise that is independent of that of its suppliers.

Lastly, the EDF group has a very important commercial relationship with the AREVA group, which is involved in each phase of the nuclear fuel cycle. The AREVA group is also active in the construction and maintenance of nuclear power generation plants. In France, the AREVA group is EDF's main supplier in the nuclear sector and EDF is the AREVA's group's main customer. Accordingly, EDF considers that there is a situation of interdependence with the AREVA group. In July 2016, the two groups signed a Memorandum of Understanding on the future of the AREVA NP activities, which also contained a comprehensive strategic and industrial component, so as to strengthen their cooperation (see section 1.4.1.2.3.4 "Memoranda of understanding and share transfer agreement between EDF and AREVA").

2.3.1 NUCLEAR FUEL CYCLE

The relationship between EDF and the AREVA group with respect to the fuel cycle is governed by multi-year contracts.

For the front end of the nuclear fuel cycle (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues" – "Front end (upstream)"), EDF relies to a large extent on the AREVA group, which accounted for approximately 52% of EDF's purchases in 2016 (44% in 2015):

- for its natural uranium requirements, EDF pursues a policy aimed at diversifying its sources of supply in terms of origins and suppliers; the AREVA group remains an important supplier to EDF in this field;
- in terms of the nuclear conversion process, a significant share of EDF's needs are met by the AREVA group's Comurhex factory, which competes with other global suppliers;
- in the field of uranium enrichment, EDF has also diversified its supply sources and now uses several major worldwide suppliers. After an interruption due to the permanent closure of the Eurodif plant, AREVA's services on behalf of the EDF group resumed in 2013, and AREVA's new Georges-Besse II plant now provides a significant share of these services (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues");
- EDF uses two suppliers to manufacture fuel assemblies: AREVA and Westinghouse groups.

For the back-end nuclear fuel cycle (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues" – "Back-end (downstream)"), the AREVA group has been appointed to perform all operations in France:

- spent fuel management operations (removal, storage and treatment) are carried out in the AREVA group's plant at La Hague. The terms and conditions for these operations, as well as the recycling of processing by-products, have been agreed for the 2008-2040 period in the EDF-AREVA master agreement of 19 December 2008 and included in successive application contracts (see note 29.1.1 of the appendix to the consolidated financial statements for the fiscal year ended 31 December 2015). The contract for 2016-2023 was signed in February 2016 (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues" – "Front end (upstream)");
- recycling, which covers the manufacture of MOX fuel, is carried out, for its part, in the MELOX plant.

2.3.2 POWER PLANT DEVELOPMENT AND MAINTENANCE

The AREVA group is EDF's main supplier of power plant construction and maintenance services. In particular, the AREVA group supplies nuclear boilers, their spare parts and the corresponding safety studies. In 2011, EDF signed two major contracts with AREVA, one for the production of 32 of the 44 steam generators for the 1,300MW segments, and the other for the renovation of the control-command systems for the 1,300MW reactors at the time of their third ten-year inspection. The production of the steam generators covered under the first contract is underway, although quality defects in the projects delay the installation of new components on the installations. With regard to the second contract, the first facilities for the second segment of the Paluel power plant was begun in 2015 but could not be completed due to an unforeseen that occurred in March 2016 on this installation (fall of a used steam generator during its handling, see section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet"). The renovation of the control-command systems, covered under the contract, has since been successfully carried out on the Paluel 1 and Cattenom 1 units. Moreover, a diversification programme has been underway for several years, in particular, with Westinghouse and Mitsubishi, for the replacement of certain major components of the boiler (12 of the 44 steam generators for the 1,300MW segments will be provided by Westinghouse) and for maintenance services.

To prepare for the renewal of its power generation facilities, EDF has decided to use the EPR technology developed with the AREVA group, and has initiated construction of the Flamanville EPR power plant. In connection with this project, in 2007, EDF signed a contract with AREVA for the supply of the EPR boiler.

EDF also has a relationship with the Alstom group for the maintenance of certain components of nuclear and fossil fuel-fired power plants. In addition, Alstom is supplying the engine room for the Flamanville 3 EPR. Goods and services that Alstom supplies to EDF are particularly important for the maintenance of the nuclear power plants' turbo-generators and of certain major components of fossil fuel-fired generation facilities.

EDF does not consider itself to be dependent on the Alstom group, which is subject to competition with regard to most of its activities. EDF has nonetheless sought to maintain its interests in the nuclear field following the purchase by General Electric of Alstom's Energy Division. The main challenge for EDF is twofold:

- ensure, at an acceptable cost and until the end of each unit's lifespan, the industrial capacity necessary to maintain under operational conditions and extend the lifespan of the nuclear generation fleet operated by EDF in France and the United Kingdom including the Flamanville 3 and Hinkley Point C EPR reactors;
- ensure the availability for future EDF nuclear projects of turbine offers under excellent technical and economic conditions.

Preservation of these strategic interests relies on framework agreements and the creation of a joint GEAST subsidiary dedicated to nuclear power plant machine rooms activities. The agreement between the French State, Alstom and General Electric (GE) signed on 21 June 2014 provides for a joint venture between GE and Alstom (GEAST), of which Alstom will hold 50% of the stake less 1 vote. GEAST is expected to develop Alstom's nuclear activities on an exclusive and worldwide basis, as well as Alstom's steam (non-nuclear) business in France alone. The French State holds a "golden share" in the joint venture, is represented therein by a director and has veto rights on certain governance issues.

2.4 Legal proceedings and arbitration

In the ordinary course of its business, the Group is involved in certain legal, arbitration and administrative proceedings. Charges that result from such proceedings are only provided for where such charges are likely and can be either quantified or assessed within a reasonable range. In the latter case, the amount of the provision is calculated on a case-by-case basis, based on the best possible estimate. The amounts of any provisions made depend on the case-by-case risk assessments and do not depend primarily on the status of the proceedings; however, developments in the proceedings may nonetheless lead to a reassessment of such risks.

To the knowledge of the Company, except for the proceedings set out below, there are no other administrative, legal or arbitration proceedings (including pending or threatened proceedings), likely to have or having had in the past 12 months a material impact on the financial situation or the profitability of the Company and/or the Group.

2.4.1 LEGAL PROCEEDINGS CONCERNING EDF

French Utilities Network (*Réseau d'alimentation général* – RAG)

In October 2002, the European Commission initiated proceedings against France, claiming that State aid had been granted to EDF when its balance sheet was restructured on 1 January 1997. By a decision dated 16 December 2003, the European Commission set the principal amount of aid to be repaid at €889 million. On 11 February 2004, the French State issued a collection note for €1,224 million which covered the principal amount and interest. This amount was paid by EDF. On 27 April 2004, EDF initiated an

action before the European Union General Court, at the time known as the European Court of First Instance, to annul the European Commission's decision. The European Union General Court issued, on 15 December 2009, a ruling annulling the European Commission's decision of 16 December 2003, holding that when making its decision, it should have applied the informed market economy investor test to determine whether or not the action constituted State aid. As this ruling was binding on both parties, the State repaid €1,224 million to EDF on 30 December 2009. On 26 February 2010, the European Commission filed an appeal against the European Union General Court's ruling before the Court of Justice of the European Union. By order dated 5 June 2012, the Court of Justice rejected the appeal by the European Commission and confirmed the order of the European Union General Court of 15 December 2009.

On 2 May 2013, the European Commission decided to reopen its investigation in order to check whether the State had acted as an informed market economy investor under the tests established by the European courts. On 22 July 2015, the European Commission issued a new decision ruling that the tax treatment of the provisions created between 1987 and 1996 for the renewal of the RAG facilities constituted incompatible State aid, considering that the tax exemption granted to EDF could not be treated as an investment for economic reasons. Following this decision, the State ordered EDF to repay the amount of the aid granted plus interest in accordance with the terms decided by the European Commission, corresponding to a total amount of €1.38 billion.

EDF has formally acknowledged this decision and repaid the sums demanded. However, the Group disputes the existence of unlawful State aid and on 22 December 2015, it initiated a new action for annulment before the European Union General Court. On 19 April 2016, the State became involved in these proceedings, in support of EDF. This action is currently pending.

Competitive bidding for hydroelectric concessions in France

The Directorate-General for Competition of the European Commission (EC) has issued proceedings against the French State with respect to hydroelectric concessions in France, under Article 106, Chapter 1 of the Treaty on the Functioning of the European Union (TFEU) combined with Article 102 of the same treaty.

Within the framework of these proceedings, the EC sent the French State a letter of formal notice on 22 October 2015, stating that it considers that the French State has infringed the above-mentioned provisions by awarding the majority of the hydroelectric concessions in France to EDF and renewing them with EDF as these steps strengthen EDF's dominant position in the French market for the retail supply of electricity.

The State had a period of two months to reply to the formal notice, which marked a new adversarial exchange between the State and the EC, which does not affect the final decision that will be adopted by the EC. As the main interested third-party, EDF received a copy of this formal notice and on 4 January 2016, sent the EC its comments in reply to the formal notice, strongly contesting the EC's analysis and the facts on which this analysis was based.

As at 31 December 2016, discussion between the EC and the French State are ongoing.

Asbestos

In the past, EDF has used products containing asbestos. Thus, certain employees, in particular those working in fossil-fired power plant maintenance, may have been exposed to asbestos, principally before such asbestos was replaced or protective measures were implemented by EDF from the late 1970s.

Between 1997 and 31 December 2016, EDF and Enedis have been party to 648 inexcusable fault (*faute inexcusable*) actions in France in relation to the alleged exposure of its employees to asbestos in their workplace. Establishing a liability in such an action could lead to the payment of additional compensation by the employer to the victims or their legal successors.

As at the end of December 2016, there were 133 ongoing litigation cases (110 for EDF and 23 for Enedis).

The cumulative amount of the final judgments against EDF in litigation cases relating to the inexcusable fault of the employer amounted to €27.148 million as at 31 December 2016.

The number of proceedings issued has stabilised since 2010 (approximately 20 new cases each year). Accordingly, there should not be any significant variations in the financial burden for the CNIEG (Pension fund for Electricity and Gas Industry companies). A €30 million provision was created in EDF's financial statements to cover the financial risk.

Solaire Direct

On 17 December 2013, the Competition Authority (ADLC) fined the EDF group €13.5 million for practices constituting an abuse of dominant position which, the ADLC felt, allowed it to favour its subsidiaries operating in the photovoltaic sector to the detriment of other market players. The ADLC criticised the fact that EDF had made various material and non-material resources available to its subsidiaries which could not be reproduced by competitors (in particular, the 'Bleu Ciel®' brand, trademark and logo and customer data), thereby creating confusion among customers between its role as an electricity supplier subject to regulated rates and the role of its subsidiaries operating in the photovoltaic sector. EDF had lodged an appeal against this decision before the Court of Appeal in Paris.

On 21 May 2015, the Court of Appeal in Paris partially reversed the ADLC's decision and set aside the fine relating to the use of EDF's trademark and logo for the 2009-2010 period along with the increased fine for repeated breaches. Ultimately, the fine has thus been reduced from €13.5 million to €7.9 million.

On 16 June 2015, ADLC lodged an appeal with the French *Cour de cassation*. EDF also lodged an appeal with the same court on 19 June 2015. The judgment of the *Cour de cassation* should be handed down during the second half of 2017.

Litigation by photovoltaic operators for compensation

On 13 May 2014, Solaire Direct issued proceedings against EDF, EDF EN, EDF ENR and EDF ENR Solaire before the Commercial Court in Paris seeking compensation for the damage it claims to have suffered as a result of the practices condemned by the ADLC in its decision issued on 17 December 2013, assessed by Solaire Direct at €8.7 million. On 16 December 2014, the Court ordered a stay of proceedings pending the judgment to be issued by the Court of Appeal in Paris on EDF's appeal against the above-mentioned ADLC decision. The Court of Appeal handed down its judgment on 21 May 2015 and the case has been re-entered on the case list. In a judgment dated 21 February 2017, the Commercial Court ordered a stay of proceedings until the ruling of the *Cour de cassation* on the appeal filed by the ADLC against the decision dated 21 May 2015 (see litigation "Solaire Direct" hereabove).

On 11 December 2014, Apem Énergie, Arkeos, Biosystem-AD, Cap Eco Énergie, Cap Sud, Isowatt, PCI-m, Photen and Sol'Air Confort started proceedings against EDF, EDF ENR and EDF ENR Solaire before the Commercial Court in Paris on the same grounds. They claim alleged damages of €18.3 million. Several writings have been exchanged by the parties but no hearing session has been set yet.

Photovoltaic producers' litigation

The announcement by the public authorities in autumn 2010 of an upcoming decrease in the photovoltaic electricity purchase prices triggered a massive increase in requests for purchase contracts, likely to generate a very significant increase in costs to be compensated by the CSPE. Several successive ministerial orders were then issued reducing purchase prices.

As these price decreases were not sufficient to stem the flow of requests for contracts, by Decree of 9 December 2010, the Government provisionally and retroactively suspended EDF's obligation to purchase photovoltaic electricity and reduced the purchase prices for producers that had not finalised their connection requests before 2 December 2010.

In this context, a certain number of producers, who had lost the entitlement to benefit from the mandatory purchase prices before the moratorium, brought legal proceedings for damages against EDF, as the distribution network manager (GRD) in non-interconnected island areas (ZNI) and Enedis, as the network manager in Mainland France, on the grounds that the network managers had failed to issue technical and financial proposals for connection in a timely manner, which would have allowed them to enjoy the more attractive electricity purchase conditions (see section 2.4.2 "Legal proceedings concerning EDF's subsidiaries and holdings").

Although some first instance courts dismissed all of their claims, others have awarded compensation to them.

EDF and Enedis solicited the benefit of their Civil Liability insurance policy. Insurers refused to apply the guarantee. The French *Cour de Cassation* considered in a decision dated 9 June 2015 (Green Yellow) that the insurers' guarantee was due and recognised Enedis' liability. However, insurers keep refusing the benefit of the guarantee for other pending cases.

Disputing their liability, EDF and Enedis:

- appeal against the harshest judgments issued at first instance;

- routinely apply for a stay of proceedings, following the submission on September 20, 2016 of a reference for a preliminary ruling to the Court of Justice of the European Union by the Court of Appeal in Versailles on the compliance of the 2006 and 2010 Decrees with EU state aid Law (for more information regarding the origin of the reference for a preliminary ruling, see section 2.4.2 “Legal proceedings concerning EDF’s subsidiaries and holdings” – “Photovoltaic producers litigation”). Many courts and courts of appeal agree to a stay of proceedings.

On 21 June 2012, SUN’R filed a complaint against EDF and Enedis, along with an application for protective measures (*mesures conservatoires*), with France’s ADLC. SUN’R accused Enedis of delays in the procedure for the connection of its photovoltaic facilities and EDF of delays in the implementation of the mandatory purchase contracts and the payment of the related invoices. In addition, according to SUN’R, EDF ENR benefited from special treatment for the connection of its facilities by Enedis and the payment of its invoices by EDF.

In a decision of 14 February 2013, the ADLC issued a decision rejecting all the applications for protective measures made by SUN’R but the proceedings on the merits are still ongoing. This decision does not in any way affect the outcome of the proceedings. If the ADLC’s investigation leads to a finding that EDF’s practices are anti-competitive, it could, notably, in accordance with Article L. 464-2 of the French Commercial Code, impose a financial sanction, the amount of which would be determined in proportion to the seriousness of the alleged facts, the significance of the damage made to the economy and to the company’s situation, up to a maximum of 10% of the global turnover of the company exclusive of taxes.

At the same time, SUN’R filed on 29 August 2012 a petition at an urgent applications hearing for expert assessment and provisional damages before the Administrative Court in Paris including a claim for provisional compensation of €1 million for EDF and €2.5 million for Enedis. By order of 27 November 2012, the urgent applications judge (*juge des référés*) at the Administrative Court in Paris dismissed this petition.

On 30 April 2015, SUN’R issued proceedings against Enedis and EDF SA before the Commercial Court in Paris seeking compensation for the loss allegedly caused to it by the delays in the procedure for the connection of its proposed solar energy plants to the electricity distribution network. It has asked the Court to stay the proceedings and claims, pending ADLC’s decision on the merits of the case, a provisional amount of €10 million to be applied against its loss. In a judgment issued on 7 November 2016, the Commercial Court in Paris dismissed SUN’R’s application for provisional damages and issued a stay of proceedings pending ADLC’s decision on the merits of the case.

On 24 November 2015, Sun West, Azimut 56 and JB Solar started proceedings against Enedis and EDF SA before the Commercial Court in Paris on the same grounds. They are currently claiming almost €4 million to compensate their alleged loss but have asked the Court to stay the proceedings pending ADLC’s decision on the merits of the case.

Eole Miquelon

On 20 July 2015, Eole Miquelon filed a complaint with ADLC on the practices implemented in the electricity industry in Miquelon.

Eole Miquelon operates a wind farm on the island and claims that EDF has restricted the use of wind energy produced from its facilities in order to give preferential treatment to the electricity it produces directly. Eole Miquelon claims it will be forced to close its operations on the island because of these practices.

Xélan

On 17 October 2016, Xélan brought a claim before the French Competition authority (*Autorité de la concurrence*) alleging mainly that EDF’s refusal to share the consumption data of clients at regulated selling prices prevented Xélan from designing its own electricity supply offers based on energy consumption management.

Following the filing of this claim, the Competition authority carried out on 22 and 23 November 2016 search and seizure operations at the premises of EDF and several of its affiliates. These operations do not in any way, however, prejudge the question as to whether there exists a violation that could be attributed to the EDF group. EDF filed an appeal with the Court of Appeal of Versailles to challenge these search and seizure operations.

CSPE ceiling investigation

On 27 March 2014, the European Commission opened an in-depth investigation into the reductions on the Contribution to the Public Electricity Service (CSPE) granted to large energy consumers and self-generators based on State aid rules. As an interested third party, EDF submitted its comments on the decision to the European Commission, following its publication in the Official Journal of the European Union on 3 October 2014.

Capacity mechanism investigation

On 13 November 2015, the European Commission opened an in-depth investigation into the implementation of the French capacity mechanism in order to decide whether it complies with EU state aid rules. As an interested third party, EDF submitted its comments on this decision to the European Commission, following its publication in the Official Journal of the European Union on 5 February 2016.

In a decision issued on 8 November 2016, following several solutions proposed by France, the Commission ruled that the revised French capacity mechanism complies with EU state aid rules. To the knowledge of EDF, this decision has not been appealed and therefore became final.

Labour litigation

EDF is a party to a number of labour lawsuits with employees relating in particular to working time. EDF does not consider that any of these lawsuits, taken individually, is likely to have a significant impact on its financial results or its financial position. However, as these disputes relate to situations that could involve a significant number of EDF’s employees in France, if they were to multiply, they could then potentially have a significant negative impact on the Group’s financial position.

Environmental litigation

Due to its industrial activities, the Group is a party to various environmental lawsuits, in particular, regarding ground decontamination. As of the date of the filing of this reference document, the Group does not believe that any of these lawsuits, individually, is likely, in the event of an unfavourable outcome, to have a material negative impact on the Group’s financial position.

Tax litigation

Following audits of its accounts for previous financial years, the authorities dispute the tax deductibility of the Company’s provisions for benefits for work-related accidents and sicknesses (*accident du travail et maladies professionnelles* – AT/MP). This also concerns RTE, Enedis and Électricité de Strasbourg, since this issue is linked to the nature of Electricity and Gas Industry companies. The Group challenges the position of the tax authorities. The French national commission on direct taxes and turnover taxes has rendered several decisions in favour of RTE and EDF SA. Moreover, judgments have also been issued in favour of EDF SA and its RTE and Électricité de Strasbourg subsidiaries by the Administrative Court in Montreuil, which have all been upheld by the Administrative Court of Appeal in Versailles. The tax authorities have lodged appeals against these decisions with the French Council of State. In the event of an unfavourable outcome, the financial risk for the Group in relation to the payment of corporate income tax amounts to approximately €250 million.

At the end of 2011, EDF received a proposed correction for the 2008 financial year relating, primarily, to the tax deductibility of certain long-term liabilities. This adjustment, which could be repeated each year, constitutes a financial risk in relation to the payment of corporate income tax of approximately €500 million at the end of 2016.

In addition, the Company received an adjustment notice from the tax authorities regarding a non-remunerated advance granted by EDF to its indirect subsidiary Lake Acquisition Limited in connection with the acquisition of British Energy. The amicable settlement procedure launched by EDF was successful in 2016.

The tax authorities have given the Company notice of the above-mentioned recurring adjustments and also challenged the deductibility of certain long-term provisions, for the 2012 and 2013 financial years.

Vent de Colère

Following an appeal lodged by an association, Vent de Colère, against the order issued on 17 November 2008 fixing the price at which wind-generated electricity is purchased, the Council of State stayed the proceedings and submitted a reference for a preliminary ruling to the European Court of Justice on whether the mechanism for financing the obligation to purchase electricity based on CSPE (*Contribution au Service Public de l'Électricité* – Contribution to the Public Electricity Service) is to be regarded as an intervention by the State or through State resources within the meaning of and for the application of the provisions of the TEU relating to State aid.

On 19 December 2013, the Court issued its decision and confirmed that *"the new mechanism for offsetting in full the additional costs imposed on undertakings because of an obligation to purchase wind-generated electricity at a price higher than the market price that is financed by all final consumers of electricity (...) constitutes an intervention through State resources"*.

In a judgment issued on 28 May 2014, the Council of State set aside the order issued on 17 November 2008 on the ground that the prices it fixes constitute State aid that had not been notified to the European Commission prior to its implementation. As an alternative, on 17 June 2014, the Ministry of the Environment, Energy and the Sea signed an order setting the conditions for the purchase of wind-generated electricity produced on land. This new legislation restates the conditions for the purchase of wind-generated electricity stated in the 2008 order and the impact on the CSPE remains the same. The order of 17 June 2014 was appealed before the Council of State, which dismissed the appeal in a judgment handed down on 9 March 2016, in which the court held that this new order did not need to be notified to the European Commission and also dismissed the claim that the rate of return awarded to wind-power producers for their tied-up capital was too high.

In an opinion issued in the Praxair case on 22 July 2015, the Council of State ruled that the income from the CSPE does not have a direct impact on the amount of the aid granted to producers using renewable energy. It inferred that the CSPE could not be treated as an integral part of the mechanism used to support the wind-power sector that was held to be unlawful in the Vent de Colère judgment issued on 28 May 2014 or any other mechanism used to support renewable energy. In a judgment issued on 23 February 2016, the Administrative Court of Appeal in Paris, applying the opinion issued by the Council of State, dismissed the CSPE repayment claims filed by Praxair. The company Messer France, representing the interests of Praxair, appealed this decision. The Council of State, in a decision dated 22 February 2017, decided to stay the proceedings until the decision of the Court of Justice of the European Union (CJEU) on the prejudicial questions submitted to it, regarding the compatibility of the CSPE with the Directives establishing general arrangements for excise duties (92/12/CEE of 22 February 1992, and 2008/118/CE of 16 December 2008) and the common framework for the taxation of energy products and electricity (2003/96/CE of 27 October 2003).

In addition, in a decision issued on 15 April 2016, the Council of State ordered the State to pay a €10,000 penalty for non-compliance per day late, if it failed to prove, within 6 months, that it had done everything necessary to enforce the decision issued on 28 May 2014 by sending an

invoice to each producer that had received support between the date of the order (17 November 2008) and the date of the decision issued by the Commission (27 March 2014) for the interest calculated on the state aid paid during this period.

The collection notes have been received by the relevant SPVs within the remit of EDF EN and on 15 December 2016, €4.5 million (for EDF EN's fraction) was paid as interest on the sums held to constitute state aid.

Arbitration following the termination of a gas supply contract

On 2 August 2012, EDF received a demand for arbitration filed with the International Chamber of Commerce (ICC) by one of its gas suppliers. This supplier contested the termination by EDF of a 4-year natural gas supply contract which had one year left to run, and claimed one hundred million US dollars in compensation.

In a decision issued on 7 September 2016, the court of arbitration dismissed all of the claims made by the gas supplier.

SHEM

In order to ensure water supplies for the *Canal des Nestes*, concessionaires and operators of facilities located upstream (EDF and SHEM) are bound by regulatory obligations requiring them to release certain volumes of water each year ("agricultural releases"). Under an "agricultural releases agreement" dated 1 December 2003, EDF and SHEM agreed the technical and financial arrangements for the releases to be carried out by SHEM, on behalf of EDF and against payment.

From October 2010 onwards, as the allocation of the facilities between EDF and SHEM had been modified by the State in SHEM's favour following the renewal of hydroelectricity concessions, the State modified the allocation of the facilities currently affected by agricultural release obligations. As none of the facilities currently operated by EDF are affected by these obligations, EDF felt that the above-mentioned agreement dated 1 December 2003 had ceased to serve any purpose and therefore it rejected SHEM invoices for a total amount of €13 million exclusive of tax.

In October 2016, SHEM issued proceedings against EDF with the Commercial Court in Paris to obtain the payment of these invoices, as the administrative court had ruled that it lacked jurisdiction to hear the dispute. The directions hearing was held on 24 November 2016 and the next hearing is scheduled for 2 March 2017.

Bugey 5

Following the third safety review of reactor 5 at the Bugey site to allow its continued operation for a further ten years, ASN (French Nuclear Safety Authority) adopted a decision establishing additional requirements on 23 December 2014. In March 2016, the Republic, the Canton and the town of Geneva filed an application with the Council of State seeking the cancellation of the ASN's above-mentioned decision and also the implied decision by the Minister of the Environment, Energy and the Sea authorising, according to the applicants, the continued operation for a further ten years of Bugey reactor 5. In an order issued on 24 June 2016 which became final, the President of the 6th division of the Council of State dismissed the application filed by the town of Geneva and the Republic and Canton of Geneva on the grounds that it was inadmissible.

Action against the European Commission's decision to authorise the HPC contract for difference

On 6 July 2015, Austria brought an action before the European Union General Court against the European Commission's decision authorizing the contract for difference negotiated with the UK government in respect of Hinkley Point C. This action is still pending.

Simultaneously, on 15 July 2015, a group of German and Austrian operators led by Greenpeace Energy (and other players such as Ecotricity, UK electricity supplier) also brought an action before the European Union General Court against the European Commission's decision. On 26 September 2016, the Court dismissed the second action on the grounds that the applicants had failed to show that they were individually affected by this decision or that it could have a significant adverse effect on the competitive position of the companies in question in the electricity market in the EU. On December 9, 2016, Greenpeace Energy appealed against this ordinance before the European Union Court of Justice.

As these applications have no suspensive effect, EDF, the UK government and CGN (Chine General Nuclear Power) signed all of the HPC-related agreements, including the contract for difference, on 29 September.

Action against the final investment decision for the project Hinkley Point C

Application to the Regional Court in Paris by EDF SA's central works council

Authorised in an order issued on 20 June 2016, EDF SA's central works council (hereinafter the "CCE") filed an urgent application against EDF with the Presiding Judge of the Regional Court in Paris, to be heard on 22 September 2016. In particular, the CCE asked the Presiding Judge of the Regional Court in Paris, ruling in urgent proceedings, to order EDF to provide a certain number of documents and/or information to the CCE, to extend the consultation period for EDF's CCE and to order EDF not to implement the Hinkley Point C project, and this was challenged by EDF. In a decision issued on 27 October 2016, the Presiding Judge of the Regional Court in Paris, ruling in urgent proceedings, held that the applications filed by the CCE were inadmissible and ordered it to pay €1,500 to EDF SA under Article 700 of the French Code of Civil Procedure (*Code de procédure civile*). The CCE appealed this decision and a hearing is convened before the Court of Appeal in Paris on 29 March 2017. A preliminary ruling on constitutionality (*question prioritaire de constitutionnalité* – QPC) challenging the compatibility of the Law no. 2013-504 dated 14 June 2013 regarding employment protection which sets the conditions under which procedures for the information and consultation of employees representatives have to be conducted in this type of cases has been filed by the CCE.

Application to the urgent applications judge sitting at the Regional Court in Paris by EDF SA's central works council

In an order issued on 22 July 2016, the CCE was also authorised to file an application against EDF SA with the urgent applications judge sitting at the Regional Court in Paris, to be heard on Tuesday 2 August 2016. In particular, the CCE asked the judge to remove item 4 of the final investment decision for the Hinkley Point C project from the agenda of EDF's Board of Directors' meeting scheduled for 28 July 2016, pending the court decision to be issued at the hearing scheduled for 22 September 2016 on the validity of the CCE information and consultation procedure and the request for the provision of additional documents that were essential to allow it to come to an informed decision, and, where necessary, in the event that the pending decision was issued after the holding of the EDF Board meeting scheduled for 28 July 2016, the suspension of all effects of any resolution adopted by EDF's Board of Directors on the final investment decision on the Hinkley Point C project at the close of the meeting held on 28 July 2016. In an order issued on 5 August, the urgent applications judge sitting at the Regional Court in Paris dismissed the application filed by the CCE, ruling that the requirements for an urgent application had not been met, as there was no imminent harm justifying the suspension of the effects of the Board of Directors' decision and ordered the CCE to pay €3,000 to EDF under Article 700 of the French Code of Civil Procedure.

Application to the Commercial Court in Paris by five EDF SA employee representative directors

Five EDF employee representative directors issued proceedings against EDF with the Commercial Court in Paris asking the court to quash the resolution adopted by EDF's Board of Directors on 28 July 2016 on the Hinkley Point C project, claiming, in particular, that the EDF directors had not been provided with all necessary information and that certain directors had a conflict of interest, which was challenged by EDF. The parties pleaded their cases on 14 November and the judgment should be issued during the first quarter of 2017. Pursuant to a decision dated 7 February 2017, the Commercial Court in Paris dismissed the proceedings.

Greenpeace

Greenpeace declared that on 24 November 2016, it lodged a complaint against EDF and its Chairman & Chief Executive Officer with the National Financial Prosecutor for market-related offences, claiming that they presented an inaccurate balance sheet and disseminated misleading information. This complaint was lodged following the work conducted by AlphaValue on EDF's position, at the request of Greenpeace.

EDF challenged AlphaValue's findings and noted that its accounts had been audited and certified by its statutory auditors and that the cost of decommissioning its operational nuclear facilities had also been audited on behalf of the Ministry of the Environment, Energy and the Sea, a summary of which had been published on 15 January 2016, which on the whole backed up the company's estimates.

EDF lodged a criminal complaint on 25 November 2016 to draw the consequences of these false allegations and misleading information.

Application to the Commercial Court in Paris filed by AET

Within the framework of a 20-year basic electricity supply agreement entered into on 20 December 2007, for an annual capacity of 70MW, Azienda Elettrica Ticinese (AET), a public company of the Canton of Ticino asked the court to order a renegotiation of energy prices, claiming that the market prices had fallen below the prices agreed in the agreement since 2014 and at certain periods.

As the prices in the agreement were non-negotiable and there was no hardship clause, EDF proposed to adjust the prices, in compliance with the original economic balance, stressing that it was under no obligation to renegotiate the prices.

On 12 April 2016, AET issued proceedings against EDF with the Commercial Court in Paris, after the negotiations failed to result in a settlement.

AMF investigation

On 21 July 2016, AMF (French Financial Markets Regulator) conducted a search of EDF's premises, during which EDF provided it with certain documents. This search was part of an AMF investigation into the financial information reported to the markets by EDF since July 2013. It does not in any way mean that an offence has been committed that could be attributed to the EDF group.

CRE/REMIT investigation

On 1 December 2016, CRE (French Regulatory Commission of Energy) launched two investigations into whether EDF and its subsidiaries EDF Trading Limited and EDFT Markets Limited were guilty of engaging, since 1 April 2016 in the first case, and since 1 January 2014 in the other, in practices that could constitute breaches of the provisions of Regulation (EU) no. 1227/2011 of 25 October 2011 on wholesale energy market integrity and transparency (REMIT). They do not in any way mean that an offence has been committed that could be attributed to the EDF group.

CNIL investigation

On 18 October 2016, CNIL (French Data Protection Authority) conducted an on-the-spot check at EDF's premises, using its general inspection powers under the 1978 French Act. During this check, it asked for information on EDF's processing of personal data collected from Linky meters, transferred from Enedis to EDF, and on the methods used to collect and retain proof of customer consent to the processing of detailed data. EDF supplied the information requested; at this stage, CNIL is examining the information but this does not have any bearing on the action that will be taken following these checks.

Restarting of the Gravelines 2, Dampierre 3 and Tricastin 3 nuclear reactors

Since 2015 and following the detection of a flaw in the domes of the Flamanville EPR vessel, EDF has tested its operational nuclear reactors, at the request and under the supervision of ASN. These tests were designed to ensure that the channel heads (meaning the bottom part) of the steam generators used for the 18 reactors of the 900MWe or 1450MWe series operated by EDF are not affected by flaws similar to those discovered in the Flamanville EPR vessel, namely a high carbon content that could affect their mechanical toughness. During the controls of the steam generators, carbon content was detected in certain components, and affecting certain areas only, of twelve reactors fitted with channel heads manufactured by a Japanese company called JCFC (Japan Casting and Forging Corporation), including those used at the nuclear power station in Gravelines (reactor 2), Dampierre (reactor 3) and Tricastin (reactor 3). After several controls conducted by EDF during scheduled shutdowns of these reactors and the provision of additional technical information to ASN proving the fitness for service of the channel heads of these steam generators, ASN consented to the restarting of each of the above-mentioned reactors.

In three urgent applications filed with the Council of State on 23 December 2016 along with an *ultra vires* application (*recours en excès de pouvoir*), the Observatoire du Nucléaire association asked the court to suspend the effects of the ASN's consent to the restarting of the three reactors referred to above. As per ordinance dated 18 January 2017, the Council of State dismissed these urgent applications. The examination on the merits of the *ultra vires* application by the Council of State is still ongoing.

Flaws affecting nuclear power stations

Following the discovery of a flaw affecting a steam generator in Fessenheim reactor 2 manufactured at the factories in Le Creusot (AREVA), Greenpeace and six other associations lodged a complaint against EDF and AREVA with the Public Prosecutor's Department in Paris on 14 October 2016 for four offences, including use of falsified documents (*usage de faux*), reckless endangerment (*mise en danger délibérée de la vie d'autrui*) and late reporting of an incident. In parallel, on 4 May 2016 the Observatoire du Nucléaire association filed a complaint with the Public Prosecutor's Department in Chalon-sur-Saône for forgery, use of falsified documents and endangerment against AREVA following the audit conducted on the activities of the factory in Le Creusot which revealed, in particular "*irregularities in the manufacturing control process for approximately 400 parts produced since 1965, around fifty of which appear to be in service in nuclear power stations in France*". ASN also declared that on 25 October 2016, it had reported the irregularities discovered at the factory in Le Creusot to the Public Prosecutor's Department in Chalon-sur-Saône under Article 40 of the French Code of Criminal Procedure (*Code de procédure pénale*).

2.4.2 LEGAL PROCEEDINGS CONCERNING EDF'S SUBSIDIARIES AND HOLDINGS

RTE

Tax litigation

RTE was subject to several audits of its accounts for the previous financial years. The grounds for adjustment refers to the tax deductibility of the provision for benefits for work-related accidents and sicknesses (*accident du travail et maladies professionnelles – AT/MP*), which remains contested by the Group. The French national commission on direct taxes and turnover taxes rendered several decisions in favour of the company on the deductibility of the provision for benefits for work-related accidents and sicknesses. Moreover, several judgments have also been issued in favour of this company in this respect by the Administrative Court in Montreuil, which were upheld in July 2015 by the Administrative Court of Appeal in Versailles for the 2005-2007 financial years. The authorities have lodged an appeal against this judgment with the Council of State.

ENEDIS

Tax litigation

The tax authorities have challenged the tax deductibility of the provisions for benefits for work-related accidents and sicknesses and at the end of 2009, sent the Company a proposed correction related to an accounts audit for the 2004, 2005 and 2006 financial years, including the share connected to the distribution, which has since been consolidated. This adjustment claim remains contested by the Group.

In 2015, Enedis received a proposed adjustment on the same subject for the 2012 and 2013 financial years. This adjustment is also contested by Enedis.

Photovoltaic producers litigation

In 2010, announcements of cuts in electricity purchase prices led to a considerable surge in the number of connection requests received by Enedis units, primarily in August 2010 (due to the fact that at that time, the date on which a full request was filed determined the applicable prices). Three months later, the moratorium Decree issued on 9 December 2010 suspended the conclusion of new contracts for a period of three months and stated that if the financial and technical proposal for a request had not been approved before 2 December 2010, a new connection request would need to be submitted at the end of this three-month period (see section 2.4.1 "Legal proceedings concerning EDF").

At the end of this moratorium, new electricity purchase provisions were introduced. Within this framework, a system of invitations to tender was developed and, moreover, a new order set the new mandatory purchase price for photovoltaic electricity. This order, issued on 4 March 2011, led to a significant drop in photovoltaic electricity purchase prices.

The judgment handed down by the Council of State on 16 November 2011 dismissing the various appeals lodged against the moratorium Decree issued in December 2010 led to a considerable surge in the number of proceedings issued against Enedis at the end of 2011, which continued in 2012, 2013, 2014 and 2015. The limitation period for issuing claims for compensation connected to this moratorium expired in March 2016. These proceedings were mainly issued by producers forced to abandon their projects as the operating conditions are less attractive than before due to the new electricity purchase prices. These producers believe that this situation was caused by Enedis, on the ground that Enedis failed to issue technical and financial proposals relating to connection in a timely manner, which would have

allowed them to enjoy the more attractive electricity purchase conditions. The judgments issued at first instance, and by the Court of Appeal, contain diverging reasons and findings, with some courts dismissing all of the claims filed by the claimants while others award them compensation, but on the whole the compensation awarded is lower than requested.

Enedis solicited the benefit of its Civil Liability insurance policy. Insurers refused to apply their guarantee. The Court of Cassation ruled in a decision dated 9 June 2015, (Green Yellow) that Enedis' liability was to be covered by its insurers and that Enedis was liable. However, insurers keep refusing their guarantee for other pending cases.

In December 2015, the Court of Appeal in Versailles decided to submit a reference for a preliminary ruling to the Court of Justice of the European Union (CJEU) on the compliance of the 2006 and 2010 pricing orders with European State aid laws.

The CJEU dismissed this reference for a preliminary ruling for procedural reasons. On 20 September 2016, the Court of Appeal in Versailles submitted a new reference for a preliminary ruling to the CJEU relating to the compliance of the 2006 and 2010 pricing orders with European state aid laws and stayed the proceedings. Since this decision, Enedis or the insurer routinely applies for a stay of proceedings pending the CJEU's decision. Various lower and appeal courts have upheld this application.

Claim against the TURPE 3 and 4 price decisions

In a judgment issued on 28 November 2012, the French Council of State cancelled the TURPE 3 price decision of 5 May and June 5 2009, which set the prices for the use of the distribution network for 2010-2013.

The grounds for cancellation were the method used to determine the "average weighted capital cost" (AWCC): the Council of State deemed this method "legally incorrect", on the grounds that it does not take into account "the specific accounts of concessions, which correspond to the rights of grantors to recover free of charge the assets belonging to the concession at the end of the contract (...) as well as the provisions for the renewal of long-term assets".

In order to take into account the Council of State's decision, the State approved a so-called TURPE "3 bis", based on the proposal submitted by CRE to retroactively cover the period commencing on 1 August 2009 and ending on 31 July 2013. The effective date of TURPE 4 was then put back to 1 January 2014 and a so-called TURPE "3 ter" was produced to cover the period commencing on 31 July 2013 and ending on 31 December 2013.

On 12 December 2013, the CRE adopted the TURPE 4 decision. The method used to calculate the return on equity reflects the above-mentioned judgment handed down by the Council of State on 28 November 2012. In outline, under this method, the asset base is split in two with (i) a "Regulated shareholders' equity" base, which only includes the assets financed by Enedis (and therefore excludes those financed by the granting authorities), to which a risk-free rate is applied, and (ii) a "Regulatory Asset Base", including all assets operated by Enedis, whether or not financed by it, to which a margin on assets is applied (or risk premium).

On 17 February 2014, Direct Énergie lodged an appeal with the Council of State against CRE's TURPE 4 decision adopted on 12 December 2013. In its application, Direct Énergie claimed that this method breached Article 14 of Regulation no. 714/2009 of 13 July 2009 of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity, restated in Article L. 341-2 of the French Energy Code (*Code de l'énergie*), under which "charges applied by network operators for access to networks shall (...) reflect actual costs incurred". Direct Énergie also claimed that the method used resulted in an excessively high rate of return for Enedis as the risk premium applies to assets that were not financed by the distributor directly. In its judgment handed down on 13 May 2016, the Council of State validated the method used to calculate the return on equity in TURPE 4, dismissing the application to quash the decision filed by Direct Énergie. It ruled that this method complies with the principles laid down in its previous judgment on TURPE 3 as, by making a distinction between the Regulatory Own Funds/Equity and the Regulatory Asset Base, each of

these components having a different rate of return, CRE had factored in the special accounting rules under the concession scheme. The Council of State also validated the fact that assets financed by the granting authorities were remunerated by a risk premium, based on (i) Enedis' obligation to return these assets in good working order and (ii) the payment of a fee by the latter. Lastly, it added that TURPE does not constitute state aid and that the resolution did provide for seasonal-time-of-day pricing.

Application filed by the UFC Que Choisir association before the CoRDIS

On 25 June 2014, the UFC Que Choisir association filed an application with the Standing Committee for disputes and sanctions (*Comité de règlement de différends et des sanctions* or CoRDIS) seeking an end to alleged breaches by Enedis of its obligations to remain independent from EDF. These proceedings are pending.

Direct Énergie

On 31 December 2015, Direct Énergie issued proceedings against Enedis with the Commercial Court in Paris in relation to the remuneration paid for the management of customers holding a single contract with suppliers (*contrat unique*). In May 2016, the parties reached an out-of-court settlement to their dispute.

Engie

On 23 December 2016, Engie issued proceedings against Enedis with the Commercial Court in Paris in relation to supplier remuneration for management costs for customers holding a single contract (see section 1.4.2.1.4 "Electricity supply contracts"). These proceedings are pending.

Quadlogic Corporation Controls

On 24 February 2016, Enedis received a claim form issued by an American company, Quadlogic Corporation Controls (QCC), before the Regional Court in Paris, in relation to an alleged infringement of a European patent held by QCC. Enedis strongly contests both QCC's inventive input and the alleged infringement. These proceedings are pending.

EDF International

EnBW

In February 2012, EDF International received an arbitration request filed with the International Chamber of Commerce by the German company Neckarpi GmbH, acquisition vehicle of the Bade-Wurtemberg State within the scope of the transfer by the EDF group of its shareholding in EnBW, signed on 6 December 2010 and finalised on 17 February 2011.

Neckarpi claims that the level of the price paid for the acquisition of the EDF group's shareholding in EnBW was excessive and thus constituted illegal State aid. On this basis, Neckarpi is mainly seeking the reimbursement of the amount allegedly paid in excess. This amount, initially estimated at €2 billion in the demand for arbitration, was re-estimated in July 2012 in an expert report ordered by the Bade-Wurtemberg State at €834 million. In September 2012, Neckarpi confirmed the reduction of its main claim to this amount. Alternatively, Neckarpi requests the cancellation of the sale of the EDF group's shareholding in EnBW.

EDF International filed a counterclaim for damages for the losses incurred as a result of the proceedings, which EDF considers to be unfounded and unjustified.

On 6 May 2016, the Court of Arbitration ruled in favour of EDF International, upholding its case and dismissing all of the applications filed against it by Neckarpri. EDF International's counterclaim was not accepted.

The Court ordered Neckarpri and the Bade-Wurtemberg State to pay 75% of the arbitration costs and to pay EDF International €4 million for the legal costs incurred. Neckarpri paid this sum on 3 June 2016.

Hungary – BE ZRt

Following a formal investigation based on European regulations on State aid, the European Commission issued a decision on 4 June 2008, requiring the Hungarian government to terminate the long-term electrical energy purchase agreements (PPAs) existing by the end of 2008 and that the electricity producers refund by April 2009 any amounts of state aid received since 1 May 2004, the date on which Hungary joined the European Union. BE ZRt lodged an appeal against this decision before the European Union General Court (EGC) on 4 May 2009.

The Hungarian Government did not challenge the European Commission's decision, and the Hungarian legislature enacted a law on 10 November 2008 terminating all PPAs on 31 December 2008 without compensation. In late April 2010 the European Commission and the Hungarian government accepted the principle of netting stranded costs with the state aid paid. As a result BE ZRt had no illegal state aid to repay.

By order of 13 February 2012, the EGC dismissed the action for cancellation filed by BE ZRt against the decision. However, insofar as BE ZRt is no longer liable to refund this state aid, and due to the absence of a direct impact on the ongoing arbitration (see below), BE ZRt did not appeal against this decision.

In order to pursue its business after the termination of its PPAs, BE ZRt negotiated an 8-year sales contract with MVM, the sole Hungarian buyer owned by the Hungarian State, for half of its electricity output, and benefited from the "Cogen" Decree¹ for the sale of the other half of its output, for a period due to run until 2013. However, Hungary adopted on 16 March 2011 an amendment to the Law on electricity ending any support to cogeneration in Hungary as from July 2011.

EDF International, whose investment in BE ZRt was undertaken after the company's privatisation on specific terms that are now undermined, notified the Hungarian State, on 12 May 2009, of an arbitration on the basis of the Energy Charter Treaty (ECT), in accordance with UNCITRAL rules. EDF International filed the following with the Permanent Court of Arbitration of The Hague (i) an application for compensation for the loss of the PPAs, assessing the loss it has suffered at approximately €290 million by factoring in the effects of the "heating" Decree which now limits BE ZRt's total profits, along with (ii) an application for reimbursement of the stranded costs arising from the termination of the PPAs, assessed at approximately €300 million. The European Commission was involved in these proceedings as an amicus curiae.

The Court of Arbitration issued its award on 3 December 2014, upholding EDF International's claims and ordering the Hungarian State to pay it €107 million (plus interest). The Court of Arbitration found that Hungary had breached the Energy Charter Treaty in two respects: firstly, a lack of sufficient compensation following the termination of the PPAs and secondly, the adoption of the "heating" Decree, which constitutes a separate breach of the ECT.

On 20 January 2015, Hungary filed an application with the Federal Swiss Court challenging the award.

In a judgment issued on 6 October 2015, the Federal Swiss Court dismissed Hungary's entire challenge and ordered it to pay EDF International compensation of 200,000 Swiss francs (€179,500) as costs. Hungary has paid this sum. The award is a final award and no appeal may be lodged against it.

On 27 December 2016, Hungary paid the principal amount awarded against it and the corresponding interest to EDF, corresponding to a total amount of €111.6 million.

Tax disputes

EDF International's tax audit relating to the 2008 to 2011 financial years led to correction proposals, received in late 2011 and late 2013. Two main adjustment claims, amounting to an approximate total of €265 million, relate firstly to the loss of value recorded at the end of 2009 and deducted from EDF International's income following the contribution of the CEG shares to its American subsidiary, EDF Inc., and secondly the valuation of the convertible bond created for the refinancing of the acquisition of British Energy. In 2012, EDF International contested these adjustment claims, against which it considers it has a good chance of being successful in litigation. In 2015, the France-USA amicable settlement procedure initiated by EDF International regarding the valuation of the CEG shares came to an end and resulted in a withdrawal of the tax adjustment notified to the Company.

Moreover, the authorities renewed their adjustment relating to the valuation of the convertible bond for the 2012 and 2013 financial years.

EDF Énergies Nouvelles

Silpro

Silpro (Silicium de Provence) went into court-ordered liquidation on 4 August 2009. EDF ENR group held a 30% minority shareholding in this company along with the main shareholder, the German company Sol Holding. On 30 May 2011, the liquidator brought action against the shareholders and executives of Silpro, with joint and several liability, to make up for the shortfall in assets resulting from Silpro's liquidation, amounting to €101 million.

In a judgment issued on 17 December 2013, the Commercial Court in Manosque ordered, without joint and several liability, the EDF ENR Group to contribute €120,000 to Silpro's shortfall in assets. In a judgment issued on 19 March 2015, the Court of Appeal in Aix-en-Provence set aside this judgment and dismissed all of the liquidator's claims filed, in particular, against the EDF ENR group. The Court found that there had not been any de facto management or mismanagement and held, in substance, that the 2008 financial crisis and the main shareholder's default, both unforeseeable events, combined with the lack of a credible partner to replace the majority shareholder for the continued implementation of the project, had caused the project to fail.

The liquidator has lodged an appeal with the Court of Cassation challenging the appeal decision issued on 19 March 2015.

SOCODEI

The low-activity waste processing and packaging centre (Centrac) operated by SOCODEI, a subsidiary wholly owned by EDF, is used to process weakly radioactive waste either by smelting or by incineration. On 12 September 2011, the explosion of a waste smelter caused a fire, killing one and injuring four. The accident did not cause any chemical or radioactive discharge. The ASN rated the accident as an INES level-1 accident and decided, on 27 September 2011, to only permit the smelters and incinerators stopped shortly after the accident to be re-started with prior authorisation. On 29 June 2012, ASN authorised SOCODEI to restart the incinerator subject to prior filing with ASN of the full report on the checking operations relating to the compliance of the facilities necessary for the furnace to be safe. Following

1. Decree defining the terms and conditions, including prices, for renewable energy and cogeneration adopted by the Hungarian government on 28 November 2008, known as the "Cogen" Decree.

the accident, several investigations were opened. On 16 September 2011, the Public Prosecutor's Department in Nîmes opened an inquiry against X for homicide and involuntary injuries and the inquiry is ongoing. The results of the investigations by the Labour Inspectorate and ASN were sent to the Public Prosecutor's Department and a court expert was appointed. Once the court-ordered expert assessment operations had been completed, the examining magistrate authorised the removal of the seals on the smelter, which meant that the repairs could commence.

Pursuant to its decision adopted on 14 January 2014 setting new technical requirements to be met before resuming operations, ASN authorised the restarting of the smelters in a decision issued on 2 April 2015. Following a summons served on its representative to appear before the examining magistrate on 16 September 2015, SOCODEI was placed under investigation for manslaughter. On 13 July 2016, the Public Prosecutor's Department in Nîmes drew up a brief to the examining magistrate asking for SOCODEI to be committed for trial before the Criminal Court in Nîmes. To date, no hearing date has been set.

Edison

Legal action initiated by ACEA SpA concerning Edison's shareholding in Edipower

In May 2006, ACEA SpA (ACEA), Rome's municipal utility, addressed a complaint to the Italian government and to Italian regulatory (AEEG) and competition (AGCM) authorities, alleging that the joint takeover of Edison by EDF and A2A SA (formerly AEM SpA) had crossed the threshold of 30% of the share capital of Edipower held by State corporations (limit set forth by a decree of the President of the Italian Council of Ministers, dated 8 November 2000 defining the rules applicable to the privatisation of companies (called "Gencos") then held by Enel SpA).

On 7 July 2006, the AGCM rendered an opinion (*segnalazione*) supporting ACEA's position and officially requiring the Italian Government and Parliament to take measures to comply with the provisions of the 8 November 2000 Decree.

In August 2006, ACEA initiated an action against EDF, IEB and WGRMH Holding 4 (along with Edison, A2A SA, Delmi, Edipower, AEM Turin, Atel and TdE) before the Civil Court in Rome.

According to ACEA, crossing this threshold is a violation of the applicable laws and constitutes an act of unfair competition which could adversely affect the competition on the energy market and the consumers' interests.

ACEA therefore asked the court to acknowledge the unfair behaviour of EDF and A2A SA, and force EDF and A2A SA to sell their stakes in order to remain under the 30% limit and prohibit them from taking and using energy in excess of the 30% threshold, and, finally, to compensate ACEA for the prejudice suffered that it has not been able to precisely evaluate at this stage, the valuation being subject to distinct proceedings.

ACEA also indicated that it would request the court to take protective measures to protect its interests until the court rules on the merits.

In January 2007, Endesa Italia joined ACEA in its legal action.

The judge has rejected the addition to the file of a note from ACEA (new evidence) which assessed the prejudice that ACEA would have suffered at €800 million.

In December 2010, Endesa Italia, now named E.ON Italia, and EDF signed a settlement agreement in which E.ON Italia undertakes to drop the case and all other claims against EDF in connection with EDF's indirect investment in Edipower. The judge has acknowledged this agreement in an order dated 19 May 2011.

On 19 September 2013, the Civil Court in Rome issued a judgment in favour of EDF, dismissing all of ACEA's claims. The Court excluded all liability under competition or tort law for EDF as all of EDF's acts had been authorised in advance by the relevant regulatory bodies and it had not breached any rules. ACEA appealed against this judgment on 23 September 2014.

At a preliminary hearing before the Court of Appeal in Rome on 15 June 2015, the case was listed for a procedural hearing on 21 March 2016. At this hearing, the judge ruled that the statements of case had to be filed by May 20 and June 9. In its judgment, handed down on 17 October 2016 and notified to the parties on 15 December 2016, the Court of Appeal dismissed all of the applications filed by ACEA and ordered it to pay the legal costs. The decision has been served, triggering the 60-day period in which an appeal may be lodged to the Court of Cassation (expiring on 20 February 2017).

Proceedings concerning the sale of Ausimont (Bussi)

Further to a preliminary investigation initiated by the Public Prosecutor of Pescara (Abruzzo region) in relation to a suspected case of water pollution and ecological disaster affecting the river Aterno basin at Bussi sul Tirino, which for more than a century has been the site of an industrial complex belonging to Ausimont SpA that was sold to Solvay Solexis SpA in 2002, the Public Prosecutor of Pescara notified certain former Directors and managers of Solvay Solexis and Edison that the case would go to court on charges of water poisoning, ecological disaster and fraud to the prejudice of the site's purchaser, Solvay Solexis.

On 15 December 2009, the proceedings against Montedison (now Edison) for fraud were abandoned. The proceedings on the matters of environmental disaster and poisoning of water or foodstuffs continued and, on 18 April 2013, the competent judge decided to bring action against Montedison's former managers before the Assize Court in Chieti. In a decision issued on 7 February 2014 by the Assize Court, the case against Edison was dismissed and accordingly, it is no longer a party to the criminal proceedings. In a decision issued on 19 December 2014, the same Court acquitted all of the defendants. The Public Prosecutor referred the case to the Court of Cassation, which issued a decision on 18 March 2016 ruling that the appeal was inadmissible and referring the case back to the Assize Court of Appeal in L'Aquila. The first hearing was held on 12 December 2016. Following this hearing, the court is expected to rule on this matter during the first semester of 2017.

In this context, a large quantity of industrial waste was found on a plot of land belonging to Edison adjacent to the plant, an attachment order has been placed on that land, and on 4 October 2007, the President of the Italian Council of Ministers appointed a deputy special commissioner empowered to undertake urgent measures: identification, safety and rehabilitation measures for the land. The commissioner has ordered Edison to prepare a survey of the zone, take urgent measures to make it safe and present proposals for decontamination of the ground and ground water. Edison, which has never used this site for its business, filed an appeal with the Regional Administrative Court in June 2008. The Regional Administrative Court rejected this appeal in March 2011 and Edison challenged this judgment before the Council of State.

Following the hearing of 15 January 2015, the Council of State definitively set aside the decision of the deputy special commissioner in a judgment handed down on 5 March 2015.

Action by the Public Prosecutor of Alessandria

In 2009, the Public Prosecutor of Alessandria (Italy) sent certain managers and former Directors of Ausimont SpA (now named Solvay Solexis SpA, a company sold by Montedison to the Solvay group in 2002) notification of the conclusion of investigations related to the possible poisoning of water from the spring on the industrial site of Spinetta Marengo and surrounding sites, and the lack of any action for site rehabilitation. The investigation was closed on 16 January 2012.

The judge entertaining jurisdiction decided, on 16 January 2012, to bring action before the Assize Court in Alessandria against a number of former Montedison executives for behaviour that could constitute environmental and public safety offences.

The trial before the Assize Court began on 17 October 2012. In addition, an administrative decision ordered Solvay Solexis to rehabilitate the Spinetta Marengo site. Edison voluntarily intervened in the proceedings to defend its interests in relation with the claim filed by Solvay Solexis for the cancellation of this administrative decision, notably because the administrative decision doesn't impose any obligation on Edison to rehabilitate the site (this obligation is imposed exclusively on Solvay Solexis). To date, no hearing has been scheduled before the Administrative Court in Piedmont.

At the end of the proceedings before the Assize Court on 18 December 2015, Aussimont's former managers and Montedison were acquitted of the water poisoning charges. Accordingly, Edison has not been held civilly liable, in any manner whatsoever. The judgment containing the reasons for the decision was published on 6 June 2016 and has been appealed to the Assize Court of Appeal in Turin. To date, no hearing has been scheduled.

Carlo Tassara

The company Carlo Tassara, Edison's main minority shareholder, brought legal proceedings on 12 July 2012 before the Regional Administrative Court in Latium (Rome) requesting on the merits an increase in the price of the mandatory takeover bid launched by the EDF subsidiary Transalpina di Energia (TdE), following the acquisition of control of Edison on 24 May 2012. The parties against which the plaintiff brought these proceedings are CONSOB, the Italian financial market authority, EDF, as well as its Italian subsidiaries (MNTC, WGRM4 and TdE), Edison, Delmi and A2A.

At the same time, the plaintiff filed with CONSOB in May 2012 a request to increase the price of the mandatory takeover bid based on practically identical arguments to those filed for the proceedings on merits before the Administrative Court. CONSOB dismissed this request on 25 July 2012. The plaintiff did not appeal against this decision.

In March 2015, the plaintiff also issued civil proceedings before the Court in Milan seeking damages from EDF, A2A and Edison on the basis of a similar fact-based line of reasoning as that used for the administrative proceedings. The proceedings were served on EDF on 27 March 2015.

In this case, the plaintiff claims that the negotiations between EDF and A2A that led to the takeover of Edison and Edipower were not conducted in line with Edison's sound management principle and harmed the interests of its minority shareholders. The plaintiff alleges that it was forced to sell its shares under the mandatory takeover bid launched following the acquisition of control of Edison as otherwise its holding in approximately 10% of Edison's share capital would have lost all liquidity. For the record, the bid price was €0.89 per common share. The plaintiff alleges a loss caused by a drop in value of approximately €294 million in the Edison securities recorded on

its balance sheet as at 31 December 2011. However, it has not given an exact figure for the damages it claims and asks the court to appoint a court expert to assess the exact amount of its loss.

On 26 January 2016, a procedural hearing was held before the Civil Court in Milan. The court decided that replies must be filed by March 29, and April 18. In a decision issued on 5 May 2016, registered and notified to the parties on 2 November 2016, the Court dismissed the procedural pleas and the applications to strike out filed against the plaintiff and set the date of the first directions hearing (20 December 2016). At this hearing, the timetable for the submission of the parties' statements of case was decided, along with the date of the next hearing (26 September 2017).

Measures taken by employees concerning exposure to asbestos or other harmful chemical substances

Over the last years, Edison has faced a significant increase in the number of claims for damages arising from the death or illness of employees that were allegedly caused by exposure to several forms of asbestos at factories owned by Montedison, or other judicial cases assumed by Edison as a result of corporate acquisitions.

Furthermore, Edison is involved in several criminal proceedings filed by former employees of companies belonging to the Edison group or their legal successors, arising from exposure to harmful chemical substances emitted by Montedison's facilities (since transferred to Enimont which became Enichem, a subsidiary of ENI).

Environmental litigation

Edison is involved in several criminal proceedings currently underway concerning damages caused by the operation of Montedison's chemical factories (petrochemical facilities in Porto Marghera, Crotone, Mantua and Cesano Maderno) prior to their sale to Enimont. These criminal proceedings also include actions brought by third parties concerning personal injuries related to the alleged environmental damage.

2.4.3 LITIGATION HAVING ARISEN AFTER THE CLOSING OF THE 2016 FINANCIAL YEAR

On 2 February 2017, Enedis filed a claim with the Council of State for the rescission of CRE's decisions regarding TURPE 5 Distribution dated 17 November 2016 and 19 January 2017, published in the *Journal officiel* on 28 January 2017.

On 3 February 2017, EDF, as an Enedis shareholder, also filed a claim with the Council of State for the rescission of the same CRE's decisions.

2.5 Insurance

To protect its assets and limit the impact of certain events on its financial position, the EDF group has dedicated insurance programmes that cover its major risks in terms of property damage, civil liability and insurance of persons. Nuclear risks are subject to the specific civil liability regime described below.

2.5.1 INSURANCE ORGANISATION AND POLICY

The Group Insurance Division is tasked with drawing up the EDF group's insurance policy and organising its implementation throughout the Group in order to continuously optimise the total cost of its insurable risks¹.

Its duties are to:

- continuously analyse cover for the EDF group's risks in conjunction with the Group Risk Department: analysis by business line, entity and project;
- establish rules for the Group's entire scope that enable covering all risks that can and must be covered, as well as optimising the total cost thereof and reducing volatility;
- promoting and applying these rules to all Group entities, using appropriate means and in compliance with governance rules; and
- developing and managing the tools necessary to perform the above tasks, including within the subsidiaries that report to the Insurance Department: EDF Assurances and the Group's captive insurance companies (see section 2.5.2. "Use of captive insurance companies and mutual insurance funds").

The Insurance Managers of entities and controlled subsidiaries that join the Group's programmes are responsible for:

- ensuring that all risks are insured;
- scheduling prevention inspections and overseeing implementation of the resulting recommendations;
- reviewing cover strategies and amounts declared (risk quantification);
- analysing losses and participating in claims handling.

This work, which is carried in close conjunction with the Group Insurance Division, continuously improves the quality of information about insurable risks as programmes are renewed and prevention inspections are carried out (assessment of maximum possible losses – MPL). In connection with prevention actions, the Insurance Division establishes and oversees implementation of the site inspections programmes.

The Group insurance policy, updated in 2016, was approved by the Executive Committee in January 2017. Its implementation is presented annually to EDF's Audit Committee.

Objectives

The insurance policy stipulates the risks that the Group decides to transfer to the market and the general principles for optimising such transfers: grouping purchases by setting up Group insurance programmes (common programmes for EDF and relevant subsidiaries), allocating risks between traditional markets and other types of cover (specialised mutual insurance funds, transfers to the financial markets, etc.), individual and Group excesses (in general, only major risks are transferred), optimising intermediation costs.

Implementation methods

Since 2004, the Audit Committee is presented with an annual update on the costs of covering EDF's risks through insurance or by transferring risks to the financial markets.

Since 2011, a Strategic Insurance Policy Committee (COSA) chaired by the Group Executive Director, Finance provides an opportunity for the business lines and financiers to reflect on changes to and procedures for implementing the insurance policy, in particular the main characteristics of insurable risks hedging programmes.

Each year, the Insurance Division carries out an analysis of the risk mapping at the Group level in order to identify solutions, even partial solutions, to cover these risks. Based on this shared view, EDF is in a position to improve, and, where necessary, extend the coverage of insurable risks in accordance with the principles established by the Group in this area.

EDF has set up its Group insurance programmes and extended them broadly to its controlled subsidiaries, in order to, firstly, harmonise risk cover and rationalise its management and, secondly, control the corresponding insurance costs.

The French Energy Code has gradually caused RTE to transfer to the insurance market the covers provided under the EDF group's insurance programmes. RTE completely withdrew from the EDF group insurance programmes as at 31 March 2015.

Insurance contracts, according to market practice, include exclusions, limits and sub-limits.

2.5.2 USE OF CAPTIVE INSURANCE COMPANIES AND MUTUAL INSURANCE FUNDS

Like all major French and foreign groups, EDF uses captive insurance companies and mutual insurance funds to supplement coverage provided by the traditional insurance markets.

The EDF captive insurance companies are:

- Wagram Insurance Company DAC, an insurance company founded in 2003 in Dublin, which is involved in the majority of the Group's insurance programmes;
- Océane Re, a reinsurance company established in 2003 in Luxembourg, to reinsure EDF's nuclear civil liability.

EDF is a member of the Oil Insurance Limited (OIL) mutual insurance fund, which covers the risk of damage (other than to aerial networks) to the Group's own property or property managed under concession (by EDF and its consolidated subsidiaries). OIL is an insurance mutual fund dedicated to the needs of businesses in the energy sector and provides its members with cover for property damage. The scope covered includes *inter alia* nuclear power plants (the conventional portion), fossil fuel-fired power plants, hydropower facilities, network substations and exploration and production assets.

The Group's damage insurance programmes combine this cover provided by OIL and covers provided by market insurers.

EDF is also a member of the European Liability Insurance for the Nuclear Industry (ELINI), the European Mutual Association for Nuclear Insurance (EMANI), the Nuclear Industry Reinsurance Association (NIRA) and Blue Re,

1. Risks that can be transferred to the insurance markets and the alternative markets.

which are mutual insurance funds that manage cover in this area for European nuclear power operators.

Captive insurance companies and mutual insurance funds allow EDF to reduce the cost of its insurance programmes and the amount of premiums paid to the insurance market.

2.5.3 CIVIL LIABILITY INSURANCE (NOT INCLUDING NUCLEAR CIVIL LIABILITY)

EDF holds general civil liability insurance covering EDF, Enedis and their controlled subsidiaries against the financial consequences of civil liability (not including nuclear damage) that they may incur in doing business as a result of damage caused to third parties. In particular, this programme covers the risks of civil liability associated with the operation of structures (hydroelectric dams, fossil fuel-fired power plants, substations and other network facilities), risks associated with development of the Group's renewable energy activities (wind, solar, etc.), as well as risks associated with environmental damage (emissions of solid, liquid or gaseous substances).

This cover is purchased to the extent of available capacity under acceptable financial terms on the insurance and reinsurance markets. Maximum cover is €1 billion. For this programme, the share of risk retained by the Group with regard to an insurable accident ("retention"), including the share of Wagram Insurance Company DAC, does not exceed €5 million per insurable accident. Subsidiaries generally opt for lower excesses that are more in line with their financial capacity.

2.5.4 CIVIL LIABILITY INSURANCE FOR CORPORATE OFFICERS AND DIRECTORS

EDF holds civil liability insurance covering corporate officers and directors of EDF, Enedis and their controlled subsidiaries against the financial consequences of their civil liability incurred in performing their management functions.

2.5.5 DAMAGE INSURANCE (NOT INCLUDING NUCLEAR ASSETS)

2.5.5.1 Contractual damage programme

The scope of the contractual damage programme includes EDF, Enedis, EDF Energy, Edison, Dalkia and numerous other subsidiaries.

Wagram Insurance Company DAC, the Group's captive insurance company, together with other insurers and reinsurers, provide extensions of cover (property damage and operating loss bringing the maximum up to €1 billion) in addition to the covers provided by OIL.

For this contractual damage programme, the Group's retention per claim, including the excess (which varies by subsidiary) and the share of the risk retained by Wagram Insurance Company DAC, does not exceed €25 million.

This programme provides cover for operating losses for most subsidiaries in the event of property damage, but not for EDF, which does not benefit from this cover. The actions and measures taken to prevent industrial and environmental risks and limit their impact are described in section 2.2.2 "Group risk management and control".

RTE has taken out specific contractual damage insurance for its own property.

2.5.5.2 Cover for "construction" risks

EDF has taken out insurance policies covering specific construction risks (contractors' all-risk and erection/testing all-risk policies). These policies are not included in any Group programme but are purchased on an ad hoc basis for major construction projects, such as the Flamanville EPR and Hinkley Point C, the construction of combined cycle power plants, dams, combustion turbines, etc.

These covers are specifically monitored and are renegotiated if unforeseen events occur during the construction projects.

2.5.5.3 Storm cover

In connection with the renewal of the storm insurance coverage, Enedis signed with Swiss Re on 27 June 2016 a parametric insurance contract covering the aerial transmission network against the consequences of exceptional storms.

With a term of five years and total cover of €275 million, this innovative insurance contract triggers, in the event of a claim, parametric compensation based on a composite index for wind speeds recorded by Météo France stations weighted by the vulnerability of the distribution network in each region of the Enedis concession area.

2.5.6 SPECIFIC INSURANCE FOR NUCLEAR FACILITY OPERATIONS

2.5.6.1 Civil liability of nuclear facility operators

In France, EDF's current insurance policies are in compliance with French Act no. 68-943 of 30 October 1968, Act no. 90-488 of 16 June 1990, and Act no. 2006-686 of 13 June 2006 (known as the "TSN" Act), now codified in the French Environmental Code and which codified the civil liability obligations imposed on nuclear facility operators by the Paris Convention (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities").

Subsequently, the Act on Energy Transition for Green Growth enacted on 17 August 2015 amended *inter alia* the provisions of Articles L. 598-28 and L. 597-32 of the French Environmental Code and in particular the limits on the civil liability of nuclear operators which, since 18 February 2016, have been set at €700 million for nuclear installations (€70 million for low-risk installations) and €80 million for risks during transport.

In order to comply with the new statutory thresholds, EDF issued a contract notice on 10 August 2015 entitled "EDF SA Nuclear Liability Insurance Programme" to obtain and implement insurance coverage to cover its nuclear civil liability and related claims management as of 18 February 2016.

The insurance coverage obtained following this invitation to tender allows the Group to meet the new obligations while controlling their financial impact. It is thus divided between the nuclear insurance market (AXA, reinsured by Assuratome, a French nuclear pool), the captive insurance companies of the Group and the nuclear mutual insurance ELINI.

This coverage took effect on 18 February 2016 for a period of three years. In view of the likely evolution of the obligations imposed on the operator during the period (notably the entry into force of the Protocols amending the Paris and Brussels Conventions (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear installations"), clauses allowing an exit from the contract have been included.

Claims management has been entrusted to the mutual insurance company ELINI, for its computerized claims processing system, and to the company EQUAD which has the necessary human and network resources.

In the United Kingdom, where EDF Energy operates nuclear power plants, the operator's nuclear liability regime is comparable to the French regime. The UK Parliament approved on 4 May 2016 the "Nuclear Installations Order" (order transposing the above-mentioned amending Protocols of February 2004), which makes substantially the same changes as the French TSN Act in 2006 but which, for the most part, shall enter into force only in conjunction with the Protocols.

This text stipulates that the obligations for UK operators will be increased from £140 million (current limit) to the equivalent of €700 million, with this amount increasing progressively over a period of five years up to a cap of €1.2 billion.

Currently, EDF Energy is insured by ELINI and Wagram Insurance Company DAC. The captive reinsurance company Océane Re contributes to the cover for this risk through the reinsurance policy it has issued to Wagram Insurance Company DAC.

For more information on the laws governing nuclear power plant operators' civil liability, see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities".

2.5.6.2 Civil liability for transport of nuclear substances

Under the Paris Convention, the operator that is the "shipper" is civilly liable for transport of nuclear substances (unless stipulated otherwise). On 18 February 2016, this liability limit was increased to €80 million with an unchanged scope of damages (for more information see sections 2.5.6.1 "Civil liability of nuclear facility operators" and 1.5.6.2.2 "Specific regulations applicable to basic nuclear installations"); the scope of damages admissible for compensation will then be widened when the amended Paris Convention comes into force. This liability is as of now covered by the aforementioned nuclear operator civil liability policy.

2.5.6.3 Damage to nuclear facilities

In addition to the cover obtained through EDF's membership in the OIL mutual insurance fund, property damage (including following a nuclear accident) to EDF's nuclear facilities in France and to EDF Energy's nuclear facilities in the United Kingdom, as well as nuclear decontamination costs, are covered by a joint insurance programme underwritten primarily by the NRI British insurance pool, AXA and Allianz (reinsured by Assuratome, the French nuclear pool) and EMANI (nuclear mutual insurance association) (see sections 2.5.2 "Use of captive insurance companies and mutual insurance funds" and 2.5.7. "Premiums") for a total capacity of €1,760 million, over and above an amount of €240 million. The Group programme covering power plants in France and the UK was renewed on 1 April 2015 for a period of three years up to 30 March 2018.

Furthermore, in connection with the activities of CENG (Constellation Energy Nuclear Group) in the United States, EDF Inc. is a member of NEIL (Nuclear Electric Insurance Limited, a nuclear mutual insurance association).

2.5.7 PREMIUMS

The total amount of insurance premiums for Group programmes for all types of cover amounts to €196.8 million in 2016.

EDF deems that policies taken out under the Group Insurance Policy are in line with the insurance market's current supply capacity for players of similar size and activities in the world, particularly with regard to cover limits and deductibles. The nature, insured amounts and prices of insurance cover in place may be amended at any time based on market condition, the pace of deployment of insurance programmes and the assessment of EDF's Board of Directors regarding risks and suitability of coverage.

3

Environmental and societal information – Human Resources

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This section includes information that the EDF group is required to publish in accordance with the provisions of Article L. 225-102-1 of the French Commercial Code and the Decree of 24 April 2012 implementing the Grenelle 2 Law, which require companies to disclose how the social and environmental consequences of their activities are taken into account and report on their commitments in favour of sustainable development.

3.1 Introduction

3.1.1 MATERIALITY MATRIX: PRIORITISING ISSUES

EDF carried out its first Materiality Analysis¹ in 2014 to prioritise the Group's main sustainable development challenges, from both EDF's point of view and that of its stakeholders. The intention is to ensure that EDF group's commitments and communications meet stakeholders expectations and dovetail with the Group's strategic challenges. In 2015, an additional subsidiary was added to this analysis². It will be updated in 2017.

Materiality Analysis

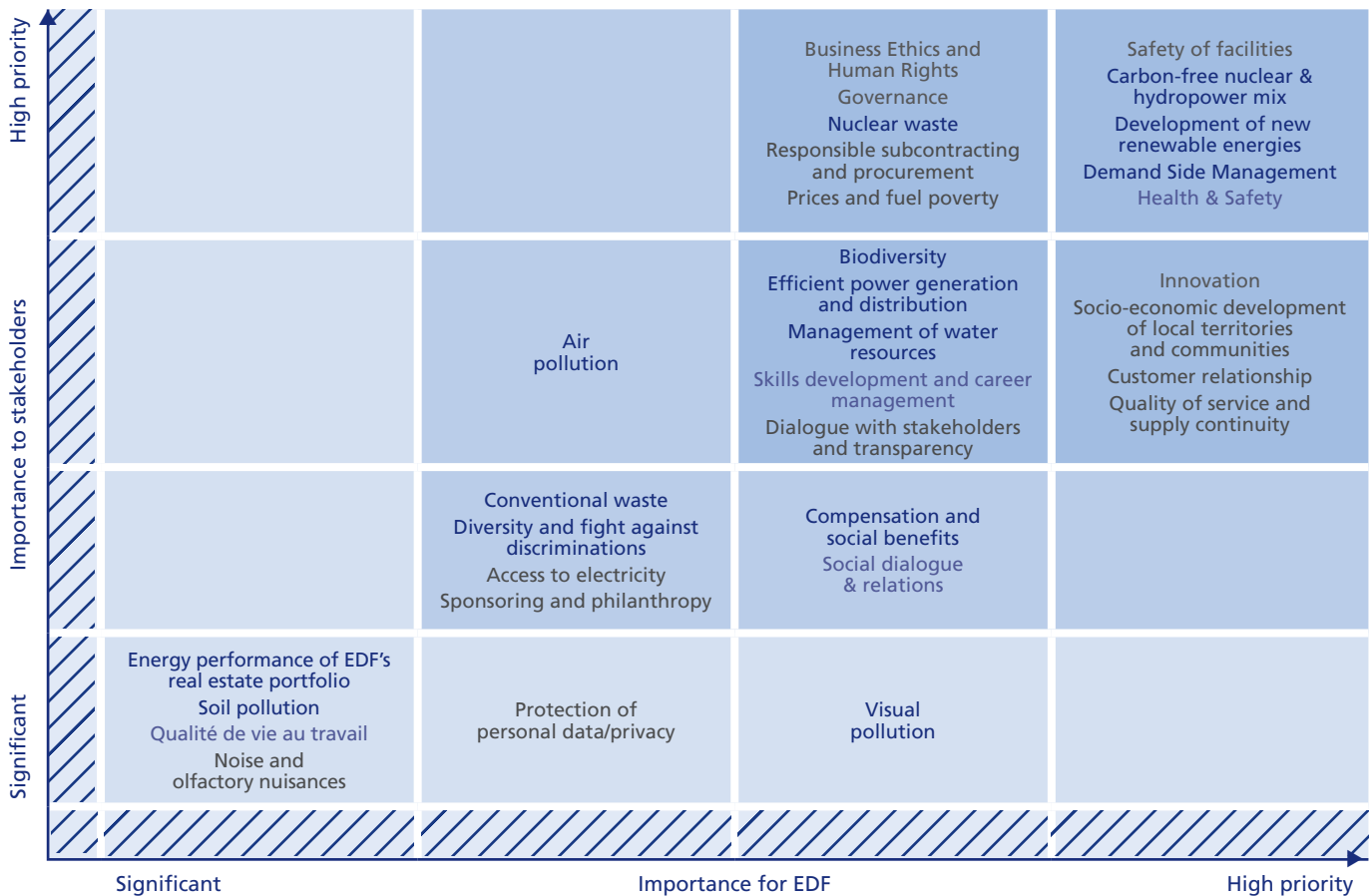
The analysis was performed with the methodological support of a specialist firm and was based on interviews with internal stakeholders (employees, directors

and managers representing all Group's divisions and the main countries in which it is present: France, United Kingdom, Italy, Poland, Belgium, Brazil) and external stakeholders (members of the Sustainable Development Council and representatives of the Group's main shareholder, the French State). The surveys and internal barometers (customer satisfaction surveys, service provider barometers, general public surveys, etc.), and the sectoral analyses produced by non-financial rating agencies also fed into this assessment.

The list of issues analysed was defined to cover all topics encompassed by the ISO 26000 standard relating to the social responsibility of organisations, with the level of detail according to the importance of each topic to the industry. Thus, the fight against climate change was sub-divided into several issues, corresponding to EDF's levers for action: low-carbon nuclear and hydropower mix, development of new renewable energies, energy efficiency, control of energy requirements.

The materiality analysis has been presented to the Group's Executive Committee.

Key results



Legend: • Blue: environmental issues • Light blue: labour issues • Black: social issues • Grey: cross-interest issues

1. In accordance with the definition of the principle of materiality, as it appears in Article 225 of the Grenelle 2 Law, the AA 1000 assurance standard, the GRI G4 guidelines, ISO 26000 standard and the International Integrated Reporting Council (IIRC) framework on integrated reporting.
2. EDF Norte Fluminense.

The most important issues are plant safety, a low-carbon energy mix (nuclear and renewable energies), the development of new renewable energies, the control of energy demand, and general health and safety. In total, 19 high-priority issues are identified. They are all examined in more detail (policy, objectives, reporting and management) as part of the Corporate Social Responsibility goals and in this Registration Document (see the GRI – Global Reporting Initiative – correlation table available on the website edf.fr).

3.1.2 CORPORATE SOCIAL RESPONSIBILITY GOALS

Energy is changing. It is increasingly decentralised, low-carbon and digital. Customers are increasingly taking control of energy usage, savings and generation. Meters are becoming more intelligent. Digital progress makes it possible for energy use to be optimised and for appliances to be controlled remotely. Wind, solar, sea: resources to produce energy are diversifying, renewable and environmentally-friendly. All of these innovations are driving the change and the evolution of EDF. This openness to change, proximity to the customers and local communities, and the desire to play a key role in the energy transition and climatic issues drives EDF's new strategy, CAP 2030: to be a responsible electricity producer that champions low carbon growth.

To achieve this, EDF has set itself six Corporate Social Responsibility Goals, which reflect the UN's 17 sustainable development goals and build on the values the Group has been championing for 70 years¹. Each objective reflects a strong commitment as regards climate and carbon, the human development of the group's employees, the range of offerings to customers, particularly vulnerable customers, energy efficiency, dialogue and consultation, preservation of biodiversity. These six objectives replace the previous Corporate Responsibility Commitments (CRCs), taking into account contextual changes in line with the Group's strategic plan.

These six ambitious Corporate Social Responsibility Goals lay out the roadmap for the group's businesses and subsidiaries to successfully implement CAP 2030. Embedded within the Group's strategic reviews² and projects, they will be evaluated via non-financial reporting, and the Company will report back on them every year. Corporate responsibility is thus at the heart of EDF's strategy.

Goal #1: to go beyond the requirements of the 2°C target set by the COP 21 climate conference by drastically reducing our CO₂ emissions

At the Paris climate conference, the international community reiterated the crucial aim of keeping the rise in temperature to below 2°C. Greenhouse gases, particularly CO₂ emissions, are recognised as the main culprits of climate change. EDF is the only large low-carbon electricity producer and it is committed to generating electricity with ever-lower carbon levels. The Group has set itself the ambition of going even further in cutting CO₂ emissions by 2030.

This target goes towards attaining sustainable development goals no. 13 (fight against climate change) and no. 7 (affordable and clean energy) set by the UN on 25 September 2015³.

Goal #2: to adopt industrial groups' best practices in people development: health & safety, gender diversity, and social advancement

In an environment that is undergoing rapid, far-reaching changes, the human aspect is more than ever a core component of the CAP 2030 strategic project, itself a key factor in the Group's performance. To tackle the industrial and commercial challenges it faces, EDF must remain a socially-responsible and committed employer and a benchmark in terms of its employees' health, professionalism and engagement, by building their skills and fostering greater workforce diversity. EDF is committed to incorporating the best personnel development practice of industrial groups in order to maintain strong employee commitment.

This target goes towards attaining sustainable development goals no. 3 (good health and well-being) and no. 5 (gender equality) set by the UN on 25 September 2015.

1. Announced by the Chairman at the Shareholders' Meeting, they result from the choice of the Executive Committee based on proposals from considerations by a cross-Group steering group incorporating the appointed representatives of the Group's main businesses and subsidiaries (see section 3.2.5.2 "Integration of Corporate Responsibility Goals in the Group's strategic process").

2. Within which the contribution of each business or subsidiary is defined.

3. On 25 September 2015, countries had the option to adopt a set of sustainable development goals to end poverty, protect the planet and ensure prosperity for all within the framework of a new sustainable development agenda. Each goal has specific targets to be met in the next 15 years. Governments, the private sector, civil society and individuals are invited to play an active role in attaining these goals.

Goal #3: to offer all vulnerable people information about and support with energy use and energy benefits

For almost 30 years, EDF has been working with the government, regional authorities and welfare agencies to help combat fuel poverty. In order to prevent the power bill from worsening the situation of people in vulnerable circumstances, EDF group is now using digital technology to improve information and support to society's most vulnerable members.

This target goes towards attaining sustainable development goal no. 10 (reduced inequalities) set by the UN on 25 September 2015.

Goal #4: to innovate through digital energy efficiency solutions to enable all customers to use energy better

Customers are becoming increasingly involved in managing their energy consumption. EDF group is committed to offering innovative digital products and services that evolve to keep pace with technological developments, and to the use of smart meters, so that customers can better analyse their consumption and save energy.

This target goes towards attaining sustainable development goal no. 12 (responsible consumption and production) set by the UN on 25 September 2015.

Goal #5: to systematically organise a process of transparent and open dialogue and consultation for every new project around the world

The Group's ambition is to renew and make systematic its practice of engaging in dialogue around each new project, so as to better take into consideration the aspirations of different regions and their inhabitants. The EDF group undertakes to implement the rules governing dialogue, as prescribed by international standards with regard to stakeholders participation, and to ensure that such consultations are publicly reported.

This target goes towards attaining sustainable development goal no. 17 (partnerships for the goals) set by the UN on 25 September 2015.

Goal #6: to launch a positive approach to biodiversity, not limited to understanding and reducing the impacts of our activities in the long run but having a positive effect on biodiversity

The Group intends to go further in its biodiversity approach and develop a positive approach, by understanding what it can do better and by avoiding as much as possible irreversible damage to the natural environment. EDF does not want to limit itself to a defensive approach to biodiversity, solely focusing on reducing the impacts of its industrial operations on ecosystems.

This target goes towards attaining sustainable development goals no. 14 (life below water) and no. 15 (life on land) set by the UN on 25 September 2015.

3.1.3 ETHICS AND COMPLIANCE**3.1.3.1 The EDF group's commitment to ethics and compliance**

In December 2015, the Chairman and CEO of EDF decided to implement a Group Ethics and Compliance Programme. This programme meets the requirements of national and international regulatory authorities and observes market practices.

The Group Executive Committee, led by the EDF Chairman and CEO, is responsible for determining the orientations and priorities of the compliance programme, allocating the necessary energy and resources and ensuring the monitoring and control of its implementation.

This programme places all EDF directors, and, more generally, all employees, at the heart of a compliance initiative. As such, managers must ensure on a daily basis that all employees are aware of, understand and adhere to the rules of conduct as regards ethics and compliance.

The implementation of the Ethics and Compliance Programme has resulted in a Group Ethics and Compliance Department being set up and a Group Ethics and Compliance Director being appointed to support, with their team, the directors and more generally all Group employees, in implementing the Programme.

3.1.3.2 Warning system

The EDF ethics warning system managed by the Ethics and Compliance Department enables all employees acting in good faith to flag up a violation of the Group Ethics Charter or the Group Ethics and Compliance Policy confidentially and securely. The interface is a web page¹ where the nature of the warning can be entered and a brief description of the main points can be given. The warning system is accessible 7 days a week, 24 hours a day and whistleblowers receive an acknowledgement within 72 hours, notifying them that their warning is being processed. In line with the zero tolerance policy, each warning is processed. Within the framework of the "Sapin II" Law, the warning system now includes compliance topics.

The aggregated annual results are presented to the Ethics Committee of the Board of Directors.

At 31 December 2016, the Group warning system identified 75 "major breaches" of the Group Ethics Charter or the Group Ethics and Compliance Policy (see section 3.1.3.3).

Future application decrees as a result of the "Sapin II" Law promulgated on 9 December 2016 will result in changes being made to the warning system in 2017 to bring it into line.

1. <https://www.edf.fr/edf/alerte-ethique>.

	Number of cases detected during the year		Geographical breakdown						
	in 2015	in 2016	EDF SA	France (excluding EDF SA)	Europe	Asia	America	Africa	
Group Ethics Charter	11	23	16	4	3	0	0	0	
Fighting against corruption	0	0	0	0	0	0	0	0	
Financial Ethics	0	0	0	0	0	0	0	0	
Competition law	1	0	0	0	0	0	0	0	
Conflict of interest	0	3	2	1	0	0	0	0	
Security of personal data	0	1	0	0	1	0	0	0	
Fighting against fraud	29	23	9	4	9	0	1	0	
Harassment and discrimination	19	25	17	5	2	0	1	0	
Sector-specific régulation	0	0	0	0	0	0	0	0	
International sanctions	0	0	0	0	0	0	0	0	
TOTAL	60	75	44	14	15	0	2	0	

3.1.3.3 Group ethics and compliance rules

3.1.3.3.1 Group Ethics Charter

In 2013, EDF drew up an Ethics Charter, based on the Group's three values (respect, solidarity and responsibility). This Charter outlines the ethics commitments of the Group and its employees. It sets out the rules and principles which must guide the actions and behaviour of Group employees on a daily basis.

It is accessible directly on the edf.fr website, in French and in English. At the end of 2016, the Charter was also available in ten other languages: Dutch, German, Hungarian, Italian, Mandarin, Polish, Portuguese, Russian, Spanish and Vietnamese. The Group Ethics charter applies to the Group's business entities, companies, sub-contractors and joint ventures.

Any other ethics code or policy applied locally must be made consistent with the Group Ethics Charter and must as a minimum include all commitments covered by the Group Ethics Charter. Such codes or policies may go above and beyond the Group Ethics Charter on particular commitments, depending on local legislation and/or concerns.

The Ethics Charter was rolled out in the executive management of the businesses and the Group companies between 2013 and 2014. The Group wanted the Charter to be championed at the managerial level, so presentations to the Executive Management Committee were held, as well as team meetings and integration training. The charter has been widely circulated by managers or via the Group's many communication tools (intranets, noticeboards, newsletters, emails, etc.).

Once it had been rolled out in full, the Group companies focused on consolidation activities. Then, in 2015, Edison and EDF Luminus launched a dedicated kit-based e-learning system for managers. EDF Démász introduced a new tool which it uses to communicate regular ethical messages. EDF Polska held workshops on the Group's three core values, while EDF Norte Fluminense set up its warning system to reconcile the requirements of the recent Brazilian legislation and the related EDF group principles.

Information and influencing actions (lobbying) with governmental decision-makers takes place in line with the Group's policy in a fair and responsible manner. Such actions exclude any practice that equates to corruption and comply with the rules of the organisations at which they are aimed. Particularly for France, EDF is listed on the register of interest representatives of the National Assembly and of the Senate. It must adhere to their respective codes of conduct. At the European level, EDF is also listed on the Transparency Register of the European Parliament and the European Commission, and applies the related code of conduct.

3.1.3.3.2 EDF group's Ethics and Compliance Policy

On 17 May 2016, the EDF group Executive Committee adopted the EDF group's Ethics and Compliance Policy, which embodies the main rules that directors must be aware of, adhere to and enforce in their entities, strictly in line with the risks of these entities. It is a document which completes the Group Ethics Charter; it can be updated in response to new regulations, and submitted for auditing.

This policy covers rules which, if not adhered to, may lead to penalties being applied to individuals, entities and the parent company, particularly those relating to:

- preventing the risk of corruption (controlling the integrity of business relations, guidelines on gifts and invitations);
- financial conduct (preventing the risk of money laundering and financing of terrorism, preventing market abuse, compliance with the EMIR regulation¹);
- preventing breaches of competition law;
- preventing conflicts of interest;
- protecting the security of personal data;
- fighting against fraud;
- combating harassment and discrimination;
- compliance with industry regulations (REMIT regulation², dual-use items);
- compliance with international sanctions programmes.

1. European Regulation no. 648/2012 dated 6 July 2012 (European Markets Infrastructure Regulation, widely known as "EMIR").

2. European Regulation no. 1227/2011 on Wholesale Energy Market Integrity and Transparency (REMIT).

EDF group's Ethics and Compliance Policy is completed by implementation notes to assist in its deployment within Group entities. They relate to checks on the integrity of business relations, financial conduct, personal data protection and fighting against fraud.

3.1.3.3.2.1 Preventing the risk of corruption

At the end of 2016, there were no proven cases of corruption among the major failings identified. Over the past year, EDF group has not been convicted for any cases of corruption.

Checks on the integrity of business relations

A specific instruction note signed by the Secretary General was issued on this matter which completes the Group's Ethics and Compliance Policy.

Guidelines on gifts and invitations

The Ethics and Compliance Policy requires directors to implement guidelines on gifts and invitations within their entities in line with their activities.

3.1.3.3.2.2 Financial conduct

The EDF group's Ethics and Compliance Policy sets out the requirements to be adhered to prevent market abuse, money laundering and financing of terrorism, and those concerning compliance with the European EMIR regulation. A Stock Market Code of Conduct completes this Policy.

Actions to raise awareness of stock market rules are conducted with Group employees, concerning particularly the precautions and obligations for holders of inside information.

3.1.3.3.2.3 Preventing breaches of competition law

EDF group is making awareness of and adherence to competition law an absolute priority for its employees. With this in mind, the Group has implemented a Competition Compliance Programme since 2010. The programme aims to ensure that all operations of subsidiaries and entities of the Group in France and worldwide comply with competition law. It applies to all Group employees, particularly as regards their relations with customers, competitors, partners and suppliers.

This Competition Compliance Programme covers all aspects of competition law: abuses of dominant position, anti-competitive agreements, mergers and government assistance. The programme entails a number of training sessions, either online or face-to-face. It resulted in a range of training and awareness-raising instruments (see section 3.1.3.6.3 "Second wave of training on competition rules") being prepared.

At the same time, a best practice guide, as well as regular notes and publications on developments in competition law are circulated widely.

Furthermore, awareness-raising measures and a procedure for the rules applicable in the event of unannounced investigation by the competition authorities have been implemented and resulted in several exercises to monitor adherence to it since 2013.

The Competition Compliance Programme undergoes checks via an annual report and internal Group monitoring procedures.

3.1.3.3.2.4 Preventing conflicts of interest

Prevention of conflicts of interest is covered in both the Group Ethics Charter and the Group Ethics and Compliance Policy.

Group directors must implement a system to prevent conflicts of interest which makes employees aware of risk situations, provides a system for employees to declare their links to the bodies in which they have a personal

interest (elective mandates, corporate mandates, etc.), and an obligation for all employees to withdraw from an operation in the event of a potential conflict of interest.

At the end of 2016, three cases of conflict of interest in France were entered into the warning system. All were processed in coordination with the entities concerned.

The Group Ethics and Compliance Department has developed in-house tools to make all employees aware of situations of conflicts of interest (themed information sheets, e-learning modules, videos about how to identify high-risk situations, strategies to adopt and best practice).

3.1.3.3.2.5 Personal data protection

Personal data protection is now governed in France by the *Informatique et Libertés* Law no. 78-17 of 6 January 1978, amended. In response, EDF appointed as of 2006 a Personal Data Officer (PDO) responsible for ensuring personal data protection for both customers and employees and for enforcing this Law within the company.

Work began on preparing the Group for the entry into force of new provisions in European regulations regarding personal data.

3.1.3.3.2.6 Fighting against fraud

Fighting against fraud is one of the Group's main priorities: A "zero tolerance" policy has been in force since the end of 2010. Within the framework of the internal control system, managers have drawn up and adopted anti-fraud measures locally.

By making the fight against fraud one of its focus areas, the Group's Ethics and Compliance Policy has strengthened its tools in this regard.

3.1.3.3.2.7 Combating harassment and discrimination

As part of its policy of respect for persons, the Group does not tolerate any form of discrimination, harassment or violence in the workplace. This commitment is part of the regulatory and judicial context which, in many countries, incriminates not only the actions and behaviours themselves, but also employers who fail to implement sufficient preventative measures. Respect for persons is one of the key commitments of the Group Ethics Charter, and it is upheld by every Group employee.

More specifically, directors take all necessary measures to prevent discrimination, harassment and physical and emotional violence in their entities by striving to (i) make employees aware of the risks of harassment and discrimination, (ii) raise awareness among managers on ways of preventing and fighting harassment and discrimination, (iii) communicate regularly on the ethics and compliance warning system and (iv) apply the appropriate penalties in the event of proven wrongdoing. All cases reported via the warning system are processed in accordance with the Group's zero tolerance policy.

3.1.3.3.2.8 Compliance with industry regulations

The EDF group Ethics and Compliance Policy requires the Group entities involved in the matter to implement a REMIT regulation compliance system. In addition, in 2016 the Group circulated Group Guidance which makes recommendations for implementing a compliance and monitoring procedure.

This Policy also requires the entities involved in exporting products on the list of dual use products (including exports within the EU), appended to EC Regulation no. 428/2009 of 5 May 2009, to implement a compliance procedure.

3.1.3.3.2.9 Compliance with international sanctions programmes

The Group Ethics and Compliance Policy requires the directors of Group entities concerned to implement a system to prevent the risk of international sanctions within their entities. The system involves a clause being inserted into each contract entitling EDF to terminate a business relationship with immediate effect in the event of failure to adhere to an international sanctions programme.

3.1.3.4 The structure of ethics and compliance within EDF group

3.1.3.4.1 The EDF Board of Directors Ethics Committee

The EDF Board of Directors, via its Ethics Committee, monitors the consideration of ethical aspects in its work and in the management of the Company (see chapter 4 “Corporate Governance” section 4.2.3 “Board of Directors’ Committees”).

3.1.3.4.2 The Group’s Ethics and Compliance Department

The structure of the Group ethics and compliance function is approved by the Group’s Executive Committee. The Group Ethics and Compliance Director (GECD) reports to the Secretary General, who is a member of the Executive Committee. He or she proposes, manages and coordinates, in liaison with the other departments concerned, the implementation of the Group’s ethics and compliance action plans in France and internationally.

The GECD’s main roles are to: map the Group’s ethics and compliance risks; set up and lead the network of Ethics & Compliance Managers (ECMs) at the Group level; support directors and ECMs in circulating ethics and compliance rules; train employees; assist in the handling of any failings identified and draw up periodical reports for the Group’s governance bodies.

3.1.3.4.3 Ethics and Compliance Managers

In 2016, EDF group set up a network of around forty Ethics and Compliance Managers mandated to Group directors to implement the Ethics and Compliance Policy of their entities.

3.1.3.5 Evaluating EDF group’s Ethics and Compliance risks

On 24 June 2016, the GECD Director sent the Group’s Ethics and Compliance Managers a methodology and risk mapping instrument for ethics and compliance issues drawn up in liaison with the Group’s Risk Department.

This instrument enables the Group’s directors to find out about then view a map of their entity’s main ethics and compliance risks, and to implement actions tailored to their entity to prevent and minimise these risks. This work meets the requirements of the main regulations applicable to the Group¹, the recommendations of international organisations², and best practice identified among groups comparable to EDF in terms of compliance.

3.1.3.6 Training for Group employees and steps to raise awareness of ethics and compliance rules

3.1.3.6.1 A dedicated intranet site

The Group Ethics and Compliance Department is developing prevention and training actions and provides deployment tools for all employees. It leads a network of Ethics and Compliance Managers in the various entities and has a dedicated community on the Group’s intranet.

3.1.3.6.2 Training on corruption and conflicts of interest

The Group Ethics and Compliance Department has implemented a “Corruption Risk Prevention” training pathway which meets the requirements of the supervisory authorities. It has been specifically defined as of mid-2016 for directors and managers. The programme has been approved via UN-acknowledged certification. Directors must complete this digital training.

Additionally, the social criminal Division of the Group’s Legal Department and the Group’s HR Department provide an e-learning session on “Preventing corruption” for all employees: it covers real-life best practice in business relationships, conflict of interest and gifts.

3.1.3.6.3 Second wave of training on competition rules

The Group’s Ethics and Compliance Policy requires Group directors to implement a procedure within their entities to train employees in competition law rules, monitor employee adherence to competition law rules and incorporate competition law rules into decisions regarding the entity’s strategy.

After rolling out an e-learning module between 2010 and 2015 which trained over 5,400 employees, in France and overseas, the Legal Department’s Competition Law Division this year devised a new general e-learning competition module with a more interactive format. Launched in late 2016, this Serious Game entitled: “Cap Antitrust – Serious Game in competition law”, is accessible to all Group employees, on the Group’s internal training website in several languages (French, English and Italian)³.

This online offering is completed by tailored face-to-face training for some Group subsidiaries and entities. In 2016, over 650 employees received training during around forty face-to-face training sessions, representing over 3,100 training hours.

3.1.3.7 Checks

The Group’s Ethics and Compliance Policy rules define the internal control requirements covering ethics and compliance. Their implementation is subject to auditing by EDF group.

A dashboard for each GECP item has been devised by the GECD, to evaluate the deployment level of each key requirement and to ensure that the actions decided upon are implemented and are effective.

1. Federal Corrupt Practice Act in the United States, United Kingdom Bribery Act, Loi Sapin II in France.

2. World Bank, OECD, Organisation for Economic Co-operation and Development, International Chamber of Commerce (ICC), Transparency International.

3. In parallel, from 2015, two modules specific to French business teams were launched regarding the end of regulated tariffs or long-term contracts.

The Ethics and Compliance Department works in close partnership with the Internal Audit Department. The salient aspects of ethics and compliance audits are shared regularly. Furthermore, the GECD is consulted during preparation of the EDF group audit programme. An audit of the compliance system is scheduled for 2017.

3.1.3.8 Penalties

In line with the zero tolerance policy, any employee failing to meet their professional obligations is liable to penalties and as such may be called up before a local committee specific to their entity or company: this committee will decide on the appropriate penalty. Depending on the circumstances and situations, the penalty may be anything from a warning to dismissal, including different stages (with or without an entry in the file, with or without suspension, with or without demotion). The committee's decision is final.

3.1.3.9 Commitment to supporting associations and non governmental organisations on ethics and compliance matters

Historically, EDF has been present within professional ethics and compliance circles: co-sponsor of the International Chamber of Commerce – France section's "e-Resist" e-learning module, it is also a member of the ICC's Corporate Responsibility & Corruption subcommittee.

EDF has also been present for several years in the *Cercle d'éthique des affaires* (Business Ethics Circle), the essential aim of which is to help embed ethics and values more firmly within companies and organisations.

EDF is a member of several anti-corruption circles and associations, such as the *Cercle pour la promotion d'un environnement commercial international équilibré* (Libraci) and the *Cercle de la Compliance*, which EDF joined in 2016.

Finally, in 2016, EDF joined Transparency International France, following an evaluation procedure. EDF is present within the *Forum des entreprises engagées* (FEE) which brings together companies seeking to adopt the most stringent transparency and integrity standards.

3.1.3.10 Non-financing of political parties

As stated in one of the commitments of its Ethics Charter, EDF group "respects the beliefs and opinions of everyone as well as those of political organisations, trade unions and religious organisations without providing support to any in particular". In practice, EDF group companies may not pay any contributions in the countries where the financing of political parties is prohibited. In countries where it is permitted (in the United States for example), EDF group companies may decide whether it is appropriate to provide financial support. All Group companies must report any financing to their parent company each year (declaration of the beneficiaries and associated amounts).

3.1.4 TAX TRANSPARENCY

EDF has implemented a Group tax policy to define the applicable principles, in terms of taxation, to all of the Group's relations with its financial or business partners and the government or tax authorities. The tax policy is applied by the Group Executive Director responsible for the Group's Financial Management. It was approved by the Executive Committee in January 2017.

1. Fiscal cash flow: tax paid.

3.1.4.1 The Group tax policy

A wide scope

The policy covers all the Group's taxes: direct and indirect taxes, taxes, contributions, tax or customs deductions which are the ultimate liability of the company or its clients (when EDF merely acts as a collector on behalf of third parties).

It must be applied throughout the Group, by all entities regardless of their nature or geographical location. All Group staff must comply with this policy which aims to protect the Group's reputation and to reduce any tax risks to which it may be exposed through its activities.

Clear directions

- strengthen the tax performance of the Group in strict compliance with national and international tax laws and regulations;
- control tax risks through continued, systematic improvement, in all Group entities, of the identification and management of fiscal risks;
- implement the tools, reporting and actions necessary for the continued, optimum, forward-looking management of fiscal cash flow¹, as well as attentive and proactive monitoring of the Group's effective tax rate;
- ensure the conditions necessary for obtaining constructive relations with the tax and government authorities of all kinds by maintaining a transparent, professional relationship with them.

Ethical principles

In the context of the distribution between countries of operating margins internal to the Group, EDF strives to apply a transfer price policy in accordance with the principles of the OECD to justify the resulting revenues. EDF has no legal implantation (company, branch or office of representation) in a territory listed as a non-cooperative state or territory as defined by French and international legislation which is not determined by economic activity reasons and under no circumstances purely by tax reasons. Similarly, cash flow via these countries is prohibited where it is for tax reasons only.

Presence in Luxembourg and Ireland

Like all major French and international groups, EDF relies on captive and mutual insurance companies to supplement the cover provided by traditional insurance markets. The captive and mutual insurance companies enable EDF to reduce the cost of its insurance schemes and the total sum of premiums paid. EDF has two captive insurance companies which are based in Ireland and Luxembourg:

- Wagram Insurance Company DAC Ltd. (wholly owned by EDF), insurance company founded in 2003 in Dublin which is involved in the majority of the Group's insurance schemes;
- Océane Re (wholly owned by EDF), a reinsurance company founded in 2003 in Luxembourg to reinsure EDF's nuclear civil liability risk.

3.1.4.2 Taxes paid by the Group

In 2016, the EDF group's tax expense was €3,656 million, a 0.4% increase (€15 million) compared with 2015 (+1.1% in organic terms).

Income taxes paid by the Group amounted to €838 million in 2016 (€1,508 million in 2015): the €671 million decrease in corporation tax paid is essentially due to the differences in France on the tax balances for previous fiscal years.

The effective tax rate (ETR) was 33.2% in 2016.

BREAKDOWN BY COUNTRY OF TAXES PAID BY GROUP SUBSIDIARIES

<i>(in millions of euros)</i> Country	2016	2015	2014
France	445	1,041	2,045
UK	151	157	145
Italy	117	47	214
Belgium	70	168	76
Norway	(62)	(38)	(40)
Egypt	46	30	95
Brazil	31	33	7
Hungary	20	17	14
Poland	8	12	10
Chile	7	n/a	n/a
Canada	(5)	16	3
The Netherlands	5	5	4
United States	(4)	5	4
Greece	3	n/s	1
Germany	3	1	n/s
Singapore	2	2	1
Portugal	(1)	4	7
Vietnam	1	2	2
Luxembourg	(1)	1	2
China	n/s	7	20
Ireland	n/s	n/s	n/s
Turkey	n/s	0	0
Bulgaria	n/s	0	0
Russia	n/s	n/s	n/s
Switzerland	0	n/s	n/s
Mexico	0	n/s	3
Japan	0	n/s	1
Spain	0	n/s	n/s
Austria	0	n/s	n/s
Israel	0	0	0
India	0	0	0
South Africa	0	0	0
TOTAL	838	1,508	2,164
Laos (entity accounted for using the equity method)	2	3	n/a
TOTAL	840	1,511	2,614

n/a: non applicable; n/s: non significative.

3.1.5 SAFETY OF INDUSTRIAL EQUIPMENT AND THIRD PARTIES

As the world's leading nuclear operator and Europe's leading hydropower generator, the EDF group makes the safety of its industrial facilities its number one priority¹.

3.1.5.1 Nuclear safety

The operational safety of nuclear facilities is taken into consideration from the initial design stage, and is regularly monitored, together with the implementation of an employee motivation policy and large-scale investment programmes. The Group's nuclear safety policy is incorporated into training for both EDF employees and subcontractors.

Nuclear safety is subject to internal controls (annual reviews, internal control plans and nuclear inspection audits in France) and external controls (peer reviews between corporate members of WANO², and OSART³ audits conducted by experts from the International Atomic Energy Agency (IAEA)).

In France, the safety of nuclear facilities is controlled by the ASN. In the United Kingdom, the Office for Nuclear Regulation (ONR) is the independent watchdog authority for safety in the civil nuclear sector. It monitors compliance with safety rules, including for transportation of radioactive matter.

See section 1.4.1.1.3 "Environment, nuclear safety, radiation protection".

3.1.5.2 Hydropower safety

EDF operates 433 hydropower plants in France and manages the reservoirs of 239 large dams. The average age of the French hydropower fleet is 72 years. Hydropower safety aims to control risks of the structures rupturing, risks associated with managing structures during flood periods, as well as risks associated with water flow and water level variations during operation. Like the nuclear safety policy, the hydropower safety policy aims for a high level of safety and continuous improvement (see section 1.4.1.4.1.2 "Hydropower safety").

3.2 Environmental and societal requirements

3.2.1 FIGHT AGAINST CLIMATE CHANGE STRATEGY⁴

EDF group is aware of both the impact of its operations on climate change, and the impact of climate change on its operations. That is why, as a responsible leader and as part of CAP 2030, it is rolling out an ambitious strategy to fight against climate change. Its strategy drives transformation to protect against climate change risks, contribute to the main sustainability priorities and grasp the opportunities this new context offers up.

With CAP 2030, EDF group aims to be the world's flagship electricity producer, efficient, responsible and champion of low-carbon growth. To achieve this, the Group has a strategy designed to anticipate the risks posed by climate change (both to operations and the asset portfolio) and to grasp the opportunities offered up by this new context: providing today the energy solutions of tomorrow.

3.2.1.1 Priorities

According to the international scientific community, anthropogenic emissions of greenhouse gases (GHG), and CO₂ emissions in particular, are the main causes of climate change (IPCC, AR5). In the near future, we will have to face up to more frequent, longer-lasting heatwaves, more intense extreme weather events in many regions of the world, and a rise in average sea levels (IPCC, AR5). Energy production now accounts for 60% of global anthropogenic greenhouse gas emissions, 40% of which is linked to electricity and heat generation (IEA, 2016).

Electricity industry operations have an impact on climate change; the electricity and heat generation sector alone produces 25% of anthropogenic CO₂ emissions (IPCC, AR5). However, due to the heavy use of low-carbon energy sources in its generation mix, the EDF group's direct impact on climate change is ultimately relatively low⁵. Therefore, the use of this low-carbon electricity is a major positive contribution in terms of emissions avoided.

1. See for example: La sûreté nucléaire, notre priorité absolue ("Nuclear safety, our absolute priority"), 2015 dossier by the EDF group, in response to the FTSE4Good criteria.

2. World Association of Nuclear Operators.

3. Operational Safety Review Team.

4. Unless otherwise indicated, CO₂ emissions mentioned are direct CO₂ emissions excluding life cycle analysis (LCA) of generation plants and fuel.

5. Direct CO₂ emissions by kilowatt-hour generated are low compared with industry averages. The gas sold by the Group to end customers makes up a very large part of its indirect emissions.

CO₂ emissions due to heat and electricity generation⁽¹⁾

	2016	2015 ⁽²⁾
EDF group	77	91 (95)
EDF	19	15 (15)

(1) The percentage of heating in the Group's energy mix is increasing, rising from 5.5% in 2014 to 6.1% in 2015, and 6.6% in 2016.

(2) In 2016 the EDF group changed how it calculates the CO₂ content per kilowatt-hour. The value obtained using the old method is shown in brackets.

Global average (2014): 519gCO₂/kWh¹ – Average of main European electricity suppliers (2015): 311gCO₂/kWh².

Climate change is already impacting the electricity sector; the EDF group must support and anticipate three series of major changes which are having an impact on its operations:

- regulatory changes: global electricity demand is set to grow by nearly 80% by 2050³; with this in mind, a consensus has been formed around reducing carbon in electricity generation as an effective way of reducing CO₂ emissions; this involves for example setting targets in the Law on the energy transition and green growth in France, those of the Climate Change Act in the UK, and those of the 2020 and 2030 Climate Energy Packages of the European Union. The Paris agreement of 2015, seeking to keep the rise in temperatures "well below 2°C compared to pre-industrial levels" sums up this underlying trend;
- changes in technology and competitive positioning: energy is increasingly decentralised, low carbon and digital. Customers are playing an increasingly active role in their consumption and production of electricity; new economic models are emerging which throw the competitive positioning into question;
- climatic changes likely to impact the company's assets and modify the physical operating conditions.

In this context, EDF group's fight against climate change strategy focuses on two areas: decarbonising and adapting to climate change⁴.

3.2.1.2 EDF group's decarbonisation strategy

EDF group's decarbonisation strategy is first and foremost based on an ambitious industrial policy focused on a low-carbon generation (3.2.1.2.1 "Decarbonising electricity generation"). This policy entails action to promote increased electrification as a way of removing carbon from the economy (3.2.1.2.2 "Contributing to the process of removing carbon from the economy through low carbon electricity"). Finally, EDF is innovating to enable its customers to optimise their energy consumption (3.2.1.2.3 "Helping customers consume less, more efficiently").

3.2.1.2.1 Decarbonising electricity generation⁵

3.2.1.2.1.1 EDF group, the leader in low-carbon electricity, has met its commitments

EDF group is one of the world's leading electricity producers, not only in terms of net installed capacity and electricity generation, but also in terms of carbon performance⁶ with direct emissions currently at 77gCO₂/kWh, a carbon intensity six times less than the global average in the sector⁷.

In mainland France, where 71% of the Group's output is generated, EDF currently has direct emission levels of 19gCO₂/kWh, a carbon intensity 27 times smaller than the global average in the sector.

This carbon performance is the result of an industrial policy which has enabled the Group to honour its commitments:

- to never exceed 150 gCO₂/kWh;
- the Group committed to halving its carbon intensity in mainland France in 2016 compared to 1990 levels and has quartered them;
- the Group honoured its commitment to reduce its CO₂ emissions in Corsica and in overseas departments to under 480gCO₂/kWh in 2015;
- the Group continues to reduce its emissions in the UK, in line with its commitment to cut the carbon intensity of electricity generation to 250gCO₂/kWh by 2020, and to less than 100gCO₂/kWh by 2030.

EDF group's leadership in reducing emissions has also been recognised by the *Global 500 Greenhouse Gases Performance* study for 2010-2015 by Thomson Reuters, which ranked the Group 12th out of the 500 largest companies in the world, in terms of emissions reductions⁸.

1. Most up-to-date statistic available for CO₂ emissions generated by power plants and combined cycles, CO₂ Emissions from fuel combustion, International Energy Agency, 2016, data for 2014.

2. Climate Change and Electricity, European carbon factor Benchmarking of CO₂ emissions by Europe's largest electricity utilities, PWC, 2016 (data for 2015).

3. Energy Technology Perspectives 2016, International Energy Agency.

4. with a number of drivers, such as a high-performance electricity mix which is competitive and already low carbon, a robust process for identifying risks and opportunities and for managing priorities at the very highest corporate levels, a fight against climate change strategy at the very heart of EDF's strategy which is embedded in the Group's businesses, R&D which helps attain the medium and long term energy and climate targets of the energy transition, an investment policy in line with priorities, suitable human resources and an appropriate remuneration policy, etc.

5. It is also worth mentioning the measures taken by the network operator Enedis, a fully independent subsidiary, which has undertaken a massive programme to limit losses on the distribution network by installing special transformers that reduce losses by around 20%. The aim was for all new transformers installed from 2016 to be loss-reducing. In 2015, 6,000 of the 8,500 transformers installed were loss-reducing. In 2016, the target was reached: all 10,500 transformers installed were loss-reducing. This was equivalent to a CO₂ reduction of 6,000 tonnes per year.

6. El New Energy Top 100 Green Utilities, Top 100 Rankings Based on Carbon Emissions and Renewable Energy.

7. Statistic available for CO₂ emissions generated by power plants and combined cycles, CO₂ EMISSIONS FROM FUEL COMBUSTION, International Energy Agency, 2016, data for 2014.

8. Global 500 Greenhouse Gases Performance 2010-2015, Thomson Reuters, 2015.

3.2.1.2.1.2 To maintain its leadership, EDF will make a new emission reduction commitment, compatible with current scientific understanding¹

CSR no. 1: to go beyond the requirements of the 2°C target set by COP 21 by drastically reducing our CO₂ emissions

The CAP 2030 strategic project aims to make EDF “an efficient, responsible electricity company that champions low carbon growth”, Related to CAP 2030, the first Corporate Social Responsibility goal (CSR no. 1) outlining the Group’s determination to cut its emissions was formulated in May 2016. This ambition will be embodied by a target seeking to go beyond the carbon reduction requirements of the COP 21 climate conference in compliance with an internationally recognised methodology.

3.2.1.2.1.3 EDF group is implementing the resources necessary to meet this ambitious carbon reduction target

Under its investments policy, EDF uses commodity price scenarios that contain a carbon price by means of which the profitability of future investments can be evaluated; financial commitments are scrutinised by the CAP 2030² strategy, and monitored for compliance with the Group’s commitments. These investments are directed at low-carbon assets. Furthermore, R&D efforts are focusing on sustainable development and fight against climate change targets; a significant part of R&D work is for example focused on incorporating intermittent renewable energies, smart grids and optimising thermal power plants.

The Group wishes to continue to have a balanced, low carbon generation mix, which combines nuclear and renewable generation. It aims to cut CO₂ emissions in its generation asset portfolio, maintain its leading position in terms of renewable generation capacity, while preserving good nuclear flexibility, to improve its compatibility with the development of renewable sources.

1. Drastically reduce CO₂ emissions from the fossil asset portfolio

In France, EDF developed its fossil generation resources by closing 10 of its 13 coal-fired units (2,835MW), and recently closing the fuel oil power plant in Aramon (1,400MW). Following the decision by the Central Works’ Council on 21 September 2016, the gradual shutdown of the 6 oil-fired units was scheduled for 1 April 2017 (units 1 and 2 in Porcheville) and for 1 April 2018 (units 3 and 4 in Porcheville, and units 2 and 3 in Cordemais).

Since 2015, EDF has been supporting the establishment of a minimum price for carbon in France and in Europe, which would enable substitution of coal-fired electricity generation with generation from gas; this would enable the use of coal-fired power plants to be reduced. This development of the thermal fleet will fall within the PPE³.

In 2016 the unavailability of nuclear units led to a greater reliance on fossil-powered thermal power plants but replacing coal-fired power plants with natural gas power plants has limited the rise in CO₂ emissions from 5 million tonnes in 2015 to 7 in 2016.

In the UK, EDF Energy still operates almost 4GW of coal-fired power plants, currently indispensable to the UK’s supply and demand balance. These

power plants are to be closed by 2025, according to the decisions of the UK government. In continental Europe outside France, EDF has launched a strategic review of its energy generation assets based on fossil fuels.

EDF advocates a minimum CO₂ price to limit the use of existing coal-fired power plants and is continuing its efforts to replace some of its coal-fired power plants with biomass. More generally, the Group is working to optimise the performance of all of its thermal resources.

2. Maintaining its position as a leader in renewable energies

As a player in the energy transition, EDF is Europe’s leading producer of renewable energies (hydropower, wind power, solar power, biomass, etc.) and will significantly accelerate their development. The Group aims to double by 2030 (compared with 2014) its net renewables installed capacity, from 28GW to over 50GW, mostly using wind power, solar power and hydropower as part of its CAP 2030 plan.

EDF group plans to do this in four ways:

- roll out a global renewable energies and low carbon strategy to strengthen its positions in France and worldwide;
- optimise the performance of the facilities;
- develop new projects to support the energy transition in countries in which the Group may eventually operate;
- prioritise the most competitive technologies (hydropower, onshore wind power, photovoltaic), by contributing to improvements to the most promising, but as yet costly, technologies (offshore, CSP, etc.), by investing in innovation, in the right place and in line with EDF group’s international strategy (USA, China and others).

The percentage of renewable energies in the EDF group electricity capacity mix stood at 22.1% in 2016 compared with 21.9% in 2015 and 20.8% in 2014.

Investments and their financing

For the past six years, the Group has devoted a significant portion of its gross operating investments for development to developing renewable energies. In 2016, the percentage of renewable energies in the Group’s gross operating investments for development totalled 36%, at the same level as in 2015 (see section 1.3.3.1 “Investments in 2016”).

On 6 October 2016, EDF issued a third Green Bond for €1.75 billion maturing at 10 years. This new issue is part of EDF’s new Green Bond Framework, extended to the financing of investments in renovating and modernising hydroelectric assets in mainland France, in addition to the construction of new wind power and solar power projects already eligible under the first two issues. EDF has thus issued the equivalent of over €4 billion of Green Bonds in three years to support its development in renewable energies⁴.

Furthermore, on 20 April 2016, the French financial markets authority approved the partnership entered into in October 2014 between EDF and Amundi. The resulting asset management company, Amundi Transition Energétique (ATE), 40% of which is owned by EDF, aims to raise funds from institutional investors and private individuals for the production of renewable energies (wind power, photovoltaic, small hydropower works), and to develop systems for improving energy efficiency and to manage on behalf of third parties funds designated for energy transition projects.

1. The Group aims to set a quantitative emissions reduction target for Scopes 1 and 2 by using the Sectoral Decarbonisation Approach developed under the “Science-based targets” initiative.

2. This is done within EDF’s commitment Committee.

3. The multi-year energy program (PPE) was approved by Decree on 27 October 2016.

4. For more information on the projects financed by EDF Green Bonds, see section 6.8.

Hydropower

EDF group is the European Union's largest hydroelectricity producer and has 20GW installed on 239 dams and 436 generation sites worldwide.

In France, EDF's hydropower fleet underwent a significant modernisation and maintenance programme. Through some 2,000 annual maintenance operations, EDF adapts its resources to both performance and regulatory requirements, thereby protecting its hydropower generation potential. In 2016, investments for operation and maintenance amounted to approximately €340 million. Large-scale maintenance projects were under way in 2016, such as the penstocks projects in Passy and Malgovert and the renovation of the Revin pumped-storage hydropower plant with an increase in capacity of the four reversible pump turbines. In addition, EDF is focusing on its innovation and development efforts with a particular emphasis on the safety and performance of generation facilities. Examples of this include the Paimpol-Bréhat project led by EDF, which is the world's first offshore tidal turbine project developed on a pre-industrial level. This project enabled EDF to be selected after a call for expression of interest by ADEME to install seven tidal turbines in 2017 in Raz Blanchard. Another example is the major programme to renovate and develop the Rance power station, in order to increase its reliability, modernise it and ensure its long-term safety and profitability (works from 2013 to 2025); the complete overhaul of the power plant in Gavet on the Romanche; the addition of a generator assembly at the La Coche plant (most powerful Pelton high-elevation hydraulic assembly in France) as well as reserved-flow turbine set projects and small-scale hydropower development (such as the Chavaroche and Mancières projects). In 2016, these development investments amounted to nearly €100 million, 40% of which was allocated to the Gavet site. Faced with climate change, plans are also being implemented to guarantee the maintenance of hydropower generation capability in France (see section 3.2.2.3 "Water").

Outside Europe, the EDF group is interested in hydropower facility projects in areas where the hydroelectric potential could make reliable electricity available to populations and the local economy, in particular South America, Africa and South-east Asia. EDF's engineering teams have renowned skills and expertise in taking technical, environmental, social and societal aspects into consideration in projects, particularly following the completion of the Nam Theun dam in Laos, which integrated all aspects of sustainable development in conjunction with the local populations. Through its Brazilian subsidiary EDF Norte Fluminense, EDF owns 51% in the Compagnie Énergétique de Sinop responsible for building and operating the hydropower facilities on the Sinop dam. Work is continuing on this 400MW project, which began in 2014. Further, EDF is currently committed to the tune of 40% with Cameroon (30%) and the SFI (30%) to developing a 420MW dam on the Sanaga river, 60 kilometres north of Yaoundé within the Cameroonian company Nachtigal Hydro Power Company. The project's environmental and societal plans were approved in September 2016 and forwarded to the authorities¹.

Wind power and Solar power

In order to develop its installed capacities in wind and solar power, the Group is primarily relying on EDF Énergies Nouvelles (EDF EN), an integrated global operator, present in all segments and throughout the entire renewable energy value chain. The company develops, builds and operates green electricity power plants in 21 countries, for itself and on behalf of third parties, particularly in wind power and solar photovoltaic power, mature and competitive technologies. Attentive to future developments in other segments, the company is also present in decentralised energy, energy storage and marine energy. EDF Énergies Nouvelles is a subsidiary of EDF and contributes to the Group's ambitions in renewable energies.

In Europe, like in the United States, support mechanisms for renewable energies (excluding hydropower) have evolved. Technological progress has made it possible to continue to reduce the cost of these means of generation. Eventually this will offset the decline in public support on mature segments such as onshore wind power and solar power. In emerging countries, increased energy demand should support and encourage the development of renewable energies.

In 2016, the Group, via EDF EN, strengthened its wind and solar power asset base with large commissioning programmes (1,190MW gross) and construction programmes (1560.1MWgross) in a number of countries. In China, the world's leading renewable energies market, EDF Énergies Nouvelles took a majority stake in UPC which is developing and constructing wind projects. This transaction increased its wind power portfolio by over 1.3GW. In early 2016, a similar operation was conducted in India by acquiring 50% of the SITAC shares. In Latin America, EDF Énergies Nouvelles has won major contracts in Brazil, Mexico and Chile. There is total capacity of 1.4GW under construction on this continent. As regards storage, EDF Énergies Nouvelles is developing new battery systems in the United States and the UK, particularly in West Burton where its subsidiary, EDF Energy Renewables will build a battery storage unit of 49MW.

At 31 December 2016, EDF EN had a gross installed capacity² of 9,613.5MW, a net installed capacity of 6,262.9MW and a gross capacity under construction of 1,780.4MW.

The French government has set the medium-term target of developing 6GW of offshore wind power. Within this context, the Group is involved in the emergence of a French offshore wind power industry. As such, EDF EN is the leader of the consortium selected by the authorities in 2012 to complete and operate 1.5GW of offshore wind power. Public consultations have been carried out on each of the projects. The authorisations obtained for these future resources are currently being appealed, resulting in a delay to the start of the works. The consortium's three projects represent the installation of more than 200 large wind turbines on the Brittany and Normandy coasts. Moreover, EDF Énergies Nouvelles is developing the "Provence Grand Large" floating offshore wind turbines project, comprising three 8MW wind turbines in the Faraman region off the coast of Marseilles, which won ADEME's call for projects for pilot floating wind farms which it had launched in August 2015.

Biomass and geothermal energies

Since the beginning of 2015, the Group has implemented a biomass sustainability policy that aims to foster growth in the use of solid biomass for the generation of electricity and heat, supporting and securing current and future investments in this domain. This policy is based on the principles of reducing greenhouse gases over the entire life cycle, preserving natural resources and biodiversity, respecting human rights and collaborating with stakeholders.

With Dalkia, the EDF group has become co-leader in energy services and a benchmark player in biomass energy in France. Dalkia's medium-long term strategy is to develop renewable energies as much as possible, particularly biomass, geothermal, biogas and energy recovery. To date, renewables account for 29% of Dalkia's energy mix.

Dalkia develops geothermal energy, which is particularly well-suited to the specific characteristics of urban heating networks. Dalkia is currently the French market leader in collective geothermal energy.

1. <http://www.nachtigal-hpp.com>.

2. Including biogas production and storage

The consolidation of Verdesis and Tiru is a key part of Dalkia's strategy to develop renewable energies in 2016, and will boost this development, particularly in biogas¹ and heat recovery. Outside the repositioning of Verdesis and Tiru, which are renewables activities, in the Dalkia group, over 90% of Dalkia's investments have been in biomass.

Several projects are under construction or about to be commissioned in the field of biomass and geothermal energy, such as the biomass cogeneration power plant in Strasbourg (with Électricité de Strasbourg) or in the field of biogas, the biomethane processing and injection site in Tours. Several major heating and/or cooling network projects were won in 2016: the three main networks of Toulouse, Le Mans and Lyon.

Électricité de Strasbourg opened the deep geothermal power plant of Riffershoffen on 7 June 2016. This new geothermal power plant should make it possible to attain the objective of multiplying by 5 the geothermal energy generation installed capacity by 2030. It is a global first, in terms of an energy transition model and an environmental approach. It is responsible and innovative and opens up major development opportunities on a regional and national scale. Riffershoffen is the first power plant to directly power an industrial generation site by vapour, using heat from geothermal water. Water at 165°C is drawn from depths of over 2,500 metres. Once at the surface, the calories are extracted, and the water is reinjected into the ground; the loop enables a 100% renewable, reliable and permanent energy supply. Électricité de Strasbourg also opened the deep geothermal energy power plant in Soultz-sous-Forêts in September 2016.

Innovation and research

The EDF group has made innovation and research one of its distinctive features, developing initiatives approved by stakeholders and by investing heavily in research, through renewable energy R&D programmes. As part of CAP 2030, the EDF group intends to increase its R&D on energy storage, photovoltaic power and electric mobility.

Societal innovation

EDF group has innovated by developing crowdfunding initiatives for projects or technically and financially supporting the development of projects in the valleys where its hydropower facilities are located:

- crowdfunding of projects: the first crowdfunding campaign launched in France by a subsidiary of EDF Énergies Nouvelles was a resounding success in 2015, securing funds (by way of an interest-bearing loan) which exceeded the target by 35%, to develop a wind farm in Bois de Belfays (Vosges and Bas-Rhin). The farm will have ten 2MW wind turbines. In 2016, another EDF EN project company used crowdfunding from 13 June to 14 July 2016 to co-finance development studies for two new wind projects located in Castelnaudary Lauragais Audois. This new campaign raised over €306,000, in excess of the €255,000 target;
- "One river, one territory" programme: to prove EDF's commitment to economic development and innovation in the hydropower valleys where EDF operates, EDF continues to support local economic development via its seven "One river, one territory" agencies. This programme, launched in 2012, is the result of a joint constructive approach bringing together local socio-economic players, multidisciplinary experts and EDF representatives.

Technological innovation

EDF group has an ambitious R&D policy in the field of renewable energies. Research programmes are based on four objectives: reducing costs and improving the performance of mature technologies, identifying major technological breakthroughs, making the most promising technologies industrially viable (including via the exploration of new means of renewable

generation such as floating wind power, tidal turbines, by identifying technological risks and proposing innovative, high-performance ways of managing them) and contributing to incorporating renewables into electricity systems.

In 2016, the main areas of research were:

- boosting the performance of EDF's hydropower resources; developing and transferring tools and methods to optimise the maintenance and investments of the hydropower fleet;
- evaluation of wind-energy yield in areas of complex terrain or light wind;
- developing a generation potential assessment methodology using innovative technology such as the floating lidar;
- improving the efficiency of photovoltaic cells, extending the lifespan of the panels, seeking the best performance with bi-facial modules (increased ground generation capacity of 5 to 25%);
- improving maintenance techniques for wind turbines with a view to increasing their lifespan;
- offshore wind power with the operation by General Electric of two 6MW turbine prototypes in close partnership with EDF EN. EDF EN has also purchased a pre-series turbine for a test on the Oesterild site, which, after a successful test of the prototype on land, was installed in 2016 for a test programme. EDF EN will also install five innovative 8.3MW MHI Vestas turbines for the offshore farms in the UK. These turbines will be installed in 2017;
- several programmes on grid integration of renewables.

The Group also has to meet the challenge of integrating renewable energies that are intermittent in nature into the grids.

In the field of photovoltaic plants on land, EDF EN has implemented new test versions of the photovoltaic plants to reduce the intermittency of photovoltaic power, regulate the voltage, and modulate the capacity. This command and control was approved on a power plant owned by EDF EN. It will be deployed in 2017.

However, a full contribution to frequency regulation requires energy storage. Lithium ion electrochemical batteries are a good solution for this, as they perform efficiently and have a good response time. A key aspect of the performance of these systems is the development of very high performance command and control, to enable an optimum response in the shortest time to capacity demands on the electricity system. EDF EN, via its subsidiary EDF RE, commissioned a 20MW battery of this kind in February 2016 in the United States (McHenry project). The command and control is provided by EDF Store and Forecast, an R&D spin off of EDF. Furthermore, EDF EN won a call for tenders in the UK for the same type of application (49MW of batteries). The command and control is also provided by EDF Store and Forecast.

Other storage systems are also being tested in island systems. On Réunion island, IES has begun experimenting with hydrogen storage to secure the supply of sensitive buildings in the cirque de Mafate. This energy innovation, which began in early 2016, is a world first which involves using a fully solar-powered micro grid coupled with liquid hydrogen batteries. For the first time, it will benefit a whole community which hitherto had not been connected to the network, with the village only accessible by foot or helicopter.

In terms of networks, one of the focus areas of Enedis' R&D programme is: "Design a way of managing local systems which facilitates the inclusion of renewables and sustainable development". It aims to develop solutions to increase the integration capacity of new producers on the distribution network.

1. The Energy Transition Law stipulates that biogas must account for 10% of gas in natural gas networks by 2030.

Progress made in 2016 includes:

- rollout of the first components of the “contingency management” tools in the regional *agences de conduite*, particularly tools for optimising the programming and preparation of network projects (using constantly improved photovoltaic and wind power output forecasting tools);
- development of new tools for coordination between the network operator Enedis (*agences de conduite*) and the producers, notably the e-DEIE (mechanism for the exchange of operational information) and the introduction of a webpage for exchanging information between Enedis and the producers, to minimise the disruption caused to the latter by public distribution network projects;
- studies and experiments on alternative solutions to reinforcement when connecting producers;
- development of innovative solutions to regulate voltage;
- prospective R&D work to develop probabilistic approaches to selecting investments, notably in areas heavily affected by the development of decentralised output;
- solutions to avoid situations of unintentional load rejection (new protections) and more generally studies to understand the dynamic behaviour of a distribution network undergoing unintentional load rejection.

Additionally, Enedis has tested or is testing some of these solutions in smart grid prototypes: Venteea and Greenlys (which were completed in the first half of 2016), Smart Grid Vendée and SMAP.

3. Relying on nuclear power, the cornerstone of EDF's low-carbon strategy

EDF's nuclear power contributes to carbon performance in France and Europe. It is difficult to evaluate CO₂ emission reductions in the French economy, but it is worth pointing out that average emissions in the sector are around twenty times higher in Europe compared to those of EDF in France, and that EDF's corresponding emissions were 8.3 million tonnes of CO₂ in 2016. In addition to this carbon performance, nuclear power is a useful way to support the development of renewables by further developing its modulation capacities (between 20% and 100% of the capacity of a unit in thirty minutes).

4. Generating a GHG Reporting

Since 2011, EDF has been carrying out annual GHG reporting on its direct and indirect emissions (scopes 1, 2, and 3¹) above and beyond its regulatory obligations. Since 2013, a gradual initiative has been in place to also carry out GHG reporting at Group level, using a harmonised methodology, based on the GHG Protocol Corporate Standard. The work already begun gives a good idea of the direct and indirect emissions of the whole Group. Direct emissions by EDF group are almost all caused by electricity generation of fossil origin, and amounted to around 60 million tonnes of CO₂ in 2015, with very few other sources of direct emissions. Indirect emissions are in the same order of magnitude: most indirect emissions come from the combustion of gas sold by EDF, the electricity purchased to serve our end customers, upstream fossil and nuclear fuels used in the power plants, and the amortisation of the emissions associated with the construction of our power plants. Other indirect emissions, such as emissions associated with the purchase of goods and services, employee travel and electricity consumed for our own use are proportionally very limited. Any emissions relating to Group investments in non-consolidated assets were not included.

In light of the new regulations set by Article 173 of the energy transition Law, which requires information to be disclosed on the main sources of greenhouse gas emissions generated by the Group's operations, EDF considered that the total direct emissions from generation power plants (scope 1) and emissions

from the combustion of gas sold to our end customers (scope 3) meet the regulatory requirement of importance in that these two emissions sources represent around 75% of the Group's direct and indirect emissions.

3.2.1.2.2 Contributing to the process of removing carbon from the economy through low carbon electricity

While the electricity in France today is one of the least carbonised in the world, and the political will in the majority of countries is to continue with the process of decreasing carbon in electricity generation upstream, it is preferable to speed up the process of electrification of uses, particularly in countries where carbon intensity of electricity is already very low, in order to decarbonise the whole economy. It is particularly essential to act on the main sources of CO₂ emissions which generate climate change namely buildings and mobility. This leads to favouring the following electric solutions in buildings: heat pumps, thermodynamic water heaters, “Smart Joule”, and developing electric vehicles.

As part of the CAP 2030, EDF is working actively on the development of electric vehicles, for instance through its involvement as national operator in the Corridor programme which is concerned with deploying fast recharging stations as well as by developing a range of offers covering all markets:

- for private users: a recharging offer comprising the supply, installation of a “plug-in”, related services (smart charging), as well as providing advice about energy and the supply;
- for local authorities: a holistic bus fleet electrification offer comprising: energy supply; upstream advice; charging infrastructure (normal or fast; at the depot; at the end of the line; at stops), battery hire and energy management;
- for the business customer market: developing an offer for housing co-ownership managers comprising the supply and “plug-in” and also an offer targeting companies enabling EDF to position itself on smart services based on charging infrastructure; lastly, a company vehicle offer enabling HR company vehicle policies to include electric vehicles.

The number of electric vehicle charging stations recorded a significant increase in 2016: +55% of the number of charging stations open to the general public between September 2015 and September 2016.

As far as vehicle fleets are concerned, Enedis, the network operator, today had the second largest electric fleet in France with 1,466 electric vehicles in September 2016 and over 1,500 charging stations. Enedis has proven electric mobility experience which helps it advise its customers.

3.2.1.2.3 Helping customers consume less, more efficiently

The EDF group aims to help all of its residential, business and local authority customers to consume less, more efficiently and ultimately, to reduce CO₂ footprint.

The EDF action is in line with the framework of the French energy savings certificates (CEE) programme which encourages energy providers to promote energy efficiency with energy consumers, and which makes EDF the leading French CEE producer.

2016 was marked in particular by the process of putting in place an ambitious national additional energy savings objective, specifically concerning households suffering from energy poverty. In order to satisfy this new obligation, EDF confirmed its role as a historic partner of the *Agence Nationale de l'Amélioration de l'Habitat* (ANAH – National Housing Improvement Agency), reinforced its relationships with social-housing

1. There are three general categories of CO₂ emissions: scope 1 includes direct emissions from our assets (power plants, vehicles, etc.); scope 2 includes indirect emissions related to EDF's own consumption (heating, cooling, etc.); scope 3 includes other indirect emissions generated by EDF activity (upstream fuels, purchases, combustion of gas sold, transport, etc.).

lessors across the whole country as well as renewing its partnership with the Fondation Abbé Pierre.

On 10 February 2016, EDF, together with the Ministry of Ecology, ADEME and AVERE (National Association for the Development of Electric Mobility), signed the ADVENIR agreement which aims to finance the installation of 12,000 charging stations in 2016 and 2017 across the whole country in exchange for CEEs.

Furthermore, in order to support industrial companies wishing to put in place an energy management approach, EDF joined forces in June 2016 with the French state and ATEE (Technical Energy and Environment Association) in the "SMEn" (Energy Management System) CEE programme. This programme aims to guide and help 200 industrial plants obtain the ISO 50001 "Energy Management System" certification in 2016 and 2017.

CSRG no. 4: to innovate through digital energy efficiency solutions so that each customer can better manage their usage

In addition, customers can now generate their own energy and make significant energy savings. The digital revolution and the development of intelligent systems contribute considerably to these changes. In order to help this transition as best as possible, EDF proposes offers and services to its customers (residential, companies, cities and area councils) meeting their objectives and expectations (below), and also develops new ways of using electricity.

Concerning the residential customer market

EDF has a very proactive approach towards energy savings in households and aims to become the partner of sustainable well-being in homes in order to strike the best balance between comfort and savings. In France, this concerns "awareness" and "gaining customer commitment" about energy savings thanks to tools enabling them to monitor and manage their consumption:

- the e.équilibre solution is now subscribed for almost 2 million customers. e.équilibre creates the link between budget and energy consumption and gives them the keys to understanding and acting. As of 2016, a new functionality enables customers equipped with Linky meters¹ to set an annual consumption target;
- a new paper format consumption monitoring system, "Ma Conso & Moi" (My Consumption & Me), in addition to the dashboard which is part of the e.équilibre digital solution was launched by EDF; and,
- lastly, a major campaign launched in November 2016: EDF launched Sowee, a new subsidiary, a new brand, a new offer. Sowee is an offer that stands out on the market. It combines both an energy (natural gas) supply and service offer. The Sowee solution keeps EDF customers informed in real time and remotely about any temperature adjustments they can make in their homes during the day or night in order to maintain their level of comfort or master their natural gas heating budget. Furthermore, the aim of the Sowee connected station is to be in control of all the connected objects in households. Sowee aims to reach the one million customer mark in the next ten years.

It is also intended to help customers act, by advising them with regard to all levers and consumer behaviour through to having work carried out; they are offered:

- the best contract/price solution, suited to their needs;
- advice about how best to act and behave and consequently reduce their consumption: in 2016, one out of every three customers having contacted EDF said they had received advice about energy savings;

- the most energy saving "equipment" solutions: promoting LED light bulbs in conjunction with partners (Philips, Osram and Xanlite) giving our customers access to high-quality products in order to save energy and at a lower cost in relation to standard market prices;
- genuine help and guidance concerning energy efficiency works: introducing customers to accredited companies (EDF Housing Solutions partners) and helping finance building work through loan interest rate subsidies, in partnership with our subsidiary Domofinance.

In 2016, EDF and its partners assisted 301,928 households, with very high satisfaction levels: almost 9 customers out of 10 said they were satisfied.

In 2016, the Island Energy Services (IES) continued promoting the "Agir Plus" range of offers through which EDF and its partners seek to better convince customers about the individual and collective benefits of energy efficiency: lower bills which increases spending power, helps public sector budgets and helps companies to be more competitive, while also reducing CO₂ emissions related to electricity generation. In Italy, Edison is continuing with its Energy Control offers and its Netatmo winter campaign. An e-commerce service was introduced in 2016 (Edison shop) offering a range of energy efficiency products and services.

For the business customer market

Numerous concrete actions have been implemented including:

- the continuation of the EDF Entreprises campaign: Media campaigns highlighting guidance in terms of energy efficiency undertaken by EDF Entreprises vis-à-vis its customers, underlining the important role played by our experts as "energy coaches" for our customers, and highlighting the value of the EDF energy efficiency offers: Advice concerning DSM (Demand Side Management), Environmental Management System (SME), asset energy optimisation, CEE, etc. The Business Customer satisfaction index increased markedly;
- increasingly important guidance for customers based on conducting Energy audits: EDF is authorised by AFNOR to conduct mandatory energy audits for its customers, in accordance with the NF EN 16247 standard and the regulations. This offer comprises customer audits conducted by its experts, including consumption analysis and the drafting of an action plan to improve the customer's energy efficiency; and the support with putting in place an energy management system for customers who wish to commit themselves to a continuous improvement approach, leading to ISO 50001 certification.

Dalkia guides its customers towards energy efficiency in particular by connecting installations to the Energy Performance Management Centres (DESC), the implementation of Energy Performance Contracts and the correct operation of installations. All of the Dalkia P1 management contracts (energy management) are ISO 50001-certified (energy management). In line with CAP 2030, Edison has reorganised its services offering, in particular with regard to energy efficiency.

R&D Department is involved in all markets in France to promote low carbon solutions, develop more efficient ways of using electricity particularly in buildings (Smart Joule, heat pumps, hybrid heat pumps etc), create original energy solutions for the Group's specialist subsidiaries both in France and abroad, and develop tools to model and maximise energy systems (building thermal modelling methods, linking between the Building Digital Model (MNB) – Building Information Model (BIM) – and dynamic thermal simulation tools (*BIM énergétique*), tools and methods to help deploy Eco-Energy efficiency offers).

EDF also endeavours to meet new requirements by supporting and guiding towns and communities or by focusing on the development of intelligent electricity grids.

1. Linky is a project handled by Enedis, the distribution network operator. For the sake of brevity, all further mentions of Linky in the rest of the document do not specify that it is a project handled by Enedis.

Fostering energy transition in towns and communities

The EDF group is committed to the energy transition of towns and communities. These play a vital role in combating climate change. EDF develops tailor-made solutions to assist local authorities in their energy-related projects. EDF's support focuses on strategic energy planning and advice, energy generation from local resources, the energy and environmental performance of buildings and facilities, street lighting and mobility.

In France, EDF guides elected representatives who have to reconcile local appeal, compliance with environmental requirements, mastering urban sprawl, and for whom energy is one of their major concerns. We are faced by the following major challenges:

- proposing complementarity between global energy systems (efficient means of generating "distributed" electricity) and local energy strategies including energy control and the development of low carbon energies;
- reinforcing our positioning on energy efficiency (overall control of bills and consumption and not only the cost per kilowatt-hour) and helping us stand out from the competition thanks to our services;
- taking advantage of relays of growth and the reinforcement of our presence on the ground made possible by the development of energy and local urban services.

EDF provides advice upstream and undertakes energy studies to help local authorities define their area energy strategy (study of the renewable energy sources (RES) potential, the most suitable energy solution, the residential renovation strategy, etc.) by using its ISEO et Monster tools, helping local authorities with their TEPCV files, is a partner of associations of elected representatives, and undertakes numerous communication campaigns.

In the holistic systems that characterise IES, exchanges with elected representatives also focus on the means of generation, energy autonomy, the possibility for these communities to elaborate their own laws concerning energy (energy regulatory accreditation). IES helps local authorities with their energy projects (street lighting refurbishment, insulation and sun protection). Furthermore, IES is the partner of local authorities as part of the PRME (Regional Demand Mastering Plan) to promote energy efficiency and raise awareness of the different targets, jointly develop sales offers in this field as well as work together on the programmes designed to fight energy poverty. 90% of ZNI social-housing lessors have signed MDE agreements with EDF IES: tens of projects are already in progress.

In Martinique, EDF and Cap Nord have signed a lease to create an energy transition centre of excellence in the former Bellefontaine EDF power plant. IES is providing considerable support to Ouessant, Sein and Molène, the three islands off Brittany which are not interconnected to the mainland electricity grid and which wish to speed up their energy transition.

Lastly, IES endeavours to recover and use the waste heat of its power plants when conditions permit it.

In order to contribute to the energy transition of towns and communities, Dalkia helps each local authority, by taking into account the specific features of the community when defining an energy strategy for the area in question by creating a virtuous energy loop resulting in reduced consumption of primary energy, producing energy locally and more efficiently, distributing energy efficiently and reinforcing cooperation between the different players.

In 2016, Dalkia contributed, on a local basis, to energy transition by extending heating and cooling networks, creating new heating networks on existing assets or in eco-districts, highlighting the importance of renewable energies and the recovery of areas thanks to the development of urban heating and cooling networks, developing energy efficiency across the community in question in order to master the energy demand, by developing energy performance contracts in respect of public and private buildings, and by carrying out energy efficiency renovation work.

Two example of operations implemented in 2016:

- Storing energy to make better use of it e.g. Brest Métropole.
 Brest Métropole launched the construction of a heat tower with a capacity of 1,000 cubic metres as well as the possibility of storing 2,500MWh per year, the equivalent of the consumption of 400 homes and a reduction of CO₂ emissions of 12,700 tonnes over 20 years. This project is part of a contract with Dalkia to operate an urban heating network already using the thermal energy produced by the household waste incineration plant and the construction of a biomass boiler plant.
- Keeping warm thanks to data centres: example of the new Val d'Europe business park.

The Val d'Europe conurbation wanted to propose a collective and virtuous heating network to companies moving into its new Paris Val d'Europe business Park. Thanks to data centres, this network will ultimately supply 600,000 square metres of public facilities, tertiary buildings and homes, prevent the emission of 5,400 tonnes of CO₂ per year and propose 100% green energy to nearby companies and public buildings, such as the Val d'Europe conurbation water sports centre (3,500 square metres).

Citelum has made commitments, for the majority of its contracts with town councils concerning energy savings, the fight against light pollution and the reduction of the carbon footprint.

By way of example, in 2016:

- Puebla (Mexico): replacing 21,500 lights with LED for a result of 40% of energy savings (reduction of light pollution);
- Rome (Italy): deployment of SMART solutions – 29 parking spaces, 51 vehicle detection systems, 53 variable message boards, 54 variable message signage boards for urban tolls and 80 CCTV cameras;
- Sète (France): 65% of energy savings over 20 years with 50% by the end of the 4th year of the contract, through a wide range of actions;
- Copenhagen (Denmark): the undertaking to reduce energy consumption by 57% has been achieved. Putting in place a town network enabling SMART solutions to be introduced afterwards, reduction of light pollution.

ÉS undertook several significant initiatives in 2015/2016:

- Kronenbourg eco-district: installation of a geothermal boiler plant making it possible to provide over 400 homes with heating and hot water. This ingenious innovative project, recycling the old well of the Kronenbourg brewery to create a water capture well, is a first for the City of Strasbourg as part of the process of creating a heating network;
- L'Esplanade heating network: The Eurométropole de Strasbourg entrusted ÉS with providing renewable heat from the L'Esplanade network. The project consisted of the design, build and operation of a biomass co-generation power plant with power of 10MW electric and 23MW thermal. It will produce 70GWh of electricity and 112GWh of heat every year which will be injected into the L'Esplanade heating network;
- official opening of the Rittershoffen deep geothermal energy power plant: on 1 September, the Rittershoffen deep geothermal energy power plant started operating.

The energy transition of towns and communities is the subject of an R&D programme which includes undertaking research concerning urban energy planning and smart cities, defining innovative local energy concepts for the areas being developed, seeking energy efficiency solutions for buildings, mobility, decentralised low carbon energy and renewables (biomass, PV, geothermal, wind power), and lastly heating, cooling or electricity networks with multi-energy optimisation.

EDF R&D in particular conducted urban planning projects in 2016 in Singapore, Lingang et Sanya in China, Berlin (Green Moabit), Lyon and Strasbourg. It has also developed a “smart city” offer, called “connecting our energies”, which, in addition to planning, enables the Group’s know-how to be used with regard to services for towns and communities.

R&D is also supported within IES (Island Energy Services), where their work is organised into four major themes:

- electrifying isolated sites with RES/Storage combinations, enabling the emergence of 100% RES micronetworks. Here are a few examples: launching hydrogen storage experiments to secure supplies to buildings in the Cirque de Mafate on Reunion Island; launching a call for tenders for a Battery + Energy Management System intended to foster energy transition on the island of Sein micronetwork;
- developing flexible and low carbon demand: MDE technological innovation, increasing the role of customers as players in their own consumption (self-consumption, cut-offs);
- fostering the integration of ENRs by raising the de-connection thresholds in the main networks (via the installation of centralised storage facilities);
- modernising the IES electricity grids: deploying smart meters and harnessing metering data, better communication with the local stakeholders via Open Data, preparing the electricity system management tools of tomorrow.

Lastly, the EDF R&D Department is very active concerning the question of electricity storage, and is aiming in particular to:

- contribute to the emergence of innovative storage solutions which enable costs to be reduced while improving performance (launch of a spin-in based on Zn Air technology);
- assess the value created by the storage solutions for the different electricity system players and develop storage system management algorithms to enable them to provide the expected services;
- innovate with regard to new solutions which build storage, RES and managing demand into the energy solutions offered to customers (projects: Mac Henry in the USA and West Burton in the UK).

Enedis, the network operator, started developing a Smart Grids programme in 2011. The specific feature of this programme is to experiment, in a system vision, the various aspects of smart grids. The goal is to actively help with energy transition by continuing with the integration of renewable energies in the electricity distribution grid, developing new uses such as electric mobility and favouring the development of actions for demand-side management of energy and power.

3.2.1.3 Adapting the Group’s business to climate change

Climate change has direct impacts on the physical conditions of performing the Group’s activities, as well as on energy demand. Since 2010, the EDF group has been implementing a climate change adaptation strategy which aims to provide a solution to the expected climatic conditions, in order to reduce them or avoid their harmful effects and to seize the beneficial effects. This strategy, in the process of being revised, firstly concerns the involvement of the R&D services, to tailor the data required to model the future climate to anticipate impacts as well as solutions. On that basis, this then means anticipating the measures to be taken with regard to the present industrial installations and for the design phases,

as well as planning for the output/consumption maximisation measures. It also means adapting internal know-how and the products and services offered by the Group to its customers.

The four main areas of focus are:

- assessing the current and future impacts of climate change on facilities and business activities;
- adapting the installations concerned to make them less sensitive to the expected climatic conditions and increase resilience to extreme changes and situations that are the most difficult to predict;
- taking into consideration future weather in the facilities’ design;
- adapting the Group’s climate change range of offers.

Through its R&D Department, EDF has methods and tools enabling it to model and alleviate the impacts of climate change as well as to anticipate the direction in which energy systems might evolve in a context of energy transitions.

For instance, EDF created a “Climate Department” to build a database with climate projections developed by experts and “ready to use” for the company’s different lines of business. Within this context, EDF launched a research programme on the robustness of nuclear and thermal power plant heat sinks in operation, which includes results already obtained from assessing changes in water availability in the main French watersheds. Nuclear power plants have been designed to withstand extreme weather¹. The Group has also started research projects in order to anticipate the developments of energy systems, discover the decisive factors and constraints which they will face and identify the disruptive factors.

Fighting the effects of climate change

Adapting to climate change essentially concerns structures with a long life cycle: nuclear and thermal power plants, hydropower dams, hydrocarbon platforms at sea. As wind and solar power plants are intended to be operated for a shorter period (approx. 20 years), they are relatively unaffected, especially as they are lightweight facilities with easy-to-replace equipment. This means taking measures on existing assets and designing future assets by taking into account climate change.

In order to increase the efficiency of nuclear and thermal power plants when operating in hot and cold weather, refurbishment work (almost €400 million by 2019) is being carried out on French power plants.

In order to provide hydropower facilities with stronger protection against extreme weather risks, certain plants have been reinforced with the installation of spillways. This is the case of Charmines Dam, the eighth EDF dam to benefit from the Piano Key Weirs spillway technology. This technology was developed by EDF’s hydropower engineering and R&D divisions, in collaboration with Hydrocoop, the *École polytechnique fédérale de Lausanne* and the University of Liège. On 2 December 2015, EDF received the Large Group Award for the “Adapting to the effects of climate change” category of the Climate Solutions Trophy.

In the United Kingdom, in addition to the Group’s adaptation strategy, EDF Energy reassessed its risks, and particularly those associated with increased air and sea temperatures, and its climate change adaptation plan includes the United Kingdom’s national plan.

In terms of design, for example, a potential increase in the level of the sea and oceans has been built into the design of the Group’s new EPR nuclear power plants, thus factoring them in at the design phase of the most accurate and most recent future studies.

1. Such as flooding, fire, etc.

In its climate change adaptation plan, Enedis has formalised the measures intended to reduce network vulnerability (1.3 million kilometers) and shorten the time it takes to reconnect customers in the event of a power cut. It also covers risks of flooding and summer heatwaves. The plan essentially consists of putting high-voltage overhead lines underground to avoid risks of falling trees, wind, snow and frost, beginning with the most exposed and significant facilities for customer connection. Within this context, in 2016, Enedis took down 3,449 kilometers of high-voltage overhead lines, including 1,121 with known weather risk. Furthermore, 98% of new high-voltage networks are underground and 80% of new low-voltage networks use more discreet, reliable techniques. In addition to this investment programme, a Rapid Intervention Electricity Task Force (FIRE) has been created. This task force has the ability to mobilise up to 2,000 people, 24 hours a day, 7 days a week, both in France and abroad. In 2016, FIRE was called into action following Hurricane Matthew in Martinique which had left 60,000 customers without electricity.

3.2.2 NATURAL RESOURCES AND PRESERVATION OF THE ENVIRONMENT¹

3.2.2.1 A circular economy principle

Against the backdrop of the scarcity of natural resources, the circular economy aims to respond to the increase in needs by uncoupling the use of these resources, and by breaking free from the linear industrial model of extraction – output – use – waste. It is a matter of reconciling growth, wellness and comfort with the planet's limits, under a prolonged principle of sustainable development. This is done through a number of levers of actions, such as repairing, re-using and recycling objects. The eco-design of products is also encouraged.

EDF pursues this approach. Electricity and heat generation is an industrial activity which requires means of generation that themselves result from a process of transformation of natural resources to build them, then operate them and manage their end of life. EDF's integrated industrial model: designer – builder – operator – decommissioner of its generation facilities, places the EDF group in a privileged position to contribute to the development of this new form of economy through eco-design, improving the yield and lifespan of its facilities and properly managing the materials and waste generated by their operation. Electricity is also a means of transforming economies through the development of new patterns of use which provide improved comfort while reducing the use of natural resources (electric mobility, new energy services).

Also, in accordance with the requirements of the energy transition, the Group makes optimum use of reclaimed natural resources through its value chain – a central element of its corporate responsibility. It represents a very important expectation on the part of the Group's stakeholders, and its objective goes well beyond waste management alone. The principles of the circular economy guide the company's management².

3.2.2.2 Biodiversity

Biodiversity, aquatic or terrestrial, represents a universal heritage. Human activities cannot avoid impacting on this biodiversity on which it is dependent. This is notably the case of industrial companies which depend on biodiversity to undertake their business but which impacts on this same biodiversity, for example, during the phases of building structures but also during operations, maintenance, and dismantling said structures. The EDF

group, aware of this phenomenon, has been addressing these issues for over 50 years. It began by looking at hydro-ecology questions before moving on to biodiversity. In France, EDF owns 41,000 hectares of land on the mainland and 20,000 hectares in the overseas departments. Biodiversity represents an economic challenge for the Group; if the local biodiversity is not adequately or sufficiently taken into account this can lead to construction sites coming to a halt, output being interrupted or result in delaying or preventing the launch of new industrial programmes.

3.2.2.2.1 The EDF group's biodiversity policy (G4 indicator: DMA)

Biodiversity is one of the areas in which EDF has chosen to become involved through Corporate Social Responsibility goals (CSRG). Goal #6 made in respect of the whole Group concerns the whole life cycle of the installations, from the project study stage, construction and operation through to the end of the life of installations; it spans the whole length of the value chain, including purchasing policies and relationships with suppliers and sub-contractors.

CSRG no. 6: to launch a positive approach to biodiversity, not limited to understanding and reducing the impacts of our activities in the long run but having a positive effect on biodiversity

The EDF group will assess the ecological sensitivity of the natural spaces situated in or near its production sites. This assessment also concerns projects under development. With regard to the most sensitive areas, EDF and its subsidiaries will put in place the necessary actions to protect and reinforce the biodiversity. They will ensure these actions are implemented in close cooperation with external stakeholders: public authorities, NGOs, not-for-profit organisations and scientific institutions.

Moreover, the Group's biodiversity policy is part of the ISO 14001-certified Environmental Management System. It is structured on the basis of three goals:

- developing knowledge of natural environments and potential impact of Group activities on these ecosystems;
- preserving biodiversity, while protecting or restoring natural spaces;
- informing employees and local residents, raising awareness, and dialogue with scientific communities and associations.

It is implemented in the Group's entities and subsidiaries in a manner tailored to their activities, and in compliance with local regulations. Biodiversity contacts have been named in each of the Group's line of business. In France, with regard to hydropower structures, EDF set itself the objective of securing fish and sedimentary continuity on the sites at risk (passes for fish going up to fresh water to spawn and vice versa, coordinated management of sediment transport) and to act more broadly to ensure the good condition or good potential of the water masses on which its structures are located (increasing flows, reserves). Executive Management of the Group Property Department set itself a "zero phyto" objective in 2020 on the EDF tertiary sites. Seven EDF Energy sites were audited and met the Wildlife Trusts' Biodiversity Benchmark. For more than 20 years, EDF Energy has been working in partnership with the Wildlife Trust at Sizewell, as well as with the government agency Natural England, to protect biodiversity around the power plant. The EDF Division Generation and Engineering Thermal has become involved in an action designed to limit soil degradation through a programme of reusing areas already degraded for the installation of new projects. In 2016, it also published an information sheet on the systematic integration of the biodiversity challenges in the SME.

1. With regard to food waste, as mentioned by the Decree of 19 August 2016 in application of article L. 225-01 of the French Commercial Code, EDF may be concerned for example concerning employee canteens; their management is mainly entrusted to the EDF CCE and at this juncture, EDF does not consider this information as being important information.

2. The circular economy is, in particular, one of the new requirements of ISO 14001 which is used as the basis for the on the ground management action.

Partnerships, Training and R&D are all major levers with a view to the success of the EDF biodiversity policy:

- The Group's Sustainable Development Department orchestrates and manages biodiversity partnerships. In France, the company's historic partners are given priority with the major players in the sector: International Natural History Museum (MNHN), League for the Protection of Birds (LPO), Nature Reserves of France (RNF), French Committee of the International Union for Nature Conservation (IUCN), Federation of National Botanical Conservation Bodies (FCBN), Federation of Natural Site Conservation Bodies (FCEN), Coastal Conservation Agency. In total, EDF has forged over 100 partnerships with not-for-profit organisations or research organisations such as the National Institute for Scientific and Technological Research for the Environment and Agriculture (Irstea) and Ifremer (French Research Institute for Exploitation of the Sea). At a national level, EDF has regular discussions and enjoys close relationships with OREE, EPE, the French Committee of the IUCN and the Business & Biodiversity Offsets Programme (BBOP). Locally, numerous partnerships aim to help the sites in their approach conducted in favour of biodiversity. The partnership approach is encouraged throughout the Group. Electricité de Strasbourg works with the Ornithological Group of Northern Alsace (Gorna) and the LPO with a view to protecting birds from overhead power lines. For more than 20 years, EDF Energy has worked in partnership with the Suffolk Wildlife Trust at Sizewell and the Natural England Wildlife Trust. EDF Polska cooperates with the Ornithological Association of the Malopolska Region.
- Training and raising awareness of the company's employees are important levers for progress with regard to taking into account biodiversity issues challenges across the whole value chain. In France, eight business guides have been published, written in a manner which very closely reflects the biodiversity issues and challenges specific to each operational activity. In 2016, EDF Énergies Nouvelles issued a "Biodiversity and Energy Wind power and Solar power" guide for its employees. A "Biodiversity and Electricity Grids" guide has also been made available to the entities and subsidiaries the most concerned. Training and raising awareness of the company's employees are important levers for progress with regard to taking into account biodiversity issues challenges across the whole value chain. Several internal training courses on biodiversity are offered to employees. In 2016, 160 employees took these training courses.
- The Group is conducting a research programme concerning the interaction of its activities with the environment. Among the research projects conducted, the programmes concerning terrestrial technology and ecosystem services as well as hydro-ecology involve 25 researchers and technicians. EDF has undertaken to:
 - assess the ecological value of the company's land and the consideration thereof in industrial decision-making;
 - understand and reduce the impacts of generation on aquatic and terrestrial biodiversity;
 - improve the practices of environmental mitigation and the consideration of interactions between ecosystem services and the company's activities;

- identify solutions for restoring and re-establishing the sediment continuity of watercourses.

EDF's proactive commitment towards protecting biodiversity, developed with its partners, has resulted in major orientations and concrete actions to be implemented in favour of biodiversity for the 2014-2017 period. Its goal is to contribute to slowing down biodiversity erosion and support local movements. This commitment has been acknowledged by the Committee of the National Strategy for Biodiversity (SNB) of the Ministry in charge of Ecology; a first review was forwarded to it in October.

3.2.2.2 Priorities concerning the location of sites (G4 indicators: EN 11 and EN 14)

The vast majority of EDF production sites are located close to or within protected sites (in France, 80% of hydropower sites are situated in or near a Natura 2000 site. These sites are preserved from agriculture and urbanisation and are located close to watercourses. These factors foster biodiversity. Consequently, these sites also represent opportunities for implementing ecological management fostering biodiversity).

In France, a Geographical Information System (GIS) is presently being deployed on the mainland and in the overseas departments. To date, EDF has assessed the ecological quality of 30% of its land. The company has developed an Ecological Potentiality Indicator (EPI) in conjunction with the National Natural History Museum intended to be deployed on a large scale to monitor the ecological state of the company's land. This method has already been implemented on 7,000 hectares of land for hydropower¹.

In England and Poland, EDF Energy and EDF Polska have carried out surveys concerning all of their land (1,450ha and 1,200ha respectively).

In Brazil, on the Sinop project, an environmental and social (E&S) management plan has been set up, comprised of several plans and management programmes (33), including fauna and flora protection measures, in addition to a management plan for a protected area around the whole reservoir. Concerning Nachtigal (Cameroon), the project was the subject of a first E&S study in 2006, updated in 2011. Additional biodiversity studies were conducted in 2014 and 2015 to complete these impact studies and enable the drafting of an in-depth operational E&S Management Plan which is in the process of being finalised. Further studies are in progress in order to enhance knowledge of the species of the aquatic flora protected and to put forward effective reduction and mitigation measures in respect of the project. For all the sensitive aspects, measures to avoid, reduce and offset impacts have been developed and are included in the Plan.

The Group is striving to give special attention to the sites presenting the biggest challenges in terms of biodiversity, particularly²:

- its sites located close to a species threatened by extinction (G4 indicator: EN 14)³;
- its sites situated in or near to a protected area or an area rich in biodiversity (G4 indicator: EN 11).

1. Hydropower Generation and Engineering Department.

2. In 2016, for EN 14 this was the scope of activity of EDF SA.

3. In 2016, for EN 11 this was the scope of activity of EDF SA and EDF Energy.

G4-EN11

Protected area category according to the IUCN	France		UK
	Mainland (incl. Corsica)	Overseas dept.	
I	34	8	0
II	18	16	0
III	190	3	1
IV	79	16	10
V	142	4	2
VI	0	0	0
Natura 2000	310	0	5
Areas rich in biodiversity	532	24	5

G4-EN14

	IUCN categories of threatened species					
	Global red list			Regional red list		
	CR	EN	VU	CR	EN	VU
Mainland France	6	22	53	29	88	260
Overseas dept. & Fr. islands	13	12	29	43	72	144

CR = critically endangered; EN = endangered; VU = vulnerable.

**3.2.2.2.3 Impact management and characterisation
 (G4 indicator: EN 12)**

In general, the potential impacts of the EDF group's generation activities mainly concern:

- water and aquatic biodiversity, largely as a result of:
 - hydraulic generation structures, which bring about modifications of the biodiversity upstream of the structures in the event of flood defence, and downstream, due to the fragmentation of areas and flow limitations or variations,
 - thermal structures, in a more limited manner;
- the degradation and fragmentation of natural terrestrial habitats, due to the land take of the existing sites or projects;
- the fauna, flora and natural habitats which are also impacted by building sites or maintenance work;
- overhead transmission systems and wind turbines, which pose a threat to birds and bats.

Impact studies enabling the effects on biodiversity to be measured are conducted and formalised for projects fulfilling the criteria set out in article R. 122-2 of the French Environment Code. This involves the fragmentation of ecosystems due to infrastructures, impacts on population dynamics, soil erosion, etc.

In order to better assess the threats and opportunities related to the impacts and dependency of the company's activity on ecosystems, EDF is trialling, in each line of business, the Ecosystem Services Review (ESR) method¹.

Similar processes are also performed at facilities in operation. Their impacts on the environment and biodiversity are the subject of monitoring conducted by public bodies (Ifremer, IRSN, Irstea, Onema). The results are published and are accessible.

By way of example:

- In hydroelectric activities in France: between 2013 and end 2016, almost 120 fish and/or sediment diagnostic projects were conducted to identify the continuity challenge site by site. With regard to fish, 28 fish passes have been commissioned on the sites at risk (classification List 2², Rhine etc). In 2016, 11 sites were commissioned, including the Strasbourg fish pass. With regard to sediment, examples include the dredging of the River Selves, the swabbing and flushing of the River Durance and the experimental cleaning of Saint-Sauveur, the study concerning the sediment management of the Combe de Savoie, and the grazing experiments alongside the River Isère in order to restore a river dynamic...
- Distribution activities: with regard to line burying, the LEO project conducted on Reunion Island, aims to reinforce the HTB grid in the south-west of the island, with two new lines with a transit capacity four times greater than the present system. EDF has focused particularly on the environmental impact, redrawing the route with a view to protecting biodiversity which meant avoiding large inhabited areas, and has enabled 2,578 avifauna markers to be installed on 42.2 kilometers of lines. On the mainland, 45% of the process of burying the MV and LT grids has been completed by Enedis.
- EDF Luminus has started an ambitious programme aiming to reduce mortality of migratory fish due to hydropower turbines. Supported by the European Life Programme and with an overall budget of €4.2 million, the objective of the programme is to model migratory routes, putting in place repelling systems such as electrical barriers or bubble curtains and specially adapted systems to make fish passage easier. At the same time, the programme aims to design turbines which have very low impact on migratory fish, with a test on the Monsin site.

1. Method developed by the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
 2. Classification of List 2: Article L. 214-17 of the Environmental Code introduces two lists of watercourses ranked in terms of ecological continuity. List 2 includes all the watercourses in respect of which it is necessary, in terms of all structures impeding continuity, to ensure or re-establish the free movement of migratory fish and the transit of sediment in accordance with an imposed regulatory period of time.

- Edison is undertaking two projects in this field: the “Mosselmonitor” Project on the Rospo offshore oil platform in the Adriatic Sea, where mussels are being used as bio-indicators of water quality and pollution prevention; and the “Biovega” programme, consisting of analysing biodiversity around the Vega oil platform.

3.2.2.2.4 Offsetting measures (G4 indicator: EU 13)

The Group applies the principles of mitigation hierarchy¹, for which the French variation is the “prevent, reduce and offset” approach, further reinforced by the Biodiversity Law of 2016². The impacts on biodiversity are taken into account across the whole life of the projects and, in particular, during their design phase. Avoiding these impacts during construction is a priority, and those that cannot be avoided or reduced are mitigated. EDF attaches particular importance to the quality of the analyses conducted to characterise the initial state of a site and monitor compensation actions.

Furthermore, in the Belledonne en Isère mountain range, the company is conducting a long-term experiment³ with the *Initiative Biodiversité Combe-Madame* not-for-profit organisation and the key community players. It is aimed at restoring sub-alpine environments and enabling the return of remarkable species of fauna and flora. This experiment is part of the action initiated by the Ministry of Ecology, Sustainable Development and Energy (MEDDE) to test the relevance and feasibility of the offsetting proposals. The project began on the ground in 2015; in 2016, the assessment of the initial state of the site was completed and the first reopening works have started.

Moreover, EDF has launched a thesis with Irstea and the National Natural History Museum concerning the preparation of a method to verify the achievement of ecological equivalence; this involves measuring the gains resulting from the offsetting measures.

3.2.2.2.5 Protection and restoration (G4 indicator: EN 13)

Today, the company manages natural sites in partnership with local not-for-profit organisations. It does so either pro-actively or through applying offsetting measures. EDF, on numerous sites, puts in place a series of protection measures, with a part of the land owned being allocated to areas dedicated to the protection or reconstitution of biodiversity.

The Group also helps with the deployment of public policies, both national and local, in favour of biodiversity; a number of examples can be mentioned:

- with regard to invasive alien species:
 - creating the “Small Rhine”, a re-natured area as part of the Kembs environmental project; it has necessitated special attention with regard to the presence of invasive species. The initial studies highlighted the presence of numerous invasive exotic species. Upstream of the re-naturation works, the area has been maintained by mowing on a regular basis in order to prevent them from spreading. During the construction phase, in order to avoid them spreading to cleared areas, a soil stripping programme was conducted, followed by local species being sown. Monitoring showed these actions had been effective with an 80% reduction of the presence of invasive species on the site,
 - in the mitigation area related to the Romanche Gavet Project a comprehensive inventory of species threatened by extinction led to

a mapping being created combined with regular monitoring. Part of the site was managed by mowing and grazing. In some parts of the site, certain invasive trees were cut down e.g. black locust or alianthus,

- on all of the nuclear sites, an inventory of invasive exotic species has recently been conducted, with a set of related management recommendations being issued.

EDF Energy has undertaken to identify the invasive exotic species on all its nuclear sites, to inspect and implement eradication measures whenever possible. The UK subsidiary is also supporting the conservation of priority species at a national level including: water vole, Sussex emerald moth, red hemp nettle, and natterjack toad, as well as the conservation of natural habitats (lowland meadows, reedbeds and vegetated shingle);

- concerning actions in favour of threatened species:
 - the Group is committed to a number of national action plans to protect the Pyrenean desman, the black vulture, the bearded vulture, the apron and Bonelli’s eagle and also take part in regional variations of these plans such as the European otter project in the Centre region,
 - EDF participates in Life programmes, in particular for the Pyrenean desman; other Group companies are also involved such as EDF Demasz for Life avifaune, and Enedis with Life Gypconnect,
 - in partnership with the League for the Protection of Birds (LPO), the Cordemais site has had a building constructed which is tailored for bats in mitigation of the destruction of existing buildings. Creating this ex nihilo bat’s lair as part of the offsetting measures is the first of its kind in France. The LPO is monitoring the use of the lair by bats;
 - as far as protected areas are concerned, several EDF sites contribute to achieving the preservation objectives in the Natura 2000 areas and implement the Natura 2000 contracts.

3.2.2.2.6 Other voluntary actions

The Group is implementing other voluntary action levers, as part of patronage initiatives or through scientific contribution. This is a very concrete way of reinforcing the fight to preserve biodiversity.

By doing this, EDF supports the UICN’s⁴ red list of endangered species.

In France, EDF focuses on the Fête de la nature. The company is the main sponsor of this national festival which attracts considerable media attention. In 2016, 27 EDF sites participated, organising a total of 67 events which attracted 5,000 visitors. By way of example, in Guadeloupe, 30 employees volunteered to clean a mangrove and the area surrounding it. On the occasion of this festival, EDF published 20,000 copies of a newspaper dedicated to questions about biodiversity.

EDF is also a partner of the “Végétal Location” programme organised by the Federation of National Botanical Conservation Bodies. The aim of this programme is to promote the systematic use of local wild plants in development works, the re-naturation of areas, the upkeep of green spaces etc. The use of local species enables, in particular, a natural barrier to be created which protects these spaces from invasive exotic species and increases the ecological functionalities of the local environment. Thanks to this programme, EDF will be able to include in its management recommendations the systematic use of local plants on its land.

1. Principles of PS6 of the IFC: Performance standard 6 of the reference framework of the International Corporation (international financial company, a World Bank structure) dedicated to the conservation of biodiversity and the sustainable management of living natural resources.

2. Law no. 2016-1087 on reconquest of biodiversity, nature and landscapes of 8 August 2016.

3. Study envisaged covering a period of eight years.

4. UICN: International Union for Nature Conservation.

On Reunion Island, to avoid young Barau’s petrels, an endemic species, being blinded by street lighting when they first fly, EDF has supported the search for solutions with the *Société d’Études Ornithologiques de la Réunion* (SEOR), by funding the purchase of an astronomical clock programmed to turn off the lights in public areas for twenty days per year. This initiative is extended during the “Nights without light”.

In partnership with the Bretagne-Pays-de Loire inter-regional committee of the French Federation of underwater studies and sports, EDF Énergies Nouvelles has launched a participatory science project aiming to complete the inventory of the fauna and flora on the site of the offshore wind power project.

At Chinon, the nuclear power plants help defend and protect national forests through a convention benefiting the ONF¹ (2014-2016).

In Brazil, EDF Norte Fluminense is continuing with its action with the Mico Leao Dourado not-for-profit organisation to preserve an Atlantic rainforest (reforestation project on the watershed).

3.2.2.3 Water

Global demand for energy and water is intensifying against a backdrop of climate change. The entire energy sector, from primary energy production to electricity generation, is dependent on water. Water is needed to produce energy (with the exception of wind power). As a network manager and major user of water, EDF must protect, manage and share water throughout the regions in which it operates by fully integrating the local dimension of water management. The EDF group has included “water” risk in its risk management policy. Each investment decision undergoes a detailed risk analysis, as well as an in-depth impact assessment. In France, a Water Strategy Committee has drawn up a water policy and oversees its implementation.

3.2.2.3.1 Water: a resource for energy production

Water is a fundamental element in energy production. Water power is the raw material that drives hydroelectric output. Water is also required for cooling thermal power plants and for the extraction and refinement of oil and gas products.

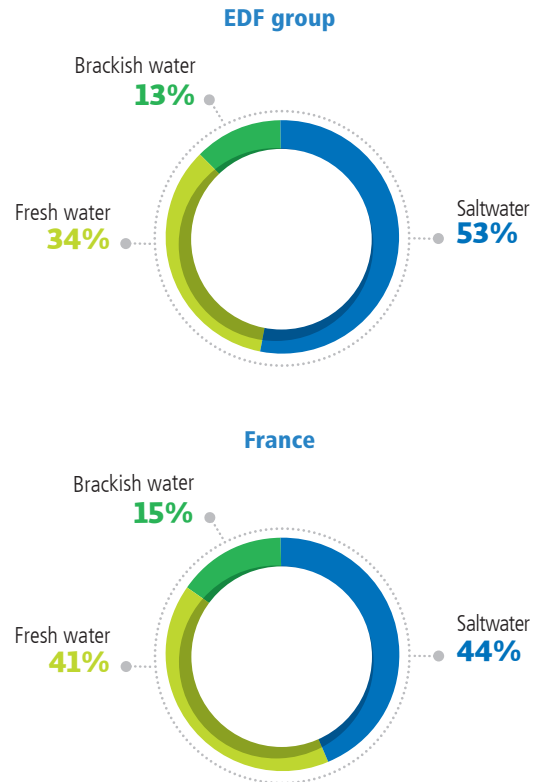
Hydroelectricity, and therefore water, also plays an important role in electricity systems. Large dams and pumped-storage hydro-power plants provide storage capacity for water which can be quickly transformed into electrical power. As such, large reservoirs serve as large-scale electricity storage (14GW can be made available in around 10 minutes in France) which is indispensable during peak demand periods, for the development of intermittent renewable energy sources, and to cope with emergency situations in order to prevent blackouts.

In France, EDF manages 7.5 billion cubic metres of water stored in its reservoirs (representing around 75% of the country’s artificial reserves). At Group level, around 50 billion cubic metres of water are used for cooling thermal power facilities, of which 99% is returned virtually instantaneously to the natural environment; as such, EDF is a significant user, but negligible consumer, of water.

Controlling the use and consumption of water

The Group is committed to continuing to improve performance in terms of water withdrawal and consumption at existing power plants and to researching the most efficient way to use water across territories and major river basins.

DISTRIBUTION OF WATER USED FOR COOLING THE EDF GROUP’S THERMAL POWER PLANTS GROUPE EDF



The exposure of the Group’s generation resources to water stress has been assessed and remains low, since its facilities are predominantly situated in Europe (accounting for over 99% of the Group’s total water withdrawal, of which more than 77% is in France and more than 18% is in the United Kingdom), and its nuclear and thermal power facilities tend to be in coastal locations. In France, EDF is committed to reducing its consumption of drinking water across its entire real estate portfolio and in its green spaces by 5% per year until 2020 for its 137 sites operating with automatic remote-read meters.

Worldwide, 66% of the water withdrawn for cooling purposes by the Group comes from marine or estuary environments, where resource availability is not an issue. This percentage rises to almost 59% in France, over 99% in the United Kingdom and close to 92% in Italy

This data on water abstraction is down by 4%, notably due to a reduction in nuclear thermal generation in France and the increase in generation from combined-cycle gas turbine power plants.

1. ONF: Office National des Forêts – the National Forests Office.

VOLUME OF WATER WITHDRAWN AND RETURNED BY THE GROUP

(in billions of cubic metres)	2016	2015	2014
Cooling water withdrawn	47.4	49.3	49.8
of which fresh water	16.2	18.3	18.1
of which brackish (or estuary) water	6.1	5.2	5.8
Cooling water returned	46.8	48.7	49.3
of which fresh water	15.7	17.8	17.6
of which brackish (or estuary) water	6.1	5.2	5.8
Evaporated water ⁽¹⁾	0.539	0.595	0.553

(1) Water consumed.

France is witnessing a fall in the temperature sensitivity of its thermal plants as old coal- or oil-fired plants near rivers are shut down (such as the Aramon plant which was closed in 2016). New thermal power stations are now built by the sea (Martigues CCGT plant), or equipped with air cooling (Blénod 5 and industrial commissioning of the high performance Bouchain CCGT plant), which reduces their dependence on water.

Almost 99% of water withdrawn is returned to the environment. In accordance with local discharge regulations, the Group's companies take the necessary measures to comply with water quality and temperature

requirements, and take immediate corrective action in the event of non-compliance.

Specific consumption of evaporated water per kilowatt-hour of electricity generated by the Group's fossil fuel-fired, gas and nuclear power plants was: 1.03l/kWh in 2016 compared with 1.06l/kWh in 2015, 0.99l/kWh in 2014 and 0.92l/kWh in 2013. Due to the use of open circuits and the use of seawater in certain power plants, these values are below the average for the sector, as shown in the scientific literature, from 1.8 to 2.8 l/kWh according to the IAEA¹.

(in l/kWh)	2016	2015	2014	2013 (restated)
Water consumed/thermal generation	1.03	1.06	0.99	0.92

Examples of water consumption reduction and withdrawal limitation measures

The EDF group works in a number of ways to optimise its water usage and to reduce pressure on the environment:

- research into the most efficient way to use water across territories and major river basins;
- reducing water consumption with cooling systems adapted to the geographical area and the water resources available on site:
 - thermal power plants with open circuit cooling (direct withdrawal of freshwater, brackish water or sea water, before return to the environment following cooling of facilities): annual volumes of water withdrawn vary between 900 and 1,900 million cubic metres per unit, depending on the electrical power capacity of the power plants. Almost all (99%) of this water is returned to the aquatic environment,
 - EDF thermal power plants with closed circuit cooling due to less abundant water resources: this requires less water to be withdrawn and consumes water through evaporation in air cooling towers (for every 6l/kWh of water withdrawn, 2l/kWh of water is evaporated),
 - EDF's thermal power plants with dry air cooling;
- limiting withdrawals of freshwater by recycling the water as part of the process or by desalinating sea water;
- the contribution of in-house R&D programmes.

The recycling of process and cooling water is developing throughout the Group: for example, the Krakow and Toruń thermal power plants (Poland) now recycle 100% of treated rainwater and 100% of their industrial water. In Italy, the majority of EDF Fenice's co-generation power plants installed with customers also recycle process water. In Brazil, the EDF thermal power plant,

Norte Fluminense, has been a pioneer in the detection of water leaks from industrial systems and in rainwater recovery (enabling it to reduce its annual water withdrawals from rivers by 3%), and is also looking into recycling its effluents, after treatment, by adding them to process water to reduce its impact on the aquatic environment. In Italy, treated waste water from certain power plants is reused, resulting in a 1% saving in overall withdrawals.

In France, EDF's thermal power plants in Cordemais and Martigues recover rainwater or recycle their effluents so as to reduce their consumption of municipal water, resulting in a saving of 150,000 cubic metres of water out of the 300,000 cubic metres previously consumed. The Martigues plant is also trialling a sea water desalination unit pilot project.

In French overseas departments, where EDF is investing in new thermal power stations, R&D teams have designed dry air cooling systems for engine cooling, which reduce water withdrawal by 700,000 cubic metres per year, per power plant (equivalent to the annual water consumption of a town with 10,000 inhabitants).

In southern Corsica, EDF has designed a cold water source for power plants which uses sea water, enabling a significant reduction in the consumption of freshwater (a saving equivalent to the freshwater consumption of a town with 7,000 inhabitants). In Guadeloupe, the TAC power plant in Jarry Sud also has a sea water desalination facility, saving around 50,000 cubic metres of freshwater per year.

Furthermore, for their other water requirements, these new plants use desalinated sea water to replace their normal withdrawals from groundwater or drinking water networks. In the same vein, at the end of 2016 Edison had one CCGT plant with sea water desalination systems to replace their freshwater withdrawal, the second plant having been sold on 31 July 2016 (more than 89 million cubic metres desalinated in 2016).

1. Efficient Water Management in Water Cooled Reactors, International Atomic Energy Agency, 2012.

In Belgium, EDF Luminus has installed new variable flow water pumps at the Angleur plant which supply the demineralisation unit with the exact quantity of water required. This action should result in reduced water consumption.

Innovating towards sustainable water use

In 2013, the EDF group committed to preserve water resources in all its activities and to publish, from 2015 onward, its “water footprint”.

Since the existing calculation methodologies were not appropriate or relevant to the energy sector, since 2012 the EDF group has led work to develop specific terminology and a methodological framework that is consistent with the features of the energy sector worldwide. The main objective of this work is to assess the ways in which an electricity generation site interacts with water and with the aquatic environment, with reference to several indicators rather than just one, as is the case with a “water footprint” and, by so doing, to consider not just how much water is used but to analyse the sustainability of such use.

Around thirty international partners (businesses, association, institutions, scientists, etc.) have taken part in this initiative and have contributed to it. EDF presented the results at the 7th World Water Forum at Daegu (South Korea) in 2015. This was the first step. A second stage must be undertaken under the direction of the World Energy Council (WEC) in close collaboration with EDF, in order to foster more broad involvement and adapt the initiative more closely to the characteristics of each segment of the energy sector. The results should be presented at the next World Water Forum to be held in Brazil in 2018.

Pending the final, internationally validated tools, the EDF group has published a number of indicators, such as the specific consumption of evaporated water, along with a raft of indicators signalling a balanced management of water resources.

3.2.2.3.2 Water and climate

Water is core to the implications of climate change: As a resource, it is one of the most vulnerable to climate disturbances whilst also being a risk vector for regions and their inhabitants in view of the increasing frequency and intensity of extreme climate events, such as flooding and drought. Climate change will have a material impact on the availability, quantity, distribution and location of water resources and will exacerbate competition among different users of water.

“Piano Key Weir” (PKWeir) spillway technology

At the COP 21 UN climate change conference in Paris, EDF was granted an award for innovation in the field of adaptations to climate change in recognition of its “Piano Key Weir” (PKWeir) spillway technology for hydro power plants. The innovative design of these spillways allows a much higher volume of water to be discharged without increasing the overall scale of the task, thereby reducing costs in comparison with traditional spillways.

Although summer 2016 passed without incident overall, with reasonable flows in the Rhône and no heat waves, in the autumn the river sustained severe low-water levels due to exceptional weather conditions. Weak flows were observed upstream from Lake Geneva from September to November, leading to a drop in the lake’s water level and weaker than normal flows on the French side which could have had an impact on the uses of the Rhône’s waters downstream from the lake.

Various measures were put in motion at EDF to manage this unusual situation and to sustain the completely secure generation of the nuclear power plants, including very close monitoring of the flows required. Consequently, flow rates were boosted for the Rhône and Ain rivers.

On the Ain, the water level of the Vouglans reservoir was lowered by around twelve metres in a few weeks, at a much faster pace than would normally be the case, while ensuring a minimum flow coupled with water releases to protect the fish wildlife in the Ain’s lower valley. This measure was the result of an intense dialogue between EDF, local government representatives, local residents and other local stakeholders. At the same time, the Cusset hydro power plant adjusted flows into the Miribel canal to boost the supply of drinking water in metropolitan Lyon.

3.2.2.3.3 Governance and water sharing

Governance

The optimisation of water used in EDF’s generation activities is vital to ensure management of water resources and, in particular, to observe our commitment to guarantee multi-purpose water resources (drinking water, water for irrigation, tourism, etc.) and the needs of local authorities.

EDF is represented at meetings of each of the watershed authorities (the Water Agencies’ reservoir committees) by a reservoir coordination delegate. The new master plans for water development and management (SDAGEs) for the period 2016-2021, drawn up under the aegis of the River Basin Committees, were initiated in each basin in 2016. EDF’s actions are fully engaged within this new framework.

Internally, the coordination of water activities is carried out through a specific cross-functional entity (EDF Water Coordination), officially set up in 2007 following a number of extreme climate events. It is managed by the Group Senior Executive VP responsible for the Renewable Energy Division (member of the Comex). The operational management of water is carried out at national level by Group Water Management (GWM) which is responsible for regular monitoring, on a weekly or daily basis as required, of our water stocks to enable coordination of the various constraints on output. Finally, the job of balancing efficient power generation against optimal water use is achieved jointly by the Upstream/Downstream Optimisation and Trading Division and the EDF Hydroelectric Engineering and Production Division. This water management is made possible thanks to EDF’s hydro-meteorological monitoring which requires the involvement of more than 1,100 stations and 20 internal forecasters who prepare short-, medium- and long-term forecasts of reservoir temperature, water flow and fill rate, in accordance with the weather.

Water management and sharing

2016 was a year of contrasts, featuring, in particular, severe low-water levels at the beginning of autumn, mainly on the Rhône.

Run-off was in deficit at around 7% below the normal level for the year¹, and there had been some remarkable floods (in June on the Loire and the Seine and in November in the Cévennes², Haute Loire and Southern Alps); nevertheless, hydropower output did not sustain any water stress.

To address its obligations with regard to multi-purpose water resources, EDF placed two reservoirs (Serre-Ponçon and Sainte-Croix) under special management procedures between April and July (for tourism purposes).

1. Based on EDF records compiled since 1948.

2. Rainfall had been frequent and abundant in the first half of 2016. Having started at a substantially lower than normal level at the end of 2015, snowfall, greatly helped by this rainfall, reached surplus levels in several basins in the northern Alps and upstream of Lake Léman. However, it remained lower than normal on the Drac, Durance, Verdon and Rhine rivers and, overall, was similar to the normal level on the Pyrenees. In May, rainfall varied from normal to surplus in several basins and temperatures were unusually cool leading to a slower than usual confluence on the Rhône and on the Rhine. At the end of May, severe climate disturbances led to historic floods on tributaries of the Seine, and very severe flooding on the Meuse, Moselle, Loire, Vienne and Rhône rivers. Consequently, run-off was surplus overall during the first half of the year, with the exception of the Southern Alps and the Pyrenees. Significant and widespread water degradation was apparent in the summer, with a strong rainfall deficit throughout the summer and at the beginning of the autumn, accompanied by high temperatures by the end of the summer (generating river warming from mid-August until mid-September). This situation led to severe low-water levels at the beginning of the autumn, particularly on the Rhône (influencing the special management of Lake Léman that year). Following the recovery of normal water levels between the end of October and mid-November, December was very dry which resulted in very low levels of run-off (with the exception of the southern basins which were affected by strong rainfall in November).

Production losses due to environmental constraints were much lower than in 2015; there were around three “full-capacity-equivalent days” on the Rhône, due to flow rates and, to a lesser extent, temperatures. These losses were mitigated by optimising the seasonal closure of power plant units during the summer, in favour of thermal power plants located by the sea, and by the group-wide management of water resources.

EDF was able to meet its commitments to stakeholders in terms of low-water replenishment and agricultural support, as well those concerning flow rate restitution or observance of water levels for tourist-related purposes.

Creating local value

The Group is committed to creating local value in all of its electricity generation projects, to preserving water resources and to assessing the sustainability of its hydro-electric projects by drawing on the Sustainability protocol of the International Hydropower Association (IHA) which came into force in 2015, through:

- the continued application of the IHA protocol;

SO ₂ and NO _x emissions due to heat and electricity generation (kt)	2016		2015		2014	
	SO ₂	NO _x	SO ₂	NO _x	SO ₂	NO _x
EDF group	37	60	70	92	83	118
EDF	5	15	13	20	21	32

Thermal fuel-fired power plants emit pollutants such as sodium oxides (SO₂), nitrogen oxides (NO_x), and particulates. Faced with an increase in environmental concerns and regulatory constraints, particularly in Europe with the IED (Industrial Emissions Directive) entering into force on 1 January 2016, all Group companies must improve the performance of their power plants. These improvements relate to dust extraction, desulfurisation and flue gas de-nitrification systems, by promoting the use of more efficient technologies and selecting less polluting fuels, even changing from coal to fuel oil and/or gas, which is cleaner.

In the island systems, recent facilities or those under construction are equipped with de-nitrification systems.

In Italy, Edison’s thermal fleet² comprises CCGT plants. In the United Kingdom, the Group has been operating 1,290MW of CCGT since 2013. In Poland, the thermal power plants are particularly affected by pollutant emissions in the air. Most of EDF Polska’s boilers are now equipped with low NO_x emissions burners. In anticipation of the European Directive on industrial emissions, EDF Polska is fitting its co-generation units in Krakow, Kogeneracja, Gdansk and Gdynia with desulfurisation systems, and has launched a de-nitrification programme for its facilities. In Poland, EC Zielona Góra completed the modernisation of its power plant in 2013 and substituted coal with gas; a similar programme is planned in 2017 for the Toruń power plant.

The Group is also active in this field of research. In France, the Demeter project provides support for the renovation of coal units at Cordemais and Le Havre (the last remaining coal-fired power plants of the Group in France), so as to optimise the performance of its facilities in terms of pollution abatement (reduction of SO₂, NO_x and particulates). In Poland, the “Flexibility of coal-fired units” project will shortly be implemented. The aim of this project is to improve the energy and environmental performance of power plants in a market that has become more flexible thanks to advances in renewable and intermittent energies. The questions relate to the ability of pollution abatement systems to withstand a drop in the minimum technical threshold, wide variation in loads and more frequent outages and start-ups.

- the application, in France, of the “One river, one territory” programme, with the participation of seven branches;
- presentation at World Water Week, held in Stockholm in 2016, of progress on the “Multi-purpose water from hydro power reservoirs” project, for which EDF led the international working group. This programme aims to incorporate the growing needs of stakeholders in the sharing of dam water resources.

3.2.2.4 Air¹

The use of electricity has the advantage of not polluting the atmosphere; however, as part of its activities, the Group may have an impact on air quality. This is mainly the case where electricity generation is concerned, while its impact on air quality varies according to the generation facility in question. Significant investments have therefore been made to the EDF group’s thermal power plants, coal-fired in particular, to limit their emissions of atmospheric pollutants.

Enedis has a target to reduce SF₆ emissions from source substations, nationwide, from 236kg in 2015 to 160kg in 2018. At the end of 2016, SF₆ emissions from source substations amounted to 205kg.

3.2.2.5 Soil pollution

As part of its industrial and tertiary activities, the Group owns, or uses under concession, large land assets. This is why the environmental policies of the various Group entities aim to optimise the use of this land and protect the soil and groundwater against any impact. The use of soil is the subject of a detailed description of actions related to biodiversity (see section 3.2.2.2 “Biodiversity”).

3.2.2.5.1 Preventing impacts

The prevention of impacts is based on an “in-depth defence” approach. The following protection methods are in place at all industrial sites, specifically:

- maintaining the integrity of means of protection to provide a barrier between circuits containing or carrying radioactive or chemical substances and the environment;
- maintaining and inspecting structures such as sumps, retention systems, unloading areas and pipes;
- ensuring that the soil surface remains free from radiological and/or chemical contamination at industrial sites;
- monitoring the physico-chemical and/or radiological properties of groundwater directly beneath operating sites;
- building retention tanks at storage sites for materials that could pollute the soil;
- reinforcing safeguards when transporting fuel or waste (suitable containers);

1. Air emissions, excluding CO₂ emissions.

2. Excluding Fenice.

- ensuring the availability of emergency kits in the event of spillages and carrying out the corresponding drills; and
- more generally, developing operational procedures and high levels of awareness among operators and service providers through customised training.

3.2.2.5.2 Optimising soil use

The Group's industrial activities may entail some localised soil pollution. Action plans are in place to control these situations across all of the Group's sites. They consist of four stages: site surveys; identifying potentially contaminated sites; analysing the soil at potentially contaminated sites (giving priority to sensitive areas); introducing a monitoring system for sources of pollution and drawing up a management plan, and considering possible remediation depending on future use and regulatory requirements. In 2016, several studies were produced related to the preparation of baseline reports on application of the European IED directive. These studies have been completed for the Brennilis and Cordemais sites, and for both IES and PEI sites, with no discovery of any significant contamination. The "soil background" surveys have also been completed at the Cattenom, Belleville and Chooz nuclear sites. Soil cleaning actions are in progress and have already been completed at EDF Luminus (the Monsin thermal site), EDF Démász (transformer substations) and at the Real Estate Department (Brive-la-Gaillarde, Bourg-lès-Valence, Villers Semeuse and SOFILO sites).

To reduce the probability of pollution, the Group uses its considerable synergy to replace hazardous products with products that are less harmful to the environment and public health, where this is technically feasible. With this in mind, EDF SA, Enedis and Électricité de Strasbourg are continuing with their programmes to decontaminate equipment containing PCBs¹ and PCTs² of between 50 and 500ppm. These action plans continued in 2016 and are on target. 5000 items of equipment with more than 50 ppm of PCB were decontaminated or withdrawn by Enedis in 2016. EDF R&D, EDF IES, EDF PEI, SOCODEI and the thermal generation sites no longer have any equipment surpassing the 50ppm threshold.

Furthermore, action plans are underway to limit exposure to pesticides (e.g. "Pesticide Free Project" at the Mediterranean generation unit of EDF's Hydropower Generation Business Unit and at network operator Enedis' Normandy regional division). The Group's Real Estate Department in France is committed to being "pesticide free" by year end 2020 across its 630 service sites. At year end 2016, 437 sites had achieved that objective, in line with the progress envisaged for this plan. These action plans are based on alternatives (mechanical, thermal or other) to the use of chemical pesticides as well as on rules relating to companies in charge of maintaining their spaces, with the long-term goal of abandoning the use of pesticides altogether. They are accompanied by a training and awareness-raising programme.

3.2.2.6 Noise pollution

Because of its industrial activities, and to a differing degree depending on the location of the facilities and on the technologies used, the EDF group is likely to generate some noise pollution that could affect, for example, local residents or aquatic fauna. In addition to the Group's observance of all regulations in force, EDF has shown an interest in tackling this type of impact for several years, in both its generation and construction activities, for activities on site or in transit.

EDF Énergies Nouvelles ensures that its facilities are fully compliant by adhering to the applicable regulatory requirements with regard to acoustics. Furthermore, it has internal staff dedicated to this issue within the Group's Engineering Department. Acoustic studies are performed for each wind

project studied to assess impacts and minimise them at the design stage of project development. The noise capacity of turbines form part of the selection criteria for the procurement of machinery. This parameter is taken into account as part of the technical criteria for the classification of turbine manufacturers. EDF Énergies Nouvelles listens to local residents where there is evidence of a nuisance in the operational phase. The acoustics are monitored at wind farms in service to check the assumptions of impact studies and take any appropriate corrective measures.

Dalkia also considers noise a component to be incorporated in the deployment of its activities. The latest and most effective sound-reducing innovations are now used in a number of its facilities (special wall coverings, sound traps, gas outlet silencers at co-generation facilities, etc.)

At Citelum, the contract signed in Barcelona makes provision for the use of hybrid light-duty vehicles and electric trucks, limiting the noise impact on local residents during night-time operations. This practice has also been implemented by Électricité de Strasbourg.

At the Dunkirk site, air bubble curtains have been put in place for pile-driving activity at the terminal pier, thereby avoiding any sound nuisance to marine mammals.

3.2.2.7 Raw materials

The Group uses raw materials for electricity generation and to provide energy services to its customers. A significant portion of these raw materials is comprised of fuels: uranium, coal, gas, fuel oil and biomass. To optimise its consumption of raw materials while guaranteeing energy supply to its customers, the Group has opted to implement certain measures:

- changing its generation mix with the development of renewables such as solar power, wind power and marine energy; the decommissioning of low-efficiency coal-fired plants, the commissioning of high-efficiency CCGTs (world record 61% efficiency for the Bouchain CCGT); the use of biomass in place of coal (trial at Cordemais); the modernisation of its IES thermal fleet (new PEI power stations) and the replacement of old engines at power plants in the French overseas departments and in Corsica;
- optimising existing facilities: improving energy efficiency, particularly at IES, EDF Energy and EDF Polska, through maintenance measures, modifications, rules relating to fuel quality (coal) and more rigorous monitoring of efficiency levels (loss limitation);
- the real-time selection of the best performing means of generation depending on the load curve and energy performance. Specifically concerning IES: the thermal power plants are listed in order of generation costs, which are evolving in a virtually linear fashion in relation to the consumption of fuel oil per kilowatt-hour output. These power plants are started in "merit order", an economic mechanism that minimises hydrocarbon consumption. These optimisation measures have been further reinforced with the ISO 50001 certification of these thermal sites in 2016;
- the implementation of a natural uranium savings strategy: EDF's control of each stage of the fuel cycle, the design of high-efficiency fuel and suitable management of that fuel within nuclear units all contribute to optimising the need for natural uranium (see section 1.4.1.1.4 "The nuclear fuel cycle and related issues"). Recycling spent fuel enables savings of 10% of natural uranium;
- the Group's business model based on controlling the full life cycle of its facilities allows for efficient feedback as well as the implementation of eco-design initiatives developed in the engineering centres and the design of projects such as the EPR New Model project.

1. PCBs: polychlorinated biphenyls.

2. PCTs: polychlorinated terphenyls.

- the Group is also developing industrial ecology initiatives among its various entities and initiatives supporting local authorities through a new service based on the Recyter tool, developed by EDF R&D, for regional diagnosis of material and energy flows. The heating of liquefied gas at the LNG terminal in Dunkirk is carried out with cooling water energy from the nearby Gravelines plant, using a canal several kilometres in length, commissioned in 2015, which constitutes a strong investment in terms of the circular economy.

From a global point of view, the consumption of the various fossil fuels changed in 2016 as follows: coal down 38%, fuel oil up 2%, gas up 14%.

Downstream, all energy-saving management initiatives also serve to conserve resources. EDF develops and markets packages for its customers that combine energy-efficient equipment, the use of renewable energy in buildings, incentives for energy-saving behaviour and innovative energy recovery solutions, such as the recovery of heat from waste water (Roquebrune-Cap-Martin), the use of biomass (the Nestlé boiler house project with Dalkia), or the use of solid recovered fuel (Tiru).

Where large sites connected with investments are concerned, materials are recycled (see section 3.2.2.9 “Conventional waste”). For example, 100,000 cubic metres of clay removed from the tunnel linking Gravelines with Dunkirk were used in operations associated with compensatory environmental measures.

Since 2012, EDF has implemented a policy to reduce paper consumption. First and foremost, it is applied through the development of electronic invoicing for residential customers. The target for 2015 of 42 million customers invoiced electronically (15% of residential customers) was surpassed by a substantial amount and the target for 2016 was raised to 5.5 million. The result surpassed the target: 5.65 million customers signed up for electronic invoicing, representing 21% of residential customers. The target for 2017 has been set at 6.5 million customers.

The paper consumption policy has also been applied by setting a target for reducing purchases of paper for office use at 3% per year. This target is renewed annually. The annual results have significantly outstripped the target. In 2012, paper consumption per employee was 24kg of CO₂ equivalent for the year, in 2013 it was 20kg of CO₂ equivalent per employee, in 2014 it was 17.6kg of CO₂ equivalent per employee and in 2015 it reached 11kg of CO₂ equivalent per employee, representing a reduction in paper consumption of more than 50% over 3 years. In addition, 100% of the paper used is FSC paper (recyclable and carbon neutral) and carries the EU Ecolabel. Démasz introduced a new programme, “Paperless Office”, which incentivises correspondence by e-mail. Every EDF site has implemented paper sorting for the recovery of office paper¹.

3.2.2.8 Radioactive waste

The generation of nuclear electricity produces waste, some of which is radioactive. The largest volumes of radioactive waste are produced during the decommissioning of nuclear power plants permanently shut down: rubble (concrete, soil, etc.), scrap and piping. But the most radioactive of all is essentially the waste produced by the processing of spent nuclear fuel. However, 96% of this waste is systematically treated and recycled.

All waste is recorded in the national inventory published by ANDRA every three years. This ensures the transparent management and total visibility of all radioactive waste.

Since 1985, the volume of EDF’s operating waste has been reduced by a third thanks to advances made in power plant operation. Waste that cannot be avoided is sorted according to type. It is then hermetically sealed by EDF in special containers so as to prevent the spread of radioactivity and to increase protection. This allows it to be securely transported to ANDRA facilities where it will be permanently stored.

Some radioactive waste can be destroyed. Solid and liquid incinerable waste (gloves, coveralls, oils, solvents, etc.) is burned in the Centraco plant oven which is operated by Socodei (an EDF subsidiary). Other waste can be considerably reduced in volume to facilitate its storage: this is the case with metallic waste (valves, pumps, tools, etc.) which is melted into ingots in the melting furnace at the same plant.

Waste that can be neither recycled nor destroyed must be placed in a storage facility until such a time that its radioactivity returns to its natural radioactivity level. It is stored in ANDRA storage facilities. 90% of the volume of radioactive waste generated by EDF’s nuclear fleet can be stored in the facilities in Morvilliers and Soulaïnes (Aube region). Two new storage facilities are planned for the 10% that cannot be stored. This is essentially waste produced by the processing of spent fuel and is the most radioactive of all waste. For this waste, which is very long-lived, the Act of 2006 approved the solution of a geological storage facility (Cigéo project). Research is underway for another storage facility which would be for graphite waste from first-generation nuclear plants (currently being decommissioned).

In accordance with the 2006 Act on the Management of Radioactive Waste, EDF is also contributing to research into the separation and transmutation of the most radioactive waste (transformation of very long-lived radionuclides into stable or short-lived elements).

The entire French radioactive waste management system is controlled by independent authorities: the French National Assessment Board (*Commission Nationale d’Évaluation*) controls the work of ANDRA and the ASN monitors all existing sectors and upcoming projects to ensure their safety and lack of risk to public health and the environment.

See section 1.4.1.1.4 “The nuclear fuel cycle and related issues”,

3.2.2.9 Conventional waste

According to its conception to end-of-life activity model, the EDF group generates conventional waste at different stages in the life-cycle of its assets: site development (construction, decommissioning and heavy maintenance) operations (operations waste, such as process sludge), in addition to office waste generated by service activities. EDF’s conventional waste is managed under the framework of regulations in force, which sets out a hierarchy of treatment methods according to each type of waste.

So-called conventional waste includes waste passed on to a subsidiary during the year, and products used during site development, operations and service activities. It does not include radioactive waste, which is dealt with separately as it falls under specific regulations and is handled by specific subsidiaries. Process-generated coal and gypsum ash are covered in a specific report, taking into consideration the quantities produced and the corresponding recycling opportunities (mainly the cement subsidiary). The report exclusively covers the waste that is removed from sites and excludes waste that is stored on-site, waste awaiting removal, materials reused on-site (e.g. earth and rubble) and equipment that could be reused (sold or gifted). Construction and decommissioning waste is included in this report, if its management falls under the responsibility of the EDF group. On the other hand, waste managed by service providers is not accounted for.

As part of its sustainable development policy, the EDF group is committed to limiting the environmental impacts of its facilities and activities. Based on the ISO 14001 certified environmental management system (EMS), conventional waste management complies with the waste management hierarchy and prioritises reduction at source, particularly through the use of eco-designed and eco-friendly products, sorting and recycling (particularly for site waste which is the most significant in terms of volume).

¹. See PAPS0 assessment, refer to section 3.5 “Non-financial rating”.

Waste prevention measures

The Group's entities and companies are committed to a process of continuous improvement according to the principle that the "best waste" is waste that is not produced. They have action plans that aim to limit waste production and are incorporated within the management system action plans in place (EDF SA, EDF Energy and Edison) with associated indicators. A number of levers for action are used: internal procedures (site forecasting: SOGED, management plans, sales agreements or gifts for reuse), specific rules in the company specifications (EDF SA, EDF EN), innovative technical solutions (separation of water/oil from hydrocarbon effluent, asbestos stripping, fibre optics recycling, etc.), numerous awareness raising initiatives for staff and service providers (communication, training, 2016 waste prevention guide incorporating 34 best practices, e-learning), and initiatives to reduce waste hazardousness (and exposure of staff to dangerous substances), particularly by limiting the use of dangerous products (see section 3.2.5.3 "Management and prevention of environmental risks"). Given the importance of this type of waste, specific actions are implemented in relation to site waste or decommissioning waste, involving dedicated EDF working groups. To assemble a compendium of best practices in this field, a "Waste Prevention Competition" has been in place since 2011 and was extended to the entire Group in 2016. In broader terms, the design of facilities is increasingly based on eco-design initiatives which take into account the environmental footprint by implementing a life-cycle approach (EDF-EN Life Cycle Study for solar and wind power).

Waste management and recovery

In addition to the prevention measures, the Group's environmental policy aims to improve the recovery of waste that is produced. The main actions implemented consist of:

- developing the recycling of parts and materials, particularly in the decommissioning phase (decommissioning of IES power plants, parts removed and recycled at EDF Polska, earth removed at Dunkirk LNG terminal or La Coche, etc.);
- the efficient sorting of waste so that it may be sent to energy or material recovery companies in line with specific objectives defined in the environmental policies of the entities and relayed in the management contracts of the dedicated recovery companies and units (EDF EN's PV Cycle and First Solar agreements which take panels back at the end of their useful life, rental of IT equipment to DSP);
- developing partnerships with recycling players (Recylum for Citelum, Ateliers du Bocage for printer cartridges);
- implementing on-site pre-treatment of various waste items, in order to limit the volume of hazardous waste and promote the recovery of the remaining portion (e.g.: concentration of hydrocarbons for energy recovery).

The EDF sustainable development policy includes an objective to recover all recoverable waste; in 2016 it achieved a 90% success rate on that target. The recovery rates for all conventional waste (excluding coal and gypsum fly ash, which are fully recycled) remain at high levels.

Results within the Group	2016	2015	2014
Volume of conventional industrial waste recovered or transported for recovery (in tonnes)	607,171	365,744	392,815
Waste recovery rate (%) – EDF group	89.9	80.6	79.9
Waste recovery rate (%) – EDF	95.3	92.0	92.6
Waste recovery rate (%) – EDF Energy	99.1	94.5	98.5

The significant increase in the volume of conventional waste for 2016 is mostly due to non-hazardous waste from major ongoing projects in France (+230,000 tonnes): debris associated with the production of emergency diesel in the post-Fukushima action plan for nuclear generation power plants (+100,000 tonnes); work on establishment of a new production group at the La Coche power plant for hydraulic generation (+54,000 tonnes); expansion of a storage building in Velaines (+39,000 tonnes) and continuation of deconstruction of the thermal fleet in Albi, Champagne and Aramon.

Impact of decommissioning and maintenance activities

Construction, decommissioning and maintenance activities remained at high levels throughout 2016, particularly in France (including the island systems) and in the UK, which had an impact on the overall volume of waste generated and recovered. Worth noting among the sites: the first steps in the major overhaul of the French nuclear fleet (the so-called "Grand carénage"), decommissioning operations (Champagne, Monsin, etc.), large-scale maintenance operations (Cordemais, Revin, La Coche, Dampierre refrigerator towers).

In France, waste management schemes are now systematically implemented prior to any major construction, decommissioning or maintenance project. Feedback is provided annually from the EDF business units in the spirit of continuous improvement.

The recovery of combustion products and materials: a circular economy initiative

The Group has been committed to developing the circular economy for some years, with ethical systems in place for the recycling and reuse of thermal plant products and materials used during construction works.

Combustion fly ash and gypsum produced by desulphurisation are recovered in full by all thermal generation plants both in Europe (France, Poland, United Kingdom) and in China. Overall, several hundred thousand tonnes of ash are used in building roads and in the cement industry (with savings of approximately one tonne of CO₂ avoided per tonne of ash used¹). In Mainland France, 131,300 tonnes were produced in 2016 and 231,700 tonnes were recycled in the cement-concrete sector (depletion of old inventory)².

The Polish subsidiary, Ekoserwis, is dedicated to this business activity and is conducting research to further develop and improve the recovery of these products. It enabled the recovery of 300,000 tonnes of ash during the construction of the S7 expressway and is developing research plans to further improve the recovery of these products.

The materials involved in construction works are, to a great extent, reused, as in the following examples: Vercors R&D model, Dunkirk LNG terminal (clay removed from the tunnel linking Gravelines), Sizewell B used fuel building (EDF Energy), buried network works at ES, etc.

1. EDF calculation based on average greenhouse gas content by country, including life cycle analysis (LCA), determined according to the generation mix per country provided by the International Energy Agency (IEA) 2012 and according to the LCA of generation methods provided by the International Panel on Climate Change 2012.
 2. Independently of this inventory depletion, everything which was produced in 2016 was recycled.

In order to find other levers for recovery of these waste products in France, the Group has undertaken research into better recovery of ash, sediment and mud and is an active participant in the work of the Institute for the Circular Economy to develop methods and tools in collaboration with industrial groups and universities. In this respect, a study is in progress in the island regions to look into solid recovered fuel which could form the basis of a promising subsidiary operation that would address two major issues in these regions: energy dependence and waste management.

3.2.3 DIALOGUE AND COMMUNITIES

This is a major trend observed everywhere: society is calling for more dialogue and is becoming increasingly vigilant with regard to projects likely to alter the environment. This is why the EDF group has undertaken to systematically organise and engage in transparent and inclusive dialogue and consultation, for each new project, worldwide, observing the best international standards. The Group has turned this undertaking into a lever for the transformation of our business, by encouraging the development of renewed practices of listening to our stakeholders, and by learning to develop projects in partnership with them.

CSRG no. 5: systematically organise and engage in transparent and inclusive dialogue and consultation, for each new project, worldwide

Ensuring the local integration of its industrial facilities is a constant challenge for EDF. At present, the Group's ambition is to renew and systematise its practice of engaging in dialogue around each new project, so as to better take into consideration the aspirations of different regions and their inhabitants. The EDF group undertakes to implement the rules governing dialogue, as prescribed by international standards with regard to stakeholder participation, and to ensure that such consultations are publicly reported.

From 2017 onward, this undertaking concerns new projects involving investment of more than €50 million, entailing a significant impact on regions and the environment. It is the Group's ambition to lower this investment threshold to €30 million by 2030¹.

These projects will be the subject of systematic engagement in dialogue and consultation, in proportion to the implications of the project and observing the following procedures: identify the stakeholders; initiate consultation

as far upstream as possible; provide stakeholders with transparent access to clear information on the project; gather stakeholders opinions on the project and address them; set up a system for dealing with suggestions and complaints; ensure that "indigenous people" are able to participate in the consultation process².

A pilot group was established at Group level to define these specific principles of implementation and to prepare guidelines for project leaders. This committee, comprising businesses and subsidiaries, will continue with its work over time and will ensure that this undertaking is pursued.

3.2.3.1 Listening

To meet the expectations of all its stakeholders, EDF has implemented analysis and monitoring tools: materiality matrix, barometers, mapping, partnerships, stakeholder dialogue bodies, monitoring committees. These different dialogue tools require the prior identification of stakeholders.

3.2.3.1.1 Identifying stakeholders

The mapping of EDF stakeholders enables business units to gain information through:

- local consultation on generation sites and new industrial projects;
- relations with customers, suppliers, sector partners, socio-professional organisations, public authorities and national and international institutions;
- operational partnerships with NGOs and the academic world;
- participation of experts and specialists in independent boards or panels to provide Group managers with external opinions;
- public information and education, for young people in particular, on energy and sustainable development issues.

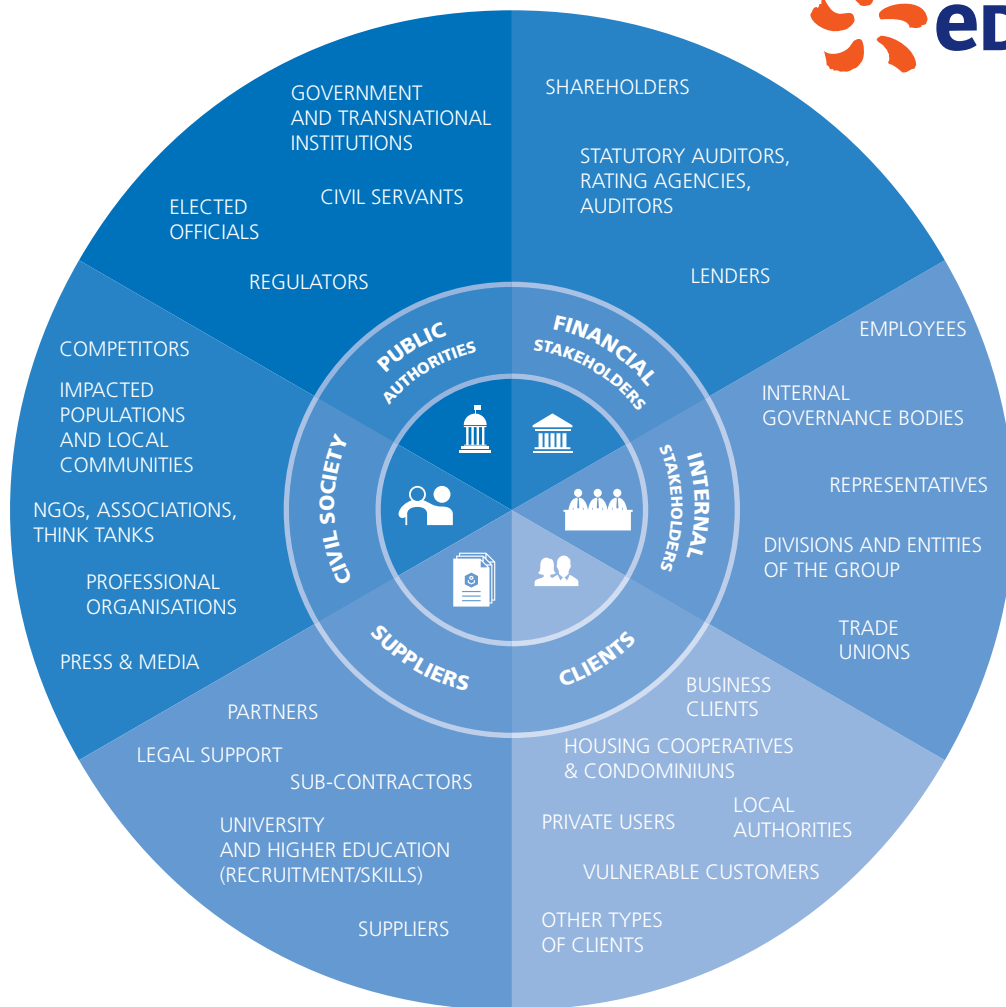
Listening to stakeholders contributes to improving strategies and policies; EDF is committed to guidelines for constructive dialogue between the Company and stakeholders.

The main stakeholders are presented opposite.

1. As a reminder, the financial threshold for the regulatory public debate procedure is €300 million.

2. As required by local law.

STAKEHOLDER MAPPING PROCESSES



Mapping of EDF stakeholders

Listening to the expectations of our stakeholders enables us to develop and refine our strategies and policies.

The main stakeholders at EDF central level associated with the Sustainable Development Department are presented opposite.

The mapping of EDF stakeholders enables business units to gain information through:

- local consultation on generation sites and new industrial projects;
- relations with customers, suppliers, sector partners, socio-professional organisations, public authorities and national and international institutions;
- operational partnerships with NGOs and the academic world;
- participation of experts and specialists in independent boards or panels to provide Group managers with external opinions;
- public information and education, for young people in particular, on energy and sustainable development issues.

With the aim of preventing, reducing and offsetting the impacts of its activity on the environment, the quality of this dialogue with all stakeholders relies on the success of the Group's sustainable development policy and its performance.

3.2.3.1.2 Listening to provide better service or enrich projects

Listening to stakeholder expectations has become an essential part of the operational activity of Group entities and companies. This has always been a major focus at EDF Energy, as well as in entities where marketing is an inherent part of business (the Commerce Division and Dalkia in particular) within the Group, however, these polls are now being used in others domains including nuclear, hydropower and thermal power.

Local residents survey on nuclear generation, thermal generation and hydropower generation: Carried out since 2009 by official survey companies such as IPSOS, these research measure local residents' opinions on nearby plants and energy. 19 nuclear generation sites, 7 fossil thermal sites, 15 hydropower sites and 2 nuclear sites under decommissioning (Creys-Malville and Brennilis) were the subject of this survey in 2016. Local residents' surveys around generation sites highlight that nuclear power plants have a positive impact in terms of employment (83%), economic activity (80%), trading (68%) and collective equipment (64%). For thermal generation sites, 76% of local residents consider that they have a positive impact on economic activity, 76% that they have a positive impact on employment, 54% on trade and 56% on collective equipment.

Service provider survey on nuclear generation and thermal generation: service providers' views of EDF as an "instructing party" is measured regularly via surveys, in order to take into consideration the progress to be made in terms of the conditions for the provision of services.

Sustainable Development Survey (SDS): this monitors French and European opinion on topics relating to the environment, energy and sustainable development, and is carried out by EDF's R&D department alternately in three European countries. It contributes to providing opinion data for different projects and issues. In 2016, the survey confirmed that environmental degradation is not the chief concern of Europeans, with the exception of Germany, and to a lesser extent, France; it also indicated a reasserted opposition to shale gas, less support for nuclear generation and an emerging mistrust of Linky¹.

Internal Environmental Survey (BIPE): a survey carried out on a sample of EDF and Enedis officers. The questionnaire covers the following themes: environment, energy, CSR, innovative concepts. The main findings for 2016 are reaffirmed support for Renewable Energies, opposition to fossil fuels and stability for nuclear generation. The officers' perception of the state of the environment is more severe if the territory considered is vast or far away: in 2016, only one in four officers considered that the state of the environment is poor or very poor in their region and in France, compared to 36% for the environment in Europe, and 76% for the world. These perceptions were stable this year. Two-thirds do not consider that scientific progress will resolve Europe's environmental problems in the next 20 years. EDF officers express strong environmental concerns: over 60% consider water and air pollution, destruction of forests, the disappearance of animal and plant species and the waste of natural resources to be very worrying, and 58% think the same for climate change. EDF officers express very positive opinions on the use of renewable energies, and also nuclear energy, far ahead of fossil fuels, including gas. EDF enjoys a good environmental image for 74% of its officers, who defend both EDF's environmental commitment and public status. The officers' opinions and perceptions often differ according to their gender, age, employment level and department.

Listening practices are generalised. This is traditionally the case for the Customer Department and Dalkia who carry out run-of-river customer satisfaction surveys. These surveys aim to estimate service progress and user benefits, and to better understand customer reasons for dissatisfaction and expectations. EDF Polska also carries out local residents' perception surveys, for example on the Torun investment project, along with listening and consultation seminars for local residents in Gdansk and Gdynia. EDF Luminus has consulted identified stakeholders in its networks to draw up its materiality matrix. In the UK, EDF Energy holds regular meetings (three to four per year) with identified stakeholders on questions linked to its activities and impacts with the aim of identifying and producing the products and services best suited to customers for each of its segments. All survey methods, both quantitative and qualitative, are used, in the form of face-to-face interviews, telephone interviews or via social networks.

EDF group regularly holds meetings of its France and International panels, jointly setting the agenda, to collect their opinions and enable Group managers to respond.

3.2.3.2 Working together

The key to success for projects and their integration into the region's economic and social development programmes is working together with local authorities, local populations and associations. Regular information and open dialogue are carried out close to the sites, and consultations and innovative public meetings are held on the sites or for the projects.

Put into service in 2016, the Catalan wind farm was previously the subject of seven years of consultations with all local stakeholders. In October 2012, a social and environmental commitment Charter was signed between EDF Énergies Nouvelles and the Pyrénées-Orientale Building and Public Works Federation, the DERBI Competitiveness Cluster and the Pyrénées-Orientales Chamber of Commerce and Industry. The aim of this Charter was to take part in the fight against social exclusion and promote local and regional employment for the farm's construction. Respect for environmental criteria was also a strong commitment made by companies involved in the wind farm's construction. 10,000 insertion hours were carried out, *i.e.* 122% more than the Charter's initial target.

The Bouchain Open Cycle Gas Turbine site was subject to considerable dialogue with all stakeholders: local residents, local administrations, NGOs and consular chambers from the start of the project.

Numerous long-term partnerships have followed with fishing federations in Corsica since 2012 (fish restocking agreement in Rizzanese signed at the end of 2015), La Réunion since 2003 (hydropower safety, environmental protection, logistics support, etc.), with the Guyana Water Office and the Guyana Conseil General since 2011, and with the Rhône-Méditerranée-Corse Water Agency since 2011.

During feasibility studies for new network facilities, SEI carries out pre-consultations that facilitate dialogue before regulated consultations, such as for the LEO line (La Réunion).

In 2016, ÉS inaugurated three EnR generation sites: two deep geothermal energy sites and one biomass site, thanks to work with local authorities, State representatives and the different local actors.

With regard to gas projects, in France: Dunkirk, in Italy: Rosignano in Tuscany and in Chile: Concepcion, impact studies were carried out and shared with all stakeholders.

1. Linky is a project handled by Enedis, a fully independent subsidiary.

3.2.3.2.1 Innovating through consultation

As part of ISO 9001 and 14001 V2015 certification, a precise mapping of our stakeholders and modes of dialogue was drawn up, both for nuclear and thermal sectors (for example, in Cordemais); this was updated and enriched by the Purchasing Department.

Societal studies are drafted by the Hydropower Engineering Centre to meet the needs of Production Units for territorial diagnostic tools. These societal studies, along with an analysis of actors on a national scale, enable us to draw up a stakeholder mapping of our facilities. Depending on local issues, innovative public exchange meetings are organised in some valleys.

EDF has signed a partnership with the *École nationale supérieure des paysages* (Higher National School of the Landscape) and regional educational workshops have been rolled-out on the Cruas site and Richemont thermal power plant site. These have enabled a new relationship with stakeholders to be established by working on the relationship between these sites and the landscape around tangible proposals drafted after consultations carried out by students of this School with regional actors.

Attention to stakeholders is translated by R&D supported actions such as the updating of the EDF “Elected officials and territorial dialogue” guide, destined for project managers and steered by the Sustainable Development Department and the businesses and subsidiaries, or the participation in the “Public acceptability” working group (International Power Plant Projects) for which the main recommendations are updated. We can also add the use of Group stakeholder mapping, capitalisation on project experience, Consultation training for all project managers, the requirement for increasingly multi-disciplinary project teams and the adoption of a dialogue charter with stakeholders. As part of a partnership with the ESSEC CONNECT Laboratory¹, a study has been carried out on consultation charters and presented to MEDDE managers responsible for drafting the new participation charter that will accompany the new so-called “Macron” orders on the modernisation of environmental dialogue or the R&D - DDD co-organisation of training such as: “Consultations with the stakeholders in your region”.

For each project, ÉS identifies the different stakeholders and favours exchange meetings, where possible relayed in the media. This action has also been applied for the Dunkirk LNG terminal, and will continue over the long term. A diagnosis was carried out during the terminal impact study, then considered during the public debate and agreements signed with associations to allow observations to be continued during the construction phase and once in operation. This work is also on-going at Edison, for example for the Biovega B project, to work with identified stakeholders in the area of biodiversity and share the value creation approach for the territory and its stakeholders.

With regard to HPC, local meetings have continued over several years, to improve the project in association with the local communities.

For the Torun project, EDF Polska organised 33 meetings over 4 months with all stakeholders, including 8 with the project managers. Particular attention was paid to local authorities including alternative analyses.

EDF Norte Fluminense has produced a stakeholder mapping that is regularly updated, supplemented by specific work on the dam project in order to work with the identified stakeholders.

3.2.3.2.2 Building on the best national and international standards to support projects

As part of the site development programme launched in 2016 on the Porcheville site, the DPIT has worked on ecological continuity to best meet the expectations of external stakeholders.

When implementing major projects, with support from the CCI, local companies are informed of significant business to allow them to position themselves for future bids. For the companies most impacted by site closures, a support programme has been put in place to reposition them for other internal EDF SA calls for tender (in particular for major nuclear projects).

EDF EN develops numerous international projects in the Asia, Middle East, Africa and South America zones in accordance with IFC/World Bank environmental and social performance standard guidelines, and generally applies the Equator Principles.

The IHA protocol was used by the DPIH in France to assess the Romanche-Gavet project. It constitutes the assessment model for international projects at the different milestones.

EDF is a founding member of the Global Compact (see section 3.2.4.1 “Human rights”) and encourages its subsidiaries to comply with the 10 principles when developing their projects, both in terms of national and international development.

As a local actor for over 115 years, ÉS favours up-stream work with all stakeholders, including private users, local authorities, elected officials and State representatives.

3.2.3.3 Being an actor in the regions

3.2.3.3.1 Several 2016 projects

EDF is committed to taking part in local economic life through the presence of EDF elected consular officials in the Chambers since October 2016.

As part of the “*Grand carénage*” programme, EDF will have significant maintenance or equipment-modification work done on its nuclear power plants. Each nuclear power plant has developed a “regional project” so that its region benefits as much as possible from the economic consequences of the work done as part of *Grand carénage*. To achieve this, the nuclear power plants are carrying out advance preparations for the involvement of local companies in the *Grand carénage* projects, together with regional players (associations of companies, professional associations, chambers of commerce, elected representatives, training organisations...). The work covers several topics.

The work done on the nuclear power plants is assigned to companies that are specialised in the nuclear sector, which usually are national scope. However, they may make use of local companies that do not have all of the skills necessary to enable them to respond to a call for tenders, but that do have the right know-how for implementing the activities. For example, a local company with highly-qualified welders but without a design office cannot respond to a call for tenders for making modifications, which requires design skills, but it can carry out works as a subcontractor for the holder of the modification contract. The action of the nuclear power plants and local players therefore consists of identifying local companies that are able to perform work as subcontractors for the holders of “major” contracts (in accordance with limits on the number of subcontracting levels) and putting such companies in contact with these holders via forums. Such an approach was carried out successfully by the nuclear power plants at Cattenom, Tricastin and Saint Alban and are continuing at the rate at which work is scheduled for *Grand Carénage*.

1. *Consultation, Negotiation, Environment and Territories.*

The influx of personnel related to the performance of the *Grand Carénage* works is increasing the requirements for accommodation and is an opportunity for an entire economic sector in the regions of the nuclear power plants. However, the benefits of this situation can only be captured by the region if it prepares for it. Facilitating this preparation by providing projected data on the number of people who will be required to work on site, and supporting local players by investing in accommodation capacity, is another component of the regional projects of the nuclear power plants.

Lastly, local labour will only be able to take the jobs made available by this nuclear power plant activity if trained in the trades of the nuclear industry. The regional projects promote the development of appropriate training courses, notably via apprenticeship, which provides trained locally available employees to companies such as EDF. These actions involve both young people under initial training and job seekers.

The regional projects of the nuclear power plants therefore include all dimensions of the economic benefits of *Grand Carénage* and cover the regions of the nuclear power plants, by bringing together EDF, its industrial partners and local economic players.

The Thermal Generation and Engineering Department (DPIT) is committed to a significant decommissioning programme for sites at the end of their operating life with work forecast up to around 2030. This programme is part of consultations with local authorities and is carried out in accordance with Decommissioning Log-Books prepared by the Thermal Generation and Engineering Department.

In parallel, in liaison with the other Group entities (mainly EDF EN, SOCODEI, Verdesis, Dalkia and Tiru), the DPIT post-operations centre looks to develop projects on sites at the end of their operating life.

After a regional diagnosis shared with all stakeholders, face-to-face meetings, meetings and dialogue, an overall “Energies in the Gard” project was proposed to all regional stakeholders. As the “Clean Tech” dimension has been identified as a development focus for this region, the Community of Communes will build a dedicated activity zone and the Regional Economic Development Agency will look for projects in this sector. Appropriate training will be offered and a jobs campus for maintenance in sensitive environments is planned, based on several local school establishments; a school project on mastering industrial risks is also being studied. Exchanges have taken place with sub-contracting companies working on Aramon and Tricastin. A dynamic between major local groups to facilitate local employment and projects is moving forward.

The “One river, one territory” programme continues to be the flagship intervention programme in hydropower territories for the Hydropower Generation and Engineering Department (DPIH). It addresses the issues of professional insertion, and support for the economy and SMEs close to the generation facilities. It is supplemented by territorial PACTEs (e.g. the Aspe Valley) in certain valleys.

SEI supports the public authorities in Guyana as part of the “electrification of off-grid populations”, isolated Amazonian habitats, only accessible by pirogue, scattered along the rivers. Using its expertise and know-how, EDF contributes to creating mini low-voltage distribution networks. This project has a dual objective: to provide electricity to small isolated villages, not connected to Guyana’s main network, and promote the insertion of renewable energies: a hybrid solar power plant was built in the village of Kaw (80% photovoltaic, 20% diesel, with associated storage).

Dalkia supports the Efficacy Institute (a research and development institute specialising in the field of energy efficiency in cities), particularly for the research project on fatal energy recovery. Efficacy mobilises the R&D

capacities of 6 major international companies (EDF, Engie, Veolia, Vinci, IBM France, RATP), 7 engineering companies and 15 public research organisations, within a new private Institute (SAS). The Efficacy Institute has been tasked by the Grand Paris to carry out studies on the future Metropolis stations.

ÉS is taking part in 18 projects on the theme of energy transition in the agglomeration, alongside the Strasbourg Eurométropole. In addition, on the Danube îlot located in Strasbourg, ÉS is taking part in the “Ecocity, the city of the future” project, a demonstrator for intelligent energy management, in partnership with the SERS, Bouygues Immobilier, Hager and Socomec to make the city smarter.

A support programme for the terminal has been rolled-out. For example, the Innocold association, coordinated by the Dunkirk LNG to build academic expertise in cold in Dunkirk is well on the way to succeeding in transferring this activity to a PRTT of the CEA-Tech. Dunkirk LNG has also finalised the territorial anchorage agreement signed in 2013 by enabling eligible personnel from the site to be reclassified (750 people) – issue of 349 skill capacity visas, 507 links made, 187 people have found work (figures to June 2016).

EDF Polska in Wyrzeże supports the “Let’s talk about the environment” programme carried by the State and Local Authorities. This programme covers major new connections to Sopot; white certificates and energy efficiency improvements; biodiversity (re-introduction and protection of the peregrine falcon population); development of *smart cities* (partner of the International Civitas Forum conference in Gdynia); and support for employment (work-placement programme in the city of Gdansk, “Developing the future”).

MECO has CSR programmes that pay for medical equipment in local clinics and support access to nursery schools. Norte Fluminense has supported several social and environmental programmes in the Sinop dam project area¹.

3.2.3.3.2 Contributing to economic development

The industrial and commercial activities of the EDF group generate local jobs, directly or indirectly, local procurement, and payment of taxes, which support local development. In 2016, the Group’s activities represented 159,112 direct jobs.

The Generation and Engineering business lines supported 258,950 jobs in France broken down into 45,187 direct jobs, 79,468 jobs and 134,115 spinoff jobs² (on the basis of €7 billion in purchases, €3.3 billion in wages³ and €2 billion in taxes). The number of indirect jobs rose by 14% from the previous year related in large part to increased investments in nuclear power. The Nuclear Generation Department (DPN) contributes to the development of the regions in which it is located by organising meetings between tier-one customers and local companies to facilitate the allocation of contracts to local service providers. This was the case, in particular, in Saint-Alban, Paluel, Tricastin and Cruas.

25% of territorial projects from nuclear power plants working to prolong the lifespan of power plants concern the issue of local purchases.

The Thermal Generation and Engineering Department (DPIT) continues its approach of supporting companies that provide services to plants being closed, in order to look for new markets (for example, the Aramon site organised a meeting between contract-holding companies and 200 SMEs in the Gard region, in particular to work on Tricastin).

Through its “One river, one territory” programme, the DPIH continues to contribute to the economic and social development of hydropower regions. On the one hand, it finances SMEs in the water, energy and environment sectors, and on the other it targets actions on potential SME suppliers for development or maintenance bids for the hydropower fleet.

1. https://translate.google.fr/translate?hl=fr&sl=pt&u=http://www.uhesinop.com.br/&prev=search*.

2. Local Footprint study, generation and engineering, Utopies, October 2016.

3. Including 2,080 apprentices and employees on work-study contracts.

For three years, the Romanche Gavet site has carried out significant civil engineering work. By identifying local stakeholders' expectations, these different work contracts were defined by integrating 5% of social clauses (execution and insertion clauses), representing almost 35,000 hours or 20 full-time equivalent positions. An insertion by economic activity structure (Ulisse) supports the site, and has identified candidates for the maintenance of the living quarters. Similar actions were implemented for the La Coche worksite.

In all insular territories, EDF IES contributes to the creation of new jobs and industrial sectors by promoting energy efficiency gestures. EDF also has an essential contribution to local development by ensuring local purchasing which accounts for the creation of around 1,100 indirect jobs annually.

In Chile, Citelum took part in a social programme through two contracts with the Chile Energy Efficiency Agency to modernise street lighting in the cities of La Calera and Alto Hospicio, with a "200,000 light replacement programme" designed to help and modernise the country's most vulnerable agglomerations. The vulnerability index is calculated according to the poverty rate, the delinquency rate, the level of development and the type of area (urban or rural).

In Mexico, Citelum prepared the "light" development blueprint and renovated street lighting in the city of Puebla, thus drastically reducing criminal activities and enabling families to reclaim their districts.

ÉS is a major actor in the region's economic development. As part of the social policy developed in association with Pôle Emploi (Job Centre), ÉS has committed to recruiting jobseekers over 55 years, for whom access to employment is difficult, and who benefit from a Senior Contract or a Single Insertion Contract – Employment Initiative Contract. In 2016, 40 employees were recruited, with 11 on permanent contracts and 29 on fixed-term contracts. ÉS also welcomed 59 people with work-study contracts.

At the beginning of 2016, it was assessed that Dunkirk LNG terminal generated €651 million of direct, indirect and induced benefits for the installation region.

Hinkley Point C, EDF Energy will propose 25,000 job offers for this site during the construction phase, thus generating £200 million per year for the local economy. Local companies benefited from over £250 million in contracts. A support programme has been implemented to improve local roads, training programmes and job offers on the site diffused through different economic actors and job services.

In 2016, investments were made by EDF Polska to reduce gas and dust from environmental emissions - SO₂ NO_x at the Wrocław, Krakow, Gdansk, Gdynia installations and to extend the lifespan of generation equipment until at least 2030, thus generating numerous jobs for operations, functioning and maintenance of the new installations.

In 2016, five projects were prepared with Kogeneracja to contribute to integrated territorial investments (ZIT) via a European environmental programme. CE Wybrzeże signed several agreements with the cities of Gdansk and Gdynia for new connections to the urban heating network, to improve air quality, support social economy and employment entities and to contribute to infrastructure development.

3.2.4 PAYING SPECIAL ATTENTION TO PEOPLE

EDF group acts as a responsible company in carrying out its business. For this, we pay special attention to people, particularly with regard to human rights. This is the case for fragile populations (vulnerable customers, people who do not yet have access to electricity). This also translates in the attention that we pay to questions of consumer health and safety, the way in which we consider purchases and the attention paid to our employees.

3.2.4.1 Human Rights

Due to our activities or those of our suppliers, the Company may be exposed to risks of human rights violations. For this reason, EDF group undertakes to respect human rights everywhere that we operate, in our business and throughout our value chain.

The United Nations Guiding Principles on Business and Human Rights constitutes the reference text for the Group in all matters relating to human rights. The Group aims to implement it in all our activities, including by implementing reasonable diligence measures¹.

The EDF group's social responsibility agreement² commits, in all companies that it controls, "to comply and ensure compliance" with the fundamental conventions of the ILO and in particular, conventions 87 and 98 relating to freedom of association and the principles of collective bargaining. In 2012, EDF entered into a collective agreement in China³. EDF China's trade union committee (seven members elected for five years) represents EDF China's workers in accordance with Chinese laws, and also the principles and values of the EDF group. Its commitment to "not tolerate any human rights violation, fraud or corruption, in any of its companies or suppliers" is included in its corporate responsibility commitments drawn up in 2013.

In 2016, EDF Energy and EDF Trading prepared work to comply with the "UK Modern Slavery Act" with the aim of producing their first annual report on forced labour and human trafficking in their supply chain.

EDF is a member of the United Nations Global Compact; 14 other Group companies are also members⁴; EDF, EDF Luminus, EDISON and Dalkia obtained the "advanced" level in 2016. All these companies also promote the Global Compact with their suppliers. For example, EDF Energy recently initiated a process to demand that its suppliers obtain accreditation from the "Chartered Institute of Procurement and Sustainability Index"; this accreditation covers two-thirds of the amount of its purchases⁵. In the event of below-average results, an assessment process is put in place, potentially leading to the end of contractual relations.

The Group takes into account impacts on human rights in its investment screening criteria, and in the support for its projects, particularly when these investments are made in countries considered to be at risk; audits are carried out with sensitive suppliers and supply chains (see section 3.2.4.5.3 "Assessment of Suppliers" and 3.2.4.5.4 "Uranium and Coal Supply Chain").

1. Furthermore, in its Code of Ethics, EDF group refers explicitly to the Universal Declaration of Human Rights, the International Labour Organisation (ILO) Declaration on Fundamental Principles and Rights at Work fighting discrimination, the OECD Guiding Principles for Multinational Enterprises, the Convention on the Elimination of all Forms of Discrimination against Women and the Convention on the Rights of the Child.

2. Signed in 2009 and still in force. The signatories are: EDF SA, EDF Energy, Enedis, EDF PEI, EDF Polska, EDF Luminus, ÉS Group, Mekong, Dunkerque LNG, EDF Démász, Kogeneracja SA, Elektrociepłownia SA, China Holding, Citelum.

3. Clarification on the China collective agreement: The collective agreement was implemented in 2013 for employees of our holding company in China. Its main objectives were the continuous improvement of working and employment conditions for employees, and to promote social dialogue.

4. EDF signed in 2001.

5. This concerns tier 1 and tier 2 suppliers.

Investments in renewable energies eligible for Green Bonds issued by EDF are also subject to external assessment, particularly with regard to human rights issues.

To raise employee awareness of human rights issues, EDF has developed an e-learning programme on human rights, in French and English, with the association EDH (Companies for Human Rights) of which it is a founding member; this programme has been available to employees since October 2016 and will be used in all the Group's companies. EDF also offers an in-depth, one-day training session for exposed managers and employees.

EDF has implemented an ethics warning system allowing employees and other stakeholders to relay their requests or claims¹. The subsidiaries also have an ethics warning system; EDF Energy, for example, has set up an alert telephone line accessible to all stakeholders 24 hours a day for both employees and suppliers. This practice also exists for major projects, such as the Nachtigal dam in Cameroon, where the company can be contacted using the internet².

3.2.4.2 Fragile populations: vulnerable customers

Energy poverty is a complex phenomenon that has intensified in developed countries, both in terms of number of households concerned and the seriousness of the impacts encountered. This issue has come up in societal and public policy debates. In France, over five million households are concerned. For this reason, EDF has made its contribution to the fight against energy poverty a major subject. Above all, the Group acts so that the electricity bill is not an additional aggravating factor for the most vulnerable customers. For a number of years, EDF has also deployed voluntary prevention and support actions.

CSRG no. 3: offer all fragile populations information and solutions to support them in their energy use and accessing their rights

In 2016, EDF chose to become involved by offering all fragile populations information and solutions to support them in their energy use and accessing their rights by 2030. EDF group contributes to the fight against energy poverty for some of its fragile residential customers, by implementing public mechanisms, by supporting its fragile customers in their access to these systems, and by developing voluntary actions and programmes. This voluntary action is suited to the extremely diversified context of the countries in which the Group operates.

In France, EDF's solidarity policy is based on three pillars: prevention, support for fragile customers and payment assistance.

The Law on Energy Transition for Green Growth gave rise to the publication of several application texts in 2016. Within this framework, EDF actively contributes to the experiments on the implementation of Energy Cheque, launched in May 2016 in four French departments (Ardèche, Aveyron, Côtes-d'Armor, Pas-de-Calais), as well as the "Poverty Energy Savings certificate" obligation, in addition to the classic energy savings certificate mechanism since 1 January 2016, for a volume of 150TWhc over two years.

EDF continues its involvement in prevention, through the implementation of social energy tariffs (TPN and TSS³), as well as its commitment alongside local authorities and social services to rolling-out local payment assistance

for energy bills; for example, with the housing solidarity fund (FSL), to which EDF is the leading private contributor with €23 million.

Through its participation in public mechanisms, EDF renews its commitment to the *Habiter Mieux* (Better Living) programme, implemented by the State⁴ and piloted by the National Agency for Home Improvement (ANAH). At the end of September 2016, the programme had enabled the renovation of 180,000 homes occupied by owners in energy poverty.

The fight against energy poverty also includes actions carried out on the Group's initiative. EDF mobilises 5,000 employees (customer advisors and solidarity advisors) to provide customers experiencing difficulties with suitable, flexible solutions, whether or not they are taken in charge by social reference actors. Almost 350 Solidarity advisors work directly with social workers to best support the most fragile customers.

Amongst the services implemented, we note the Energy Support service, which offers payment assistance solutions and customised support (proposal of suitable payment methods, energy savings advice); and the free, digital e.quilibre chart that enables the customer to better understand their electrical consumption habits, translated into euros, and offers advice on energy savings.

EDF pursues its partnership approach to act proactively with fragile customers; this is the case with the UNCCAS (National Union of Municipal Centres for Social Action) which also exists in departmental and communal versions, and which aims to strengthen the relationship with social workers; and again with the National Union of PIMMS⁵ and the National Agency for Housing Information (ANIL). EDF also continues its collaboration with charities such as the *Secours populaire*, *Secours catholique*, and *Croix-Rouge*.

In terms of R&D, for the last ten years, EDF has carried out a research project dedicated to the fight against energy poverty ("Energy Poverty: Understand in order to Act") for €1 million per year. Some social innovations have come from the community workshop in the Empalot district in Toulouse. This space, where energy management, DIY and decoration workshops are organised, is located in the heart of a "City Policy" district and welcomes inhabitants to train them in becoming actors in the renovation and energy saving use of their housing. Designed and produced in partnership with Toulouse Métropole, the Compagnons Bâisseurs, Habitat Toulouse, Leroy Merlin and local inhabitants, the Community Workshop (*Atelier Solidaire*) was awarded the Eco-Actions Trophy from the *Les Éco-Maires* Association.

Numerous other initiatives are carried out in France, including the distribution of Packéco (small appliances to help manage electricity consumption) by EDF Island Energy Systems, and the implementation of *Mon Appartement Éco Malin* ("My Eco Smart Apartment") by ÉS, a bus transformed into an educational mobile apartment to raise awareness about energy savings.

In the UK, EDF Energy has integrated the Office of Gas and Electricity Markets (Ofgem⁶) approach to the definition of vulnerability and its recommendations⁷. All staff with customer contact are trained in methods to identify vulnerable customers and associated services and tools, such as "Energy Priority services" that offer a wide range of support services for fragile customers. This digital platform, designed and implemented with input from customer panels, also enables up-to-now unidentified customers in difficulty to be identified; it strengthens the options offered to customers to declare their difficulties and facilitates the search for and implementation of suitable offers (payment assistance, tariff adaptation, advice on energy efficiency); this system meets Corporate Social Responsibility goal no. 3 on energy poverty to "offer all fragile populations information and solutions to support them in their energy use and accessing their rights".

1. See section 3.1.3.2 "Warning system".

2. www.nachtigal-hpp.com/index.php/gestion-des-requetes-et-des-plaintes.html.

3. Basic Necessity Tariff and Special Solidarity Tariff.

4. From 2011.

5. 64 of the 191 reception centres and social mediation structures that EDF partners in mainland France.

6. This is the regulator for the gas and electricity markets in the UK, for which the French equivalent is the Energy Regulation Commission (Commission de Régulation de l'Énergie – CRE).

7. <https://www.ofgem.gov.uk/publications-and-updates/more-customers-vulnerable-situations-receive-help-under-priority-services-register>.

In Italy, Edison offers a “social bonus” public social electricity tariff¹. As part of the “Manifesto for energy of the future” project, the Italian subsidiary, alongside other companies and consumer associations, takes part in discussions and the assessment of proposals on reforming this “social bonus” tariff. Edison has also implemented an energy bill monitoring mechanism to anticipate significant increases (based on a change over 20%) and offer payment arrangements to support customers with difficulties. In Belgium, EDF Luminus pays special attention to late payments, in order to avoid weakening the situation of customers and provide suitable payment plans.

3.2.4.3 Fragile populations: access to energy

Over a billion people worldwide do not have access to electricity. Access to electricity is a vector for progress and development, for example in terms of health, education and security. This key subject has been clearly reaffirmed in the United Nations sustainable development objectives. At the same time, technological advances, the cost of equipment and local economic models open up new possibilities for action and mass implementation. For this reason and to pursue its action in this area, EDF has decided to develop new business models combining its traditional know-how with technological and financial innovations.

Recently, EDF and Off Grid Electric, a leading company in the distribution of solar energy in Africa, signed² the first large-scale operational partnership between a global energy provider and a leading off-grid solar electricity company. This partnership's first action is the creation of a joint company, ZECL, in the Ivory Coast, announced during the 22nd Conference of the Parties (COP) organised by the United Nations in Marrakech, Morocco. This company aims to provide electricity to almost 2 million people in the Ivory Coast by 2020, and to rapidly extend the partnership's action to other countries in the region. As part of this ZECL joint venture, EDF and Off Grid Electric will install and maintain solar power kits for rural and peri-urban households. EDF thus consolidates its commitment to access to electricity in Africa, in the continuation of actions already carried out by its decentralised service subsidiaries.

3.2.4.4 Customers: customer health and safety

EDF group's low-carbon generation mode acts positively on air quality, and the electricity generated offers consumers a comfort that contributes to the major public health challenges (cold chain, lighting, interior air, interior circulation, etc.). Electricity generation sites and electricity use by customers, however, require the implementation of certain precautionary measures. For this reason, EDF has long employed information and awareness raising mechanisms in matters of health and safety, in the areas of generation, the electrical grids and uses. Recently, EDF has intensified its research and action on consumer health and safety.

EDF has a medical studies service that intervenes as experts in all the Group's activities. EDF has drafted a health strategy within the Sustainable Development Department to better take the health issues of its business into account. The research department is equipped with the most cutting-edge tools, by taking part, for example in the creation of a laboratory (4EV Lab)

whose research focuses on quality of life in urban areas. The subject is steered by the operational Generation and Sales and Marketing departments. In October 2016, an update on the health question and its links with the environment was studied by the Environmental Management Board as part of the environmental management system (SME).

Some examples of actions carried out in 2016:

- the new Sowee subsidiary will offer its residential customers access to information on their interior air quality via a connected terminal;
- in France, ÉS provides information on the risks inherent in the use of electricity, gas and electrical equipment, in coordination with the Promotelec association, for the diagnostic of electrical installations in homes (<http://particuliers.es.energies.fr/>). In Corsica, campaigns on tree trimming near high-voltage cables and awareness raising actions in schools were carried out. In non-metropolitan areas, awareness raising actions were carried out, such as in Guyana where interventions took place in districts where non-compliant installations represent a real danger for the population;
- the network operator Enedis renewed its protection campaigns for people working near electrical facilities in 2016, “Caution Electricity: Keep your distance”. An internet site www.electriciteprudence.fr was put into place. In 2016, over 300 agreements were in force with professional associations and federations (fire service, aerial sports, agricultural activities, fishing) to raise member awareness;
- abroad, EDF Energy in the UK, and EDF Polska informed their customers of the potential dangers of electricity through newsletters or on the back of bills;
- an information campaign was organised by the Medical Studies Service (SEM) on the question of magnetic fields and the Linky meter developed by Enedis.

3.2.4.5 Suppliers: responsible purchasing

3.2.4.5.1 Responsible purchasing

EDF's responsible purchasing approach is at the heart of the Group's social and environmental responsibility policy. The Group's purchasing policy, updated in 2016, stipulates that the Group's values must be respected by suppliers and that obligations in terms of sustainable development and social responsibility must be systematically included in tenders. Contracts include clauses that allow challenges to contractual relations in the event of non-compliance or serious deviation, as noted, for example by an audit carried out on the basis of legal requirements and the sustainable development policy.

The purchasing policy promotes regional anchorage, support for local development and the use of the protected worker sector and structures for insertion through economic activity. Supplier and service provider forums and meetings are organised to reinforce dialogue, promote local sourcing and foster skills acquisitions for local companies, for example the “One river, one territory” mechanism for hydropower generation facilities. Another illustration of our responsibility in the purchasing area: EDF is developing

1. Created by the Public Authorities in January 2009, the “Social Bonus” is a mechanism to support families experiencing difficulties by guaranteeing annual electricity expenditure savings. Open according to social eligibility criteria, the bonus is valid for 12 months, and renewable.

2. In November 2016.

an inversed collaborative factoring solution with its suppliers, offering the possibility of pre-financing their invoices before the contractual payment date, from the issue of EDF's passed for payment voucher¹.

The Group's Purchasing Department carries out a systematic assessment of all tender holders that may hold risks in coherence with the sustainable development risk mapping, via a system of self-assessments or audits depending on the type of supplier.

In 2016, after a monitoring audit, the French Ministry of the Economy and Finances confirmed EDF's "Responsible Supplier Relations" label, which recognises companies that have sustainable, balanced relationships with their suppliers.

3.2.4.5.2 Supplier relations

Backed by the Group's ethical values, the Group's Purchasing Department has implemented a Code of Good Conduct for actors in the contract process, combining strict deontological rules, principles of good sense and recommendations of good practices for its employees.

A Sustainable Development Charter between EDF and its suppliers reinforces and lays out the principles of the Group's Code of Ethics as part of supplier relations.

Lastly, the deontological commitment signed by each purchaser lists the principles to be complied with in relationships with suppliers and candidate companies.

3.2.4.5.3 Assessment of suppliers

Compliance by suppliers and their sub-contractors with the environmental and societal commitments is mainly controlled by a system that prioritises assessments according to a sustainable development – Corporate Social Responsibility risk mapping covering EDF's 265 purchasing segments. These segments are classified into four risk categories (16 major risk segments, 31 strong risk segments, 154 average risk segments, 64 low risk segments). In 2016, 205 suppliers belonged to the first category, and 389 to the second.

The Group's Purchasing Department uses Afnor's Acesia internet assessment and dialogue platform to send these questionnaires. This tool makes it possible for purchasers and suppliers to share an approach of continuous progress in corporate social responsibility.

Moreover, during consultations, EDF can use these CSR assessments as aptitude or attribution criteria.

In 2016, the Group Purchasing Department carried out 603 "Sustainable Development - Social Responsibility" evaluations divided between 573 self-assessment questionnaires and 30 audits, based on the CSR risk mapping on the purchasing segmentation.

The objective is that all suppliers holding contracts over €400,000² be assessed by means of questionnaires by the end of 2017; at end-2016, 50% of this objective had been achieved.

The assessments carried out proved to be "satisfactory" or "acceptable with comments" for 80% of the audits and 41% of the questionnaires. The supplier CSR audits enabled identification of practices contrary to the purchasing policy, such as unsafe working conditions or non-compliance with working time or obligations in matters of social-security insurance. These shortcomings were systematically notified to the suppliers concerned, with a request to implement a corrective action plan. Concerning supplier segments with a major level of CSR risk, the results of audits considered as

"unsatisfactory" or "insufficient" often led to the elimination of the suppliers concerned from the list of referenced suppliers. The increase in the number of supplier evaluations through questionnaires enabled the CSR audits to be focused on the suppliers most at risk, an area for improvement which will be continued and intensified in 2017.

Supplier CSR scorings carried out show the need to implement wide ranging supplier awareness raising plans to improve skills within the CSR scope.

In Group companies that do not use the Acesia platform, various assessment modalities are used. Dalkia periodically assesses suppliers based on an assessment grid including sustainable development topics. The results are shared with suppliers and improvement actions or audits are implemented if required. Edison uses a self-assessment platform that focuses on the ten principles of the Global Compact and is shared with other companies.

3.2.4.5.4 Coal and uranium supply chain

With regard to coal, EDF is a founding member of Bettercoal, an initiative launched in 2011 that brings together energy providers, port institutions and coal-fired terminals. It is a mechanism that aims to promote the corporate responsibility of companies in the coal supply chain, particularly in mining sites, and to ensure that the fundamental rights (human rights, working conditions, worker and community life, protection of the environment) are respected. The operational approach focuses on a guideline that establishes ten corporate, environmental and ethical principles as a basis for supplier self-assessments and audits. Audit results are shared between members, in compliance with anti-trust principles.

Since 2016, the bettercoal.org site has published updated information on the approach, particularly the list of companies and mining sites that have carried out self-assessments or been audited, and the list of bettercoal-approved audit organisations. In the same logic of information diffusion, the minutes of bettercoal's Consultative and Technical Committee meetings are diffused, as well as the composition of the Committee, whose members come from NGOs, international trade union federations, mining companies and energy producing companies. This Consultative and Technical Committee met five times in 2016.

3.2.4.6 Employees: human development

On this subject, see section 3.3 "Human resources".

3.2.5 ORGANISATION AND DEPLOYMENT OF ACTION

3.2.5.1 Sustainable Development Department

The Sustainable Development Department (DDD) reports to the Innovation Strategy Planning Director (DISP), a member of the Executive Committee. Its main tasks are:

- support for the sustainable development of Group businesses and companies in the management of their activities and projects. The aim is to support business lines and projects in the organisation of stakeholder consultations and to promote the inclusion of environmental and social issues in projects;

1. EDF enables its suppliers to benefit from interest rates based on its own financial risk and credit standards.

2. Suppliers with a market amounting to over €400,000 relating to one or more purchasing segments with a CSR risk level of 2, 3 or 4.

- the management and coordination of sustainable development in the Group. This includes the drafting, checking and publication of non-financial reporting, and also the drafting and monitoring of sustainable development objectives, responding to third parties in association with the relevant departments, coordination of the environmental management system;
- organisation of stakeholder dialogue via expert panels in sustainable development, partnerships and dialogue training tools.

The Sustainable Development Department is supported by a Group Sustainable Development Committee, comprising representatives designated by members of the Executive Committee to carry out the piloting and monitoring of the main sustainable development challenges for the Group; for example, the piloting of the Group's environmental management system, or the monitoring of the Corporate Social Responsibility Goals (CSRG) presented to the Shareholders' Meeting in May 2016. It is also a place to share experience and for exchanges between Group businesses.

Integration of the Sustainable Development Department within the DISP ensures that the Group's sustainable development issues are taken into consideration during the decision-making process both when screening investment projects (via the CECEG process), and in the strategic process.

3.2.5.2 Integration of Corporate Social Responsibility Goals in the Group's strategic process

The six Corporate Social Responsibility Goals (CSRG) are long-term ambitions (2030), for which the completion requires milestones (see section 3.1.2 "Corporate Social Responsibility Goals"). For each objective, roadmaps and qualitative and quantitative monitoring indicators will be defined. Roadmaps are currently being drafted with the representatives of the different Group businesses, including the different subsidiaries, in order to state the contribution of each of the Group's entities and subsidiaries to the achievement of the common objective.

Once the tangible modalities to report on the results of the Corporate Social Responsibility Goals have been defined, the system will be integrated into the Group's strategic loop. The Medium-Term Plan (PMT) will then constitute the natural vector to define, formalise and monitor each of these contributions.

3.2.5.3 Management and prevention of environmental risks

If they are not adequately managed, the Group's activities could have a significant impact on the environment. For this reason, and as a responsible Group, EDF implements a risk management policy for its operational, financial and organisational risks in compliance with current legislation.

Risk Identification

Environmental risks are fully integrated into the Group's environmental management system and internal control system. They are subject to action plans resulting from strategic directions in the Group's sustainable development policy.

The 2016 risk mapping update confirms the risk analysis and does not highlight new environmental risks. In 2016, the Group had 10 Seveso high-threshold sites and 30 Seveso low-threshold sites¹.

In 2016, as in previous years, the most significant factors in terms of the economic and financial challenges related to environmental risks pertain to the following subjects: GHG emissions; the roll-out of energy efficiency initiatives; the impacts of EDF activities on the air, water, soil and waste production; protection of biodiversity and services provided by eco-systems and the management of water resources.

Preventing risks and pollution

In order to control risks of industrial incidents or accidents that could harm the natural environment or public health, EDF has implemented:

- a Group environmental management system that is constantly monitored and improved in the entities and on sites with external ISO 14001 certification audits;
- an active investment policy and an industrial asset decommissioning programme for assets no longer in operation, which includes decontamination operation², where necessary;
- an employee training programme and awareness raising programme for all stakeholders;
- inspections and audits on the generation sites;
- a crisis management policy which requires the regular testing of crisis systems through an annual programme of crisis response drills (see section 2.2.2.3 "Crisis management policy").

In order to reduce these risks, the Group's entities have also implemented a programme to eliminate or substitute certain substances (PCBs, chemical products) with more environmentally-friendly products. This work focusing on carcinogenic, mutagenic and reprotoxic substances or those considered as extremely worrying, has led to the withdrawal of approximately 50 products over three years from the Nuclear Generation business, and 39 substances at EDF Energy, in conjunction with studies on suitable substitution and the introduction of purchasing rules. Other studies are in progress (EDF Energy, EDF Luminus and EDF SA) in relation to hydraulic control fluids and potassium chromate (corrosion inhibitor).

Locally, each of the Group's operational units and companies identify events that could have an environmental impact, manage emergency situations that could result from them, conduct corresponding crisis response drills, implement monitoring and communicate on environmental events under its responsibility.

During 2016, a high-stake environmental event³ was noted on an Enedis worksite. This led to a diesel spill for which the consequences were managed in accordance with procedures in place. There were a few incidents, without any major environmental or health impacts, which mainly concerned leaks or spillages of hydrocarbons or acid. They were controlled according to the emergency procedures in effect which considerably limited their impact on the natural environment.

Some of these events may be followed by litigation from complaints filed by NGOs or warnings from national regulatory authorities (French Nuclear Safety Authority (ASN), Prefecture, etc.). In 2016, one conviction was handed down against EDF in France for a total amount of approximately €21,000.

1. High and low thresholds: industrial establishments are "Seveso" classified according to their technological risk in terms of the quantities and types of hazardous products they handle. There are two different thresholds which classify establishments as "Seveso low-threshold" or "Seveso high-threshold". The requirements vary significantly between these two types; they are very restrictive for the high-threshold, particularly with regard to the safety management system, informing the public and the prevention plan, etc.

2. These decontamination operations may concern contamination and denaturing prior to EDF's operational phase.

3. High-stake environmental event: an event causing serious environmental damage (areas, resources and natural environments, sites and landscapes, air quality, animal and plant species, biological diversity and balance) combined with extensive media coverage or a financial impact of more than €3 million. An event causing environmental damage and likely to affect human health falls within the scope of a high-stake environmental event for the EDF group.

The environmental management system (SME)

To coordinate the objectives and actions resulting from its commitments and sustainable development policy, EDF group has implemented an environmental management system (SME) at Group level, piloted by a Sustainable Development Committee (SDC).

EDF group's SME is ISO 14001 certified with a scope that represents almost all the consolidated revenue of EDF and its subsidiaries and equity interests. This ISO 14001 certification even exceeds the Group's consolidated scope with subsidiaries such as RTE, Sodetrel, NTPC (Nam Theun, etc.) also ISO 14001-certified. Since 2002, EDF group has maintained its certification, with the next renewal for the 2017-2020 period programmed for March 2017.

In 2016, as part of the continuous improvement to the SME, the Group's head, along with the DCN¹ and R&D, were certified based on the new 2015 version of the ISO 14001 standard. This is also the case for the EDF Luminus and EDF Trading Logistics subsidiaries. In July, the SDC confirmed the objective of maintaining ISO 14001 certification for all Group entities. In October, the external auditors from Afnor, the independent certification organisation, confirmed the robustness and maturity of the Group SME and the correct deployment throughout the entities and subsidiaries.

Over 25% of generation sites² (nuclear, thermal and hydropower) maintained their OHSAS 18001 certification in 2016, through an audit conducted by the external expert Afnor.

A few significant actions illustrate the improvements during the recent period:

- implementation of migration plans for certified entities to the 2015 version of ISO 14001;
- updating of operational processes and environmental analyses in a proposed life cycle perspective;
- use of suitable environmental analysis and regulatory compliance tools;
- additional ISO 50001 certification (energy management system) supported by the existing SME in numerous entities (e.g. DSP, SEI);
- improvements to environmental performance in waste management; in the air, water, soil;
- final shutdown of coal generation assets (coal-fired);
- fight against light pollution and development of smart cities;
- continuation of action programmes to promote biodiversity in numerous entities (protection of birds, fish, flora);
- awareness raising for employees to the new requirements of the 2015 version of ISO 14001 (e-learning);
- participation in awareness raising programmes on eco-gestures for children, in the form of educational games on smartphones;
- certification of service buildings with the award of prizes of excellence;
- replacement of thermal vehicle fleets by electric vehicles.

3.2.5.4 Sustainable development monitoring networks

Changes to national and regional environmental and energy policies, and in particular increased regulatory requirements, are a source of risks that

need to be anticipated, and also opportunities for EDF. Since the 1990s, EDF has implemented an anticipative monitoring and lobbying system to best mobilise and coordinate internal resources. This system aims to anticipate and alert managers on coming changes, or new mechanisms likely to have an impact on the Group's activities; this anticipation facilitates the integration of these changes into operational activities.

The anticipative monitoring and lobbying system is based on the work of thematic groups, known as "networks" (water, waste and soil, air, biodiversity, industrial risks, energy efficiency, energy poverty and health). Each network comprises fifteen members from different Group businesses that meet every quarter to share an overall vision. The aim is not only to anticipate changes to come, but to strengthen the Group's advisory capacity. Each network works closely with the Legal Department, the Public Affairs Department and the European Affairs Department. The pilots for each network come together in a Sustainable Development Agency that monitors approach transversality and ensures that the Group's challenges are taken into consideration in an overall, long-term view.

In 2016, EDF was able to assert its interests during the drafting of texts on environmental assessment and public information and participation mechanisms. For example, the Ruling no. 2016-1058 of 3 August 2016 on changes to rules applicable to environmental assessments and the application Decree of 11 August 2016 strengthen the content of the impact study, requiring new consultations when examining the request and consolidate the legal basis to study the documents and/or assessment again in the event of project changes. Ruling no. 2016-1060 of 3 August 2016 reforming the procedures for public information and participation in the drafting of certain decisions likely to have an impact on the environment aims to reinforce upstream consultations before the decision process and modernise downstream consultation procedures. As project manager for its projects, EDF was able to follow the drafting of these texts, formulate observations and propose amendments as part of public consultations as well as within bodies such as the Higher Council for the Prevention of Technological Risks (CSPRT).

3.2.5.5 R&D for sustainable development³

New expectations from society, changes in technologies or the rules of the game in the electricity sector stimulate innovation and place R&D questions at the heart of the Group's success. As part of the CAP 2030 and the sustainable development Policy, R&D actions contribute to optimising its economic, environmental and corporate performance over the medium to long terms, both upstream and downstream of the Group's businesses.

EDF's R&D contributes to achieving the medium to long term energy and climate objectives of energy transition, and to developing new technologies in renewable energies and storage solutions. The aim is to fill the gaps in renewable energies, integrate digital and new information technologies into the electricity system and the world of connected objects, and to enrich our offer of energy services with new digital technology solutions for all our customers. EDF also strives to protect natural resources and human health through the reduction of pollutant discharges to the air, water and soil, in line with the circular economy.

In France, more than 19% of EDF's R&D budget is dedicated to protecting the environment (see section 1.6.1 "R&D organisation and key figures").

1. Nuclear Fuel Department.

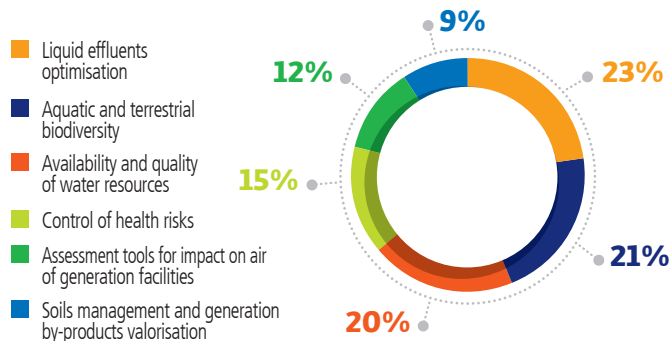
2. Four nuclear sites (Blayais, Cattenom, Dampierre, Saint-Alban); six thermal sites (CETAC, Le Havre, Blénod, Porcheville, Cordemais, Aramon); two hydropower sites (DTG and UP Est).

3. See section 1.6 "Research and development, patents and licences".

As part of its thematic “Energy Management” research programme, EDF R&D carried out a technical and economic feasibility study on the massive development of wind and solar power generation in the European electricity system, by simulating the high scenario of the European 2030 Roadmap (“Analysis of the European electricity system with 60% RES”). In particular, this study explores the impacts of such development in terms of generation infrastructure and network needs, short-term system management, renewable energy market revenue, GHG emissions and the different action levers to address generation variability such as the development of interconnections, storage and demand management. It was published in different scientific publications as part of the IEEE and obtained the annual prize from the Utility Variable-Generation Integration Group (UVIG – Annual achievement award 2016). The study’s summary was also publicly presented in 2015 and 2016 during events or before different bodies such as the European Sustainable Development Week, the COP 21, OPEST and the European Parliament¹.

R&D also studies energy transition in cities and regions (“Smart&Low Carbon city” project) on urban energy planning and the “smart city”, to define innovative local energy concepts for areas under development, the search for energy efficiency solutions in buildings, mobility, decentralised low-carbon energies (biomass, PV, geothermal energy, wind power), heating, cooling and electricity networks, multi-energy optimisation. In terms of planning, projects have been carried out over the last few years with Singapore (development of a simulation platform for the Singapore development agency, HDB), Lingang and Sanya in China, Green Moabit district in Berlin, Lyon, Strasbourg.

EDF’s R&D programme looking at the management of interactions between generation facilities and the environment, in particular air, water, soil, health and biodiversity, received a budget of around €27 million in 2016 broken down as follows:



For numerous recent illustrations of the R&D commitment to major sustainable development challenges, see the sections 3.2.1.2 “EDF group’s carbon-lowering strategy”, 3.2.1.3 “Climate change adaptation strategy”, 3.2.2.2 “Biodiversity”; 3.2.3 “Dialogue and territories”, 3.2.4.1 “Human Rights”.

Sustainable development R&D has a Group dimension. EDF Energy R&D UK Centre carries out research on offshore wind power: environmental impact, cost modelling, wind power resource assessment, preparation for the future. It pilots the “Offshore Wind” project for the Group and develops strong synergies between France and the UK. The main deliverables in 2016 were on the future of offshore wind power costs, the optimisation of turbine layouts and the drafting of the monitoring plan for the Blyth offshore wind power demonstrator for EDF ER.

3.2.5.6 Stakeholder panels

Stakeholder dialogue within the Group takes varied forms depending on the type of activities (generation, sales and marketing etc), the place it occurs (local, national, international), the time period (project or operational phase for a facility, for example), and the proposed dialogue objectives (solving a well-identified operational problem, examining a major corporate issue, etc.). Over the last dozen years, EDF group has tried an original, effective type of dialogue by coordinating different external stakeholder councils, at Corporate or country level.

To date, several panels of external experts provide Group managers and companies with their view on the major topics of interest to EDF. Agenda items are proposed by both parties and the recommendations made are reviewed two years after the work has been completed.

The Sustainable Development Council in France – whose members are external specialists and representatives on the issues associated with the impact of EDF’s facilities and businesses – challenges EDF managers and experts as far upstream as possible over the company’s proposed action regarding sustainable development. In 2016, the Panel met twice, firstly in May for the planned investment at Hinkley Point, then at the beginning of December to examine the new draft policy on sustainable development for the Group.

In Italy, Edison is currently launching an external panel inspired by comparable models.

In the UK, since 2006, EDF Energy has coordinated a “Sustainability Advisory Panel” to advise the CEO and Executive Committee on corporate strategy and sustainable development. This year, it looked at the HPC project, market conditions for electricity generation and the training strategy. Within the Group, other stakeholder panels continue to work on areas associated with sustainable development, such as the EDF Scientific Council and the EDF Medical Council.

Enedis recently introduced a stakeholder council based on the Sustainable Development Council model. It is comprised of ten independent experts qualified in fields of interest to the business (economics, innovation, land, digital age, etc.). Amongst the themes evoked this year: “Linky: technological progress and subject of public opinion”, “the digital challenges for Enedis in a changing national and European context”, and “the new territorial order” on 12 October.

In the Group’s new strategic context (CAP 2030, CSRG), wide-ranging discussions have begun to redefine the way in which stakeholder interactions take place (for example, in the form of on-line platforms); within this framework, the “SD Panel” – the oldest stakeholder panel on a global scale² formalised its record and formulated its suggestions for the future of this type of dialogue.

3.2.5.7 Partnerships for sustainable development

Sustainable development partnerships are a way in which EDF can engage in dialogue with stakeholders on high-stake questions for our businesses, and better understand the expectations of our environment. These partnerships also provide internal expertise for Group businesses and companies.

1. Report V. Silva, A. Burtin, Technical and Economic Analysis of the European System with 60% RES, EDF Technical Report, June 2015.

2. It was implemented at EDF in 2004 and updated in 2012.

During 2016, sustainable development partnerships focused on four main issues: “Biodiversity”; “Energy transition/climate change”; “Energy poverty”; and “Consultation/Regions” partnerships.

- partnerships in the field of biodiversity facilitate technical exchanges and dialogue with associations on high-stake issues for businesses and projects (for example partnerships signed with the National Natural History Museum (MNHN), the French Committee of the International Union for Nature Conservation (IUCN), the Bird Protection League (LPO) and the Federation of National Botanical Conservatories);
- partnerships with think tanks enable EDF to feed discussions on high-stake subjects such as the climate, energy transition and the circular economy, for example through partnerships signed with the Sustainable Development and International Relations Institute (IDDRI) and the Nicolas Hulot Foundation for Nature and Mankind (FNH);
- in terms of energy poverty and access to energy, EDF group has chosen to support the “Business and Poverty” Action Tank, that looks for innovative solutions to renovate degraded co-ownership buildings with local authorities; the National Association of Master Builders (ANCB) which intervenes to improve housing through supported self-rehabilitation works for people excluded from “traditional” solutions; and ASHOKA, the leading world network of social entrepreneurs, that aims to promote the co-creation of new technical and economic model solutions;
- in terms of dialogue within the regions, EDF group has a new tool, thanks to a new partnership signed with the Higher National School of Landscaping (ENSP) that promotes the consideration of the landscape in industrial projects on the ground.

3.2.5.8 Awareness raising and training in sustainable development for employees

The consideration of environmental demands and sustainable development in the activities and projects carried out within the Group requires a wide range of knowledge and skills. For this reason, EDF group aims to develop them for our managers and employees. These training and awareness raising actions are part of the Group’s transformation project.

At the Group level, the skills required in terms of environment are described with regard to the environmental impacts and regulatory requirements for each type of activity. Appropriate training proposals are integrated into current and new employee training plans. A new “Group Energy Services” Occupation Academy was created on 13 January 2016. This federates the Customer Department France and subsidiaries such as Dalkia, Tiru, Citelum, Fenice. In the context of energy transition, the development of energy services is a priority and a business in its own right. The pooled professional training offer for all actors contributes to reinforcing this new business.

In 2016, “Company Training Orientations” formulated by EDF for a three-year period, stipulate that training efforts should be directed as a priority to employees in contact with external and internal stakeholders (managers, project managers, project leaders, communicators, regional delegation staff, etc.).

In France, a “Sustainable Development Training and Awareness Raising” catalogue is offered to managers and employees. It covers the major transversal themes, including an introduction to sustainable development, human rights, stakeholder dialogue, responsible purchasing, biodiversity, waste prevention and management, polluted soils, environmental health, regulatory monitoring, new energies. It contributes to reinforcing the

integration of the sustainable development dimension into the businesses. Dedicated training for project managers insists on the requirement to take sustainable development into account in the projects. Within the scope of EDF SA, 4,464 employees followed training courses in the “environment” field for 29,456 hours of training.

E-learning tools are being developed. In February 2016, as part of the change in ISO 14001, a specific e-learning topic was made available on the “e-campus”¹ training platform. In June 2016, an e-learning session on the prevention and optimisation of waste management was made available to employees. In France, two new e-learning topics: “Preventing corruption” and “Human Rights in companies” were recently proposed in November 2016².

Edison also offer an e-learning topic on the fight against corruption. Several subsidiaries have developed training and awareness raising topics on issues linked to human rights and ethics for traders at EDF Trading, and for employees and stakeholders at EDF Energy.

Environmental issues and the Group’s commitments to promote sustainable development are very present in the training path for new hires or during service provider welcome meetings. In 2016, we can note the launch of the “My Serious App” application, downloadable on tablet or smartphone, to facilitate cultural integration at EDF, and including around one hundred questions on sustainable development. Dalkia has devised an original educational modality in the form of a theatre performance. The sequence is included in the integration training path for salespeople, in management training and during significant events such as Sustainable Development Week. The filmed play can now be seen by all employees on the intranet.

Employee awareness raising is organised around the Corporate Social Responsibility Goals (CSRG): climate change, human development, energy efficiency, energy poverty, dialogue and consultation, and biodiversity. During the second half of 2016, these Corporate Social Responsibility Goals led to awareness raising in two stages: information to all managers on the importance of these objectives; then to Group employees via different mediums: *Vivre EDF* On-Line intranet network; internal network of EDF Energy; magazines (*Vivre EDF le Mag*, *Vivre EDF* Group News).

To share significant actions on the fight against climate change with the Group’s businesses and subsidiaries, a specific action was carried out with employees throughout the first quarter of 2016. Nearly 60 “solutions for the climate” were published in the Sustainable Development community of *Vivre EDF* On-Line.

Over the last ten years, EDF has built on its partnership with the Fête de la Nature Association to reinforce employee awareness on biodiversity issues. In 2016, the event mobilised 27 sites in mainland France and Overseas departments, with 67 individual events. The *EDF Fête de la Nature* newsletter was distributed (20,000 copies). The 2016 edition showcased the biodiversity partners and the actions carried out by the teams with them on the ground. The collection of “biodiversity guides” grew with the addition of a 7th guide. Dedicated to the employees of EDF Énergies Nouvelles (New Energies), this guide deals with biodiversity issues in wind and solar power.

A waste competition was organised during the European Waste Reduction Week organised in France by the ADEME. For its 6th edition, the competition was open to the whole Group with a two-fold aim: to showcase work accomplished – using concrete examples of how waste can be reduced – and to promote best practices. Group companies reinforced the awareness of their teams on this topic: EDF Luminus with the publication of “12 best practices to reduce waste”; EDF Démász with the organisation of an Earth Day during which best practices to reduce waste associated with their business were collected; in Vietnam, at MECO, the question of waste management

1. Following these changes, training on ethics, stakeholder dialogue, biodiversity and waste prevention and management was expanded.

2. 534 employees have used these new educational modalities.

was considered during meetings with staff and sub-contractors; in France, the Thermal Generation and Engineering Department publishes a Waste Prevention guide each year; EDF Énergies Nouvelles organised several awareness raising campaigns on eco gestures in several European countries around the question of waste management.

Measuring the impact of training and awareness raising actions

The impacts of training and awareness raising on sustainable development are measured annually through an internal survey of over 4,000 employees. Within their work, 89% have already heard of sustainable development, 72% of green energy, 64% of energy efficiency. In France, 73% of employees (68% in 2014) now consider that climate change is caused by human activities. 81% of officers believe that it is possible to fight against climate change (compared to 77% in 2014). 80% declare that they are strongly or somewhat in favour of renewable energies (92% for biomass, 91% for geothermal energy, 90% for solar energy, 86% for wind power), and also nuclear energy (82%). On the biodiversity theme, 31% of officers surveyed declared that they knew of one action to promote biodiversity implemented by the unit or the EDF group. This proportion has doubled since 2010. An approach that is being diffused in the Group: EDF Energy launched a major study on sustainable development with its employees; the results will be known in 2017.

EDF integrates three corporate responsibility criteria into variable compensation mechanisms when calculating employee profit-sharing, up to 60% of overall profit-sharing. For the period 2014-2016, the criteria are: the reduction in greenhouse gas emissions in service buildings (annual target: -1,000 tonnes CO₂ equivalent per year), the percentage of employees that have followed a health and safety risk prevention training session (annual target: over 45%), and customer satisfaction improvements (annual target: over 67.5%). In 2014 and 2015, these targets were achieved¹.

3.2.5.9 Communication and raising the awareness of the general public to sustainable development

The issues of energy, the environment and sustainable development are often not well-known by the general public and even by political or professional decision-makers. This sometimes leads to less fluid dialogue, the formation of pre-conceived ideas, not justified by fact and unsuitable practices in terms of electricity consumption. For this reason, EDF group, based on scientific information, wishes to contribute to informing and raising awareness in these areas, with specific attention to young people.

In line with CAP 2030, EDF group has prioritised its general public awareness raising actions in its corporate responsibility and the six topics included in its new Corporate Social Responsibility Goals: the fight against climate change, human development, energy efficiency, energy poverty, dialogue and consultation, and biodiversity.

Climate change and local actions

An information campaign to prove the issue of climate change and the resources that need to be implemented to reduce carbon in the economy was put in place on the internet and relayed on the social networks (EDF Facebook and twitter accounts, influence networks specialising in sustainable development, etc.). Beyond this awareness raising on the issues of climate change themselves, 50 "Solutions for the Climate" developed by EDF and its subsidiaries to help their customers consume better and less, and to

reduce their CO₂ footprint were published on-line. This campaign (over 140,000 pages seen) presented tangible initiatives carried out in partnership with cities and regions to support them in their energy transition, as well as innovations to accelerate the development of renewable and low-carbon energy sources.

In France, this operation was supported by the continued cycle of "Energy Climate Conferences" started during the COP 21, where national and international experts share their approach towards climate issues and energy transition with targeted audiences (major companies, local authorities, administration representatives, etc.). Five conferences were organised on the themes "deciphering the Paris Agreement", "biodiversity and climate change", "food security and climate change", "implementing the energy transition", "commitment by women for the climate",

In direct contact with corporate stakeholders, generation sites have pursued their local actions: the theme of reducing carbon in the energy mix during the 2016 edition of the "Electricity Industry Days" (16,000 visitors), awareness raising on the issue of biodiversity during the 10th Nature Festival (5,000 visitors to the 27 participating sites), awareness raising on questions of diversity with the opening in 2016 of 20 discovery areas accessible to people with reduced mobility, and those with visual or hearing impairments ("EDF in all senses" programme). Around one hundred French nuclear, thermal and hydropower sites also maintained the opening of industrial installations to local residents and school children: 400,000 visits in 2016, systematically integrating an educational conference on their operations and their economic and environmental impacts. Similar operations were implemented by Tiru, allowing over 1,000 visitors to be made aware of household waste sorting and the energy recovery of waste incineration.

In Overseas departments, EDF partnered the Watty programme in schools, where EDF employees intervened to raise awareness of children on reducing their water and electricity consumption. In Alsace, the Électricité de Strasbourg Group launched "ChasseOgaspi" (waste hunt), a free serious digital game aimed at children between the ages of 4 and 9.

Awareness raising of young populations on the issues of electricity and sustainable development has been a long-term strategic focus. Within the scope of a partnership signed in 2002 with the Ministry of Education, EDF organises free conferences on energy, electricity and sustainable development, for classes from primary to the final year of secondary school. Linking to school programmes, these are led by suppliers specialising in education. In 2016, 124,000 school children took part in these conferences. The Company also provides education resources for young people and teachers on its website edf.fr/energie-a-z (over 800,000 single visitors).

Raising customer awareness on energy savings

With 27.8 million customers in France, EDF is an important actor in raising awareness on the management of energy demand. The company has developed e.quilibre, a digital tool accessible on the website edf.fr to help customers easily analyse their electricity and gas consumption and better manage it. From their computers or tablets, they can visualise in euros and kilowatt-hour the consumption of their appliances by type of use (heating, hot water, household appliances, etc.) and benefit from personalised advice and eco-friendly tips for making energy-saving changes. This solution is now available for nearly 12 million customers. During 2016, a new functionality will enable customers equipped with Linky meters to set an annual consumption target. In parallel, 28 million e-mails to help customers better understand their consumption were sent during the year.

In Alsace, the Electricité de Strasbourg Group has also provided an on-line electricity consumption analysis and monitoring tool (J-agis-sur-ma-facture.fr), where the company provides energy saving advice.

1. Results for 2016 to come.

3.2.6 SPONSORSHIP

For almost 30 years, EDF group, through its sponsorship, has shown its commitment to promoting actions driven by civil society¹. With 43% of employees personally involved alongside associative actors throughout the country (according to an internal survey), the Corporate Foundation expresses strong attachment to the Group's values of solidarity, respect and responsibility. Thus, each year, the Foundation supports almost 150 social innovation drivers.

Since 1 January 2016, EDF group's Corporate Fondation associates EDF, EDF Énergies Nouvelles and Dalkia within its Board of Directors in a logic of Group sponsorship. With a budget of €40 million over four years, it makes solidarity and progress its action priorities and can build on the commitment and excellence of employee know-how for projects that it supports or directly implements, such as its international solidarity programme to promote access to energy (65 missions driven by 36 employees in 17 countries). The Foundation also coordinates an area that offers exhibition cycles and meetings free of charge (42,000 visitors for ElectroSound).

The EDF group Foundation is also a loyal partner of the Téléthon charity event that finances research projects on rare neuromuscular genetic diseases thanks to the mobilisation of hundreds of employees who locally collect donations or donate time. It supports the deployment of the 2nd Chance School Network to promote the insertion of young people and organises a Hackathon for the benefit of this partner, with the aim of defining innovative digital solutions. The Foundation also contributes to the *Agir pour l'emploi* ("Act for Employment") Fund as part of an original donation mechanism:

13,000 Group employees made a donation for the benefit of occupational integration, matched by all Group subsidiaries. Numerous medical research projects (Clinattec and the Institut de la Vision) are also supported along with awareness raising actions for young people on scientific subjects (Open Sciences and Fermat Sciences).

Since 2010 at each edition, the Foundation organises Awards to recognise 90 exemplary actions in favour of young people carried by small and medium-sized associations, and for the last two years, 20 associative projects carried by employees themselves. Pro Bono marathons are also offered to Group employees (50 participants) to help associations develop their associative projects. In total, the Group Foundation has contributed to mobilising 95 employees (715 mobilisation days), excluding skills volunteering, for the benefit of the general interest in 2016.

In the UK, EDF Energy focuses its sponsorship policy on sustainable development and support for local communities. EDF Energy grants employees two days per year to carry out volunteering actions within their local communities, to support schools and charity or not-for-profit organisations. Its employees contributed to fund raising for the Company's partner charity, Marie Curie, to provide care for people in terminal phases of illness and their families.

In Italy, Edison's sponsorship activities are part of a corporate responsibility strategy to involve employees in volunteering actions. Edison has chosen to focus particularly on the younger generation to promote a sustainable development culture through schools, thanks to projects with major environmental, musical and cinema associations.

3.3 Human resources

In a changing environment, the human dimension is more than ever at the heart of EDF's strategic project, a key factor in the Group's performance.

To meet its industrial challenges, EDF must remain a socially-responsible and engaged employer, a leader in terms of the professionalism and involvement of its employees, by developing their skills and the diversity of their profiles. The Group also seeks to set an example in terms of social innovation by promoting a participative approach and making it easier to share good practice, in order to ensure long-term performance.

As part of the launch of the Group's new Corporate Responsibility objectives, which it has published, the Human Resources Division chose to focus on 3 areas, more particularly reflecting its responsible commitment: health & safety, gender equality, and the "social elevator", these three areas present in the Human Ambition shall be developed in the relevant chapters.

Everywhere that the Group operates, the health and safety of its own employees and its sub-contractors' employees is an absolute priority. Both in France and internationally, EDF, as an integrated Group, acts in accordance with its values, by requiring all its staff to show integrity and respect for fundamental rights.

The "Human Ambition", supported by the Group's CAP 2030 strategy, is based on five fundamental values, implemented through practical measures:

- developing a digital culture and new ways of working;
- making people accountable and simplifying working procedures;
- developing and adapting skills;
- transforming the recognition model;
- setting high health and safety standards.

3.3.1 PROFESSIONAL EXCELLENCE: EMPLOYMENT AND SKILL DEVELOPMENT

3.3.1.1 Group workforces in 2016

The EDF group's consolidated workforces totalled approximately 154,845 staff on 31 December 2016, including 68,464 for EDF and 38,742 for Enedis and 47,639 for the Group's other subsidiaries and shareholdings, which are included in the consolidation scope.

The group's workforces are decreasing compared with the end of year 2015, against a backdrop of lastingly low energy prices and competitive pressure linked to the liberalisation of the markets.

Group workforces in France

At EDF SA, against a backdrop of falling workforces seen since 2015, the breakdown of workforces has changed according to the company's industrial challenges (Grand Carénage, EPR), the increased commercial competition it is facing as well as the productivity and simplification efforts made in the tertiary field by all the company's divisions which are striving to become more open to innovation and the digital economy. In 2016, the technical field accordingly represented a growing proportion of workforces (> 60%).

1. <http://fondation.edf.com/>.

The table, below, shows the breakdown of Group workforces in France over the last three fiscal years:

	2016	2015	2014
EDF	68,464	71,580	72,181
Generation and Engineering	40,843	41,789	41,545
Sales	9,667	10,860	11,543
Corporate	10,801	11,450	11,473
Island Energy Systems	2,986	2,985	3,005
CDI (open ended contract) and CDD (temporary contract) not employed under EGI status	4,167	4,496	4,615
Enedis (previously ERDF)	38,742	39,030	38,859
Other subsidiaries in France:	22,497	22,796	21,067
Électricité de Strasbourg, Tiru, EDF EN, SOCODEI, CHAM, EDF PEI, G2S	6,981	6,760	6,860
Dalkia, Citelum	15,516	16,036	14,207
TOTAL FRANCE	129,703	133,406	132,107

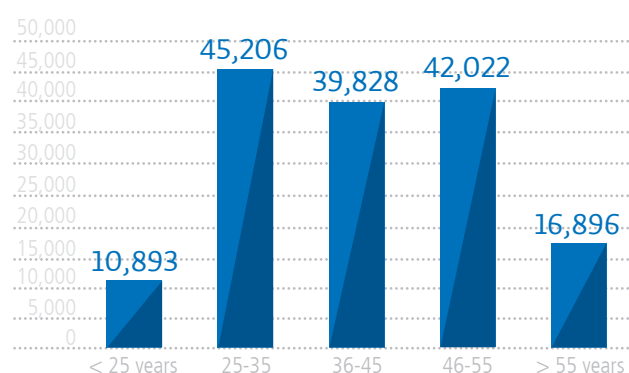
International Group workforces (consolidated subsidiaries)

The table, below, shows the breakdown of the workforces (Group share) of the international subsidiaries and shareholdings included in the consolidation scope over the last three fiscal years:

	2016	2015	2014
EDF Energy (United Kingdom)	13,404	13,920	14,716
EDF Trading (United Kingdom)	966	988	1,011
Edison (Italy, including Fenice ⁽¹⁾)	4,949	3,066	3,101
Other foreign subsidiaries:	5,823	7,732	7,226
Eastern Europe	3,797	3,938	4,257
Western Europe and Mediterranean-Africa	1,708	3,467	2,804
Asia Pacific	213	224	76
Americas	105	103	89
INTERNATIONAL TOTAL	25,142	25,706	26,054

(1) Edison's workforces included Fenice's workforces over the period from 1 April to 31 December 2016.

The graph, below, shows the age pyramid in the Group in 2016 (in France and outside France):

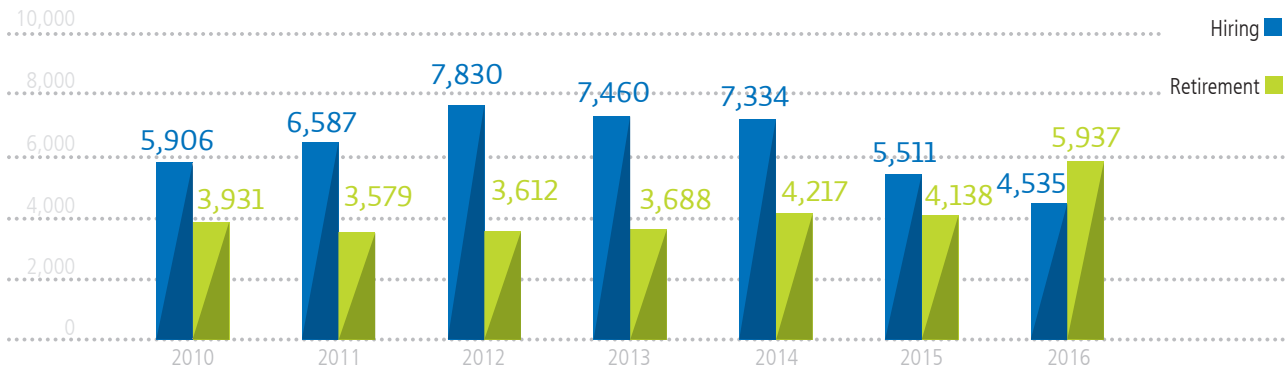


3.3.1.2 Levels of recruitment in 2016

2016 marked a turning point in the Group's recruitment policy. Though the volumes of recruitments were maintained at a high level (>7,700), they showed a downward trend (approximately -13%).

At EDF SA, after a period from 2010-2015 marked by major recruitment campaigns required to face up to the high number of retirements, the company refocused its employment policy at the start of 2016 and intends to focus on internal mobility rather than external recruitments, in order to optimise existing resources and to develop its employees' careers. 2016 recruitment, which was down by approximately 30%, focused first and foremost on unusual, hard-to-fill or developing professions. The majority of recruitments (>85%) were in the technical and information systems fields.

The graph, below, shows external recruitments as well as retirements observed since 2010 in Group companies whose head-office is located in France (excluding Dalkia and Citelum).



The EDF group's attractiveness maintained at a high level in 2016

In 2016, the focus for recruitment was on internal mobility¹ with better-classified internal short lists in order to manage the decline of certain business lines. The changes in the structure of our recruitments (fewer engineers and still a high number of technicians) as well as control of our costs led us to take another look at our recruitment events.

The share of managers in external recruitments fell below 50%. At the end of October 2016, due to the fall in recruitments and the continued significant presence of work-study trainees, nearly 40% of hirings concerned former apprentices.

The "EDF recruits" website continues to attract every year approximately 3 million visitors; in 2016, 300,000 applications were submitted online. The digital ecosystem around the site has also been strengthened. At the end of 2016, the EDF recruitment LinkedIn account had nearly 150,000 subscribers. The internet user engagement rate continues to increase.

EDF's attractiveness as an employer remains a key issue, particularly as recruitments, of which there are fewer, become a means for the teams of acquiring more cutting-edge and more specific skills, which are not available on the internal employment market.

The results of surveys addressing engineering school students show that EDF is withstanding a certain loss of interest in the industry, standing in fifth place in the Universum "Engineers" ranking (behind Airbus, Google, Thales, and Dassault Aviation), fifth place for Trendence (ahead of Dassault) and third place in the "Engineering students and young engineering graduates" survey conducted by QuatreVents.

This continued strong attractiveness is offset by warning signs: though a vast majority of students express their interest in new energies, engineering schools have begun to issue warnings on the lack of attractiveness of the nuclear industry, as a result of the Fukushima accident, as well as of AREVA's difficulties, delays on the EPR projects and announcements of nuclear power plant closures.

The robustness of our employer brand strategy nonetheless enabled all our business lines to recruit at a better level in 2016.

In summer 2016, the content of the EDF careers site was upgraded from the 2015 version by integrating digital services that an applicant is entitled to expect from a cutting-edge company, particularly job offer geolocation and custom alerts.

At the same time, our close relationship with student and young graduate applicants continues to be strengthened: organisation of seven chats over the year (video chat and live chat), organisation of two major events with students from ENSIEHT and ENSE3, including two lecture hall presentations, and the organisation of four engineering contests.

EDF participated on 4 June 2016, for the second year, in the "Monde des Grandes Écoles et Universités" challenge (CMDGE), an event organised with seven other major firms (ADP, Atos, Disney, Generali, Lagardère, Nestlé, and Renault), which combines business line, sport and disability fairs. Participation at CDMGE will however come to an end in 2017, in favour of more agile investments, focused both externally and within the Group.

Finally, the work to optimise relations with higher education and research enabled the prioritisation of actions aimed at major engineering schools and universities, organised with support from the network of approximately 1,400 "EDF Graduates Network" ambassadors.

Plans for year-round online contact with students provided effective support in 2016 for our direct contact with them at fairs or on campus, by publishing online, directly on the schools' sites, placement and work-study offers.

Furthermore, the Partnerships Committee decided to create a "HE&R (Higher Education & Research) Committee", chaired by the Group Senior Executive Vice President, Human Resources. This closely supervises partnerships with higher education (chairs, educational grants and support, apprenticeship taxes, research contracts). Finally, it offers a clear and shared vision of the different issues and levels of financing.

These traditional action plans must be pursued. However, in the new context of employability of Group employees and lower attractiveness of our core business lines, it is backed up by new developments:

- internally, the provision of a new range of services to Units: Internal Sourcing is a support programme for entities looking for skills via internal mobility. Upon request from these entities, a centralised team of four sourcing partners provides sourcing and evaluation and proposes a short-list of candidates;
- externally, the scheduled development of our strategy to digitise the Graduates network, closely related to the business lines' prospects, and investigation into the means of communication and training of our target groups: serious games, chats, COOC, etc.

1. Decision of 1 February 2016: EDF SA: Favouring internal mobility over external recruitment.

Organised and enhanced welcome and integration, appreciated by new employees

In a context of skills renewal, EDF group massively recruited over the last few years. Accordingly, about 11,000 new employees joined yearly the Group between 2010 and 2015 and nearly 7,724 in 2016.

The Group's progressive welcome programme lasts three years.

It firstly focuses, over the first year, on local integration into the unit. Integration then continues, in the second year, at national level, then at business line level or within the company, with access to specific training where applicable. For management staff, integration at international level completes the programme with the "2days2gether" event attended by many managers. This event allows them to discover the Group's different business lines and companies, challenges and strategy as well as possible career paths. A digital application was also put in place for each newly-hired employee regardless of their category and business line, to acquire in a fun way an overall understanding of the energy sector, better understand the Group's environment, get to grips with key figures and concepts and develop a network of contacts, beyond just their own geographical site.

3.3.1.3 Skill development: preparing for the future

Throughout its history, EDF has successfully focused on the development of its employees' skills to support its industrial project. The professionalism of the Group's men and women proved decisive to provide its public service missions, guarantee the safety and performance of its facilities, develop customer satisfaction, and make EDF a global leader in energy and low-carbon growth.

Today, the Group is facing new, never-before-seen challenges and must adapt to a complex and fast-changing industrial and technological context. The CAP 2030 strategy provides guidelines for the group to transform and take up these challenges, particularly via the extension of the lifespan of nuclear power plants, the success of the next generation of nuclear power plants, the growth of renewable energies and the rapid expansion of energy services and digital offers. The success of these transformations shall depend on the Human Ambition that they underlie. This means not only having the rights skills in the right place at the right time, but also improving the effectiveness of investment in training, via increasingly diversified teaching methods and by paying greater attention to the impact of the training provided. In 2016, the Group allocated a significant budget of more than €663 million to training its employees.

In this context, 2016 was marked by the implementation of several key transformations in the field of training:

- the Group "Training & Skill Development" policy, signed at the end of 2015 by Jean-Bernard Lévy was deployed at the Group's different companies. Three highly-practical principles guide this policy, intended to better forecast skill requirements, develop training performance and better accompany employees with their careers, to increase mobility and employability. This particularly includes the aim of increasing digital training to 20% of the Group's global total training in 2020, or otherwise evaluating 30% of the training programmes regarding their on-the-job impact or their contribution to improving operational performance;
- the Group campus in Saclay opened its doors in August 2016. Located on the Saclay site, near the EDF Lab research teams as well as prestigious schools and universities, this campus aims to be very open to its environment, and extremely rich in terms of learning and innovation. The campus is designed to be highly innovative, like the new spaces provided to change habits and favour thinking (creativity spaces, dynamic co-working, educational innovation space open to all training staff, etc.).

This campus is in addition to the ones at Cannington Court, inaugurated in 2015 by EDF Energy near the future Hinkley Point C EPR, and in Lomme, managed by Dalkia and focused on energy services;

- digital training has been enhanced, in order to reach learners more easily and safely via increasingly modern and shared distance learning courses (virtual and augmented reality, simulators, MOOC, serious games, e-learning modules, etc.). These schemes are aimed at not only Group employees but also a growing share of its sub-contractors;
- Skills Academies, responsible for adapting and optimising the training provided by the Group, have been developed. Two new Academies focusing on Energy Services and Contract Management were added in 2016 to the 14 Academies already present on the Group's other business lines in France. This programme was extended in 2016 to the United Kingdom with 7 Academies now managed by EDF Energy.

Furthermore, in order to better prepare for the future, a new agreement was recently signed with EDF SA, on the adaptation, transmission and development of skills between 2016 and 2019, based on the group's CAP 2030 strategy. This agreement covers, for the first time at EDF, a wide remit including occupational and skill forecasting, mobility, career paths, training, work-study programmes, and the generational contract. It shall particularly promote the different skill development methods (training plan, personal training account co-funded by the company in certain situations, etc.) and shall ensure the quality of its training courses, by better evaluating their impact, and the diversification of its teaching methods, in particular via the digitalisation of training.

The GMU (*Université Groupe Management* – UGM), created in 2010, is intended to train 29,000 Group managers, executive and talents. It is one of the 17 major global group corporate universities with international CLIP (Corporate Learning Improvement Process) accreditation, which places it among the best corporate universities.

The GMU contributes to the EDF group's integration and internationalisation. It helps to develop the Group's managers' skills in terms of leadership, management, change management and strategic thinking using proven training courses, and modern teaching tools (e-learning, multi-modal training, coaching, joint development). Today, the GMU provides professional training for managers in practically all the geographical areas where the Group operates: Asia-Pacific, UK, Italy, France, Central Europe and also America.

In 2016, the GMU extended access to the Group University e-learning platform to managers from Brazil, the Maghreb and North America, totalling nearly 9,000 active learners. In 2016, this platform saw the provision of more than 23,000 training hours particularly including a very popular certifying course on "Prevention of corruption risk", The GMU proposes fifty or so courses and trains annually more than 1,500 managers on site. The GMU also proposes programmes aimed at Group talent and executives.

In 2016, approximately 1,000 executive and talents benefited from GMU courses.

Promotional training courses promote the "social elevator" at all levels

Among the new Corporate Responsibility Objectives set by the Group, EDF undertakes to integrate the best practices of industrial groups in terms of human development, particularly including the aim to develop the "social elevator" of tomorrow.

To contribute to this process, EDF focuses on the potential of its employees, whatever their level, by investing in promotional diploma courses. These are organised every year in order to enable employees to fast-track their career and change category, by obtaining a diploma.

This form of “social elevator” genuinely sets the Group apart and has proven its effectiveness:

- more than 35% of the EDF group's 35,000 current managers in France in fact became managers over the course of their careers;
- nearly 1,000 group employees began a promotional diploma course over the last 6 years, including 143 new courses attended in 2016;
- 161 graduated the same year.

Among the most innovative schemes, EDF notably developed the original “Cap Exécution Cadre” course, enabling employees occupying operating positions to become managers in four years. More than twenty employees are currently attending this new course.

Work-study programmes: a solid history and a commitment for the future

The EDF group has been historically committed in favour of work-study programmes, which are considered as a way to ensure excellent training, professional training and occupational integration of young people or unemployed people. Accordingly, since the signing of the first agreement on work-study programmes in 2010, the EDF group, and more particularly EDF SA and Enedis, have more than fulfilled the statutory obligations to welcome work-study trainees, monitoring and helping them to find employment.

The 2016 results continue this trend with 6,000 work-study trainees within the EDF group at the end of 2016, of which 3,380 trainees at EDF and 1,730 at Enedis. Among the work-study trainees having finished their contracts, 97% obtained their diploma and 86% found a job or training course at the end of their contract with EDF.

The actions taken by the Group in 2016 supported this commitment:

- innovative actions have been launched, such as virtual speed dating with Pôle Emploi (the French employment agency) (to better help work-study trainees to find work) or experimentation with the interactive questionnaire based on Big Data (to improve the selection of work-study trainees);
- actions to help the work-study trainees that it does not hire to find work, were continued, such as the organisation of speed dating with the Group's service providers, the offering of services by specialist recruitment firms, assistance with setting up businesses for work-study trainees with a project, the organisation of workshops in conjunction with Pôle Emploi or sign-up to the “Engagement Jeune” inter-company platform enabling EDF's work-study trainees to submit their curriculum vitae along with a short recommendation from their tutor;
- for EDF SA, the Skill agreement signed with 3 union organisations commits the company for the next 3 years, to welcome more than 5% work-study trainees in its workforce and make at least 25% of recruitments from work-study trainees at the company.

Demonstrating this commitment by the Group in favour of work-study programmes, in autumn 2016 Jean-Bernard Lévy became chairman of *Fondation Innovations Pour les Apprentissages*, in which major groups operating in France invest.

3.3.1.4 Appropriate career management

Management of talent and executives

The EDF group has developed a flagship talent-spotting system. This 2011 Group “Talents” policy has been reviewed by the Group's different subsidiaries.

Furthermore, the management of executives' career paths is organised with Group-level supervision. People reviews by line of business and by geographical area are organised in order to ensure the development of executives' careers and their appointment to appropriate positions.

Employee career path management

The new Group “Training & Skill Development” policy, signed at the end of 2015, includes several objectives on assisting employees with their careers, as well as their mobility and employability.

This policy particularly systematizes, at every Group company, an annual review of each employee's career plan. It also aims to ensure that every employee, wherever they work, can be assisted, if they so wish, with developing their career plan. Finally, supervision of employees who have not attended any training courses for three years or more has been extended Group-wide.

These practices are already well-established within the Group. The annual interviews held with 83% of Group employees in 2016 particularly enabled employees to discuss their career plans and training requirements with their managers.

In 2016, the Group continued to modernise mobility support tools and assist with career paths:

- release of “Cart'Emploi”, in summer 2016, a site geolocation tool showing available positions;
- changes to employee intranet “profiles”, now allowing every employee to showcase all their experience and skills, developed either internally or externally;
- launch, in December 2016, of the “Mobileasy” platform, proposing digital services aimed at helping employees with each phase of their mobility project, and promoting the matching of supply of and demand for skills.

This career path management was enhanced, in 2016, by the signing of a new agreement at EDF SA, on the adaptation, transmission and development of skills between 2016 and 2019. This agreement particularly provides additional assistance to employees with their career paths, by developing the means at their disposal: digital platform, employment fairs, easier access to career advisors, etc.

In addition to the actions implemented to make career development within the Group easier, EDF also assists its employees who have external career plans.

Indeed, among the new Corporate Responsibility Objectives set by the Group, EDF undertakes to integrate the best practices of industrial groups in terms of human development, with the particular aim of developing the “social elevator” of tomorrow. For EDF, the “social elevator” also means helping employees to set up or take over a business.

For EDF, this “spin-off” programme is a tool that helps it to diversify career paths, and develop certain specific skills (daring, ability to innovate, etc.) as well as entrepreneurial culture. It's also a way for the company to strengthen its commitment in favour of economic development and job creation in the regions, each “spin-off company” creating on average 3 jobs.

Nearly a hundred employees are assisted each year with their business set-up project. Since 1998, more than 1,300 businesses have been set up by Group employees.

EDF also launched “Altern'Up”, a programme unique in France, intended to assist work-study trainees who are considering setting up or taking over a business. Out of the twenty or so projects supported since 2014, around 10 start-ups have already been set up by former EDF work-study trainees.

Four other major firms joined this programme in 2016 (Thales, Sanofi, Schneider Electric and Air France) and Jean-Bernard Lévy awarded, on 13 October 2016, the first *Grand Prix des alternants créateurs d'entreprises*, in the presence of Clotilde Valter, Secretary of State for Occupational Training and Learning.

Age management

In 2016, the EDF SA generational contract was renewed based on the three-yearly "Skills" agreement, also including the fields of occupational and skill forecasting and training.

Furthermore, work in the field of Diversity focused on preventing discrimination and combating stereotypes relating to age as well as intergenerational cooperation:

- setting up of an "Ages and work – intergenerational cooperation in a professional setting" course;
- preparation of a dashboard aimed at identifying any differences in indicators from age group to age group in different HR and management fields (health, training, recognition, mobility);
- work carried out at the Divisions on inter-divisional skills transfers and collective capitalising on feedback on the issues of accountability, innovation, and simplification based on the Human Ambition of the CAP 2030 strategy.

3.3.2 THE HEALTH AND SAFETY OF OUR EMPLOYEES AND OUR SERVICE PROVIDERS' EMPLOYEES: AN ABSOLUTE PRIORITY

3.3.2.1 Guaranteeing the best health & safety conditions at work for all

Since January 2014, the Group's health and safety policy has defined a common, consistent framework with which the policies and action plans of the Group's different subsidiaries must comply. This Group policy applies to all the companies controlled by the EDF group, in all the countries in which EDF operates, and concerns both its employees and its sub-contractors'

(Group Data)

	2016	2015	2014
Total number of employee and service provider deaths	10 ⁽¹⁾	16	15
including number of employee deaths:	1	3	4
including number of service provider deaths:	9	13	11

(1) With 6 deaths linked to work and 4 deaths linked to other causes (dizzy turns).

The 6 deaths linked to work are: 2 drownings, 1 high fall, 1 death linked to an explosion, 1 electrocution and 1 death on a roadside work site.

In 2016, as in 2015, the Group continued to focus on 10 key rules, adopted following analysis of the deadly accidents at the EDF group over the last 30 years, which everyone must follow as they go about their work in order to avoid serious accidents and protect both themselves and those around them.

In order to continue developing a safety culture, other measures were taken or continued in 2016 (release of a manager training tool, viewing of video feedback following serious accidents (United Kingdom, Poland), viewing of a "safety" message at the start of meetings, etc.). Shared Group managerial requirements in the health and safety field began to be identified in 2016 for implementation in 2017.

(Group Data)

	2016	2015 ⁽¹⁾	2014
Group employee frequency rate	2.7	3.2	3.1

(1) The 2015 frequency rate takes account of the integration of 7 new companies at EDF Luminus and Dalkia. With equivalent scope to 2014, the 2015 frequency rate was 2.9, in line with the objectives set.

employees working on its facilities and premises. There is an annual Group health & safety review.

In 2015, during the Group's first annual review, the CAP 2030 programme's strategic health and safety objectives were defined. The Group's objective is to eradicate deadly accidents, reduce the number of accidents, and combat absenteeism. This key ambition for the coming years is implemented in all the companies of the Group in order to:

- make health and safety one of the Group's major commitments and an essential component of its culture;
- place managers at the heart of the deployment of health & safety policy;
- make all employees accountable on a daily basis: for example, in 2016, at EDF SA, more than 20,200 employees took a health and safety course; and at Dalkia an "Echap&Belle" application was released to all employees in order to report any dangerous situations encountered. This application was recognised by the Group (2016 Pulse Prize);
- protect and promote the health of all: employees, service providers, clients and local people.
- In 2016, the health and safety theme was also an integral part of Corporate Responsibility Objective no. 2 by which the Group commits to integrating the best practices of industrial groups in terms of human development.

Eradicating deadly accidents, cutting the number of accidents, and reducing absenteeism at work

Eradicating work-related deadly accidents:

This was the first aim firmly set in 2015 for Group employees and service providers.

In 2016, there was a total of 10 deaths throughout the Group: 6 related to work and 4 due to dizzy turns. This figure was lower than previous years (16 deaths in 2015, including 12 related to work and 4 dizzy turns). In 2016, the deaths mainly concerned service providers' employees (9 out of 10).

Occupational accidents

Via the Group's policy, EDF committed in 2014 to halving the frequency rate of occupational accidents involving its employees between 2012 and 2017.

In 2016, the Group has recorded a progressive improvement in the frequency rate (number of accidents at work having resulted in more than one day of absence from work, recorded over the current year and per million hours worked. Days of absence from work are linked to the year when they are taken even if the accident occurred the previous year).

Since 2015, each Group entity has monitored its service providers' accident rates, as had already been the case for several years at certain Group entities.

Absenteeism at work

Among the areas for improvement pinpointed, preventing anxiety-depressive disorders, stress and musculoskeletal disorders (MSD), the three main causes of absenteeism, were addressed Group-wide in 2014, 2015 and 2016

In 2015, a guide on the prevention of MSD was prepared and distributed at each Group entity and adds to the range of guides already produced and distributed, on the following themes: prevention of addictive practices, health and extended working life, or the keeping in or return to work of psychologically-vulnerable people.

In 2016, a Group health and safety week was dedicated to preventing musculoskeletal disorders, following on from the schemes launched in 2015.

Health at work, a major theme

The EDF group employs staff specialised in health at work. Accordingly, EDF employs in France 90 occupational physicians and 156 nurses. Enedis, for its part, employs 60 occupational physicians and 105 nurses. The Group also employs physicians who are experts in toxicology, ergonomics, epidemiology, first aid, and radiation protection. In addition to medical monitoring of employees, these healthcare workers are involved in setting up primary prevention programmes and are stakeholders on all the social dialogue bodies in the field of health at work.

Occupational diseases

The annual data published by the Group's French companies (particularly EDF and Enedis) gives as the main causes of occupational diseases: asbestos (pleurisy, pleural plaques, primary cancer of the lung), movements and positions (shoulder condition, tendinitis, carpal canal), conditions caused by ionising radiation, silica (pneumoconiosis) and noise hazards (deafness).

Asbestos

In the past, the EDF group has used products, materials and facilities containing asbestos. In accordance with current regulations in France, the replacement of materials containing asbestos in EDF establishments and facilities began in the late 1980s, with all materials containing asbestos being treated, and EDF set up reporting measures and procedures to protect employees and third parties working at the company.

In July 1998, EDF signed an agreement, revised in June 2002, with all trade union federations, for the prevention of and compensation for exposure to asbestos. Following this agreement, EDF introduced an early retirement plan for workers who are duly recognised as suffering from an occupational disease associated with asbestos. Voluntary financial assistance and a pension supplement both financed by EDF were established. EDF also provided social assistance to sick workers and their families with information and support during the compensation process. See section 2.4 "Legal proceedings and arbitration", above, for a description of current procedures.

Ionising radiation

Work by field operatives has enabled continuous improvement of performance in terms of protection of employees against the effects of ionising radiation. In France, the average annual individual dose of all the workers, employees of EDF and external companies, working on reactors was halved in less than ten years; in the United Kingdom, there was the same reduction, mainly thanks to optimised governance of maintenance and repair work. In France as in the United Kingdom, in 2016 and since 2003, no workers, employees or service providers exceeded the regulatory threshold (individual dose over 12 sliding months).

In France, in 2016, the average collective dose is 0.76mSv (man-Sievert) by reactor (0.71 and 0.72mSv by reactor in 2015 and 2014). This very good result, exceeding the objective, is the result of the optimisation of sites and activities. It's also the consequence of extended stoppages in 2016, which led to a fall in the recorded dose in relation to the start-of-year forecast.

In the UK, in 2016, the average collective dose was 0.55mSv for the EPR reactor and 0.02mSv per reactor for advanced gas reactors.

EDF is proactively implementing an ALARA (As Low as Reasonably Achievable) policy to limit the collective dose to take account of the workload involved in the industrial project on the fleet in operation over the coming years.

For the coming years, given the levels already reached, efforts should focus on reactors whose dosage results need reducing to the lowest possible levels and continuing efforts to manage and reduce dosages in the most exposed business lines.

3.3.2.2 Making health at work a subject of social dialogue

Within the Group, there is social dialogue on health at work at three levels:

- European level (presentation of the actions taken during the year to the European Works Council's Health & Safety workgroup);
- at Group France level (with the presentation of the year's key issues and figures to the France Group Committee); and
- at EDF level, with a national health at work group issuing recommendations on four themes: prevention of asbestos risk, impact of business line developments on medical teams, development of a health at work action plan and communication on health at work.

In 2015, the Group's new strategic objectives, set via the CAP 2030 programme, were presented to the EDF group's different bodies (EDF CWC, European Works Council and France Group Committee).

In 2016, joint work on health and safety was carried out with the European Works Council and a progress report on the strategic health and safety objectives was presented to all the bodies.

3.3.2.3 Providing the conditions for well-being: organisation and quality of working life

Quality of working life

Quality of working life covers the organisation of work, relations at work, professional development, working environments and work-life balance. It is a factor in the joint improvement of the health of employees and the performance of organisations.

In 2016, programmes were implemented at the Group's main companies, e.g. "wellness@work" at Edison, "well-being" at EDF Energy, and a partnership with ANACT (the French national agency for the improvement of working conditions) with the network administrator Enedis. EDF SA signed a series of three agreements, on managers' working time, teleworking and organisation of work. Each of them focuses on innovations in terms of quality of life at work via the Group's Human Ambition "simplicity, accountability, innovation": more than 25,000 managers covered by the agreement on working time benefit from provisions that enable them to be autonomous in the organisation of their activities; furthermore, teleworking is now open to more than 20,000 employees after a discussion phase with the business lines made it possible to define the activities eligible for teleworking; finally, the terms and conditions for the right to disconnect were defined by the

agreement on organisation of work that also confirms the creation of a quality of life at work monitoring body. This makes it possible to identify best practices in terms of organisation of work but also prevention of psycho-social risks (PSR).

Specifically regarding prevention of PSR, at EDF SA and in addition to the quality of life at work monitoring body, the agreement on organisation of work proposes primary preventive actions (socio-organisation and human impact study in case of reorganisation, reduced travel, right to disconnect, etc.) and confirms the multi-disciplinary groups (MDG) created in 2010 by a collective agreement on quality of life at work. Enedis also put in place this MDG programme and develops specific change management tools. In terms of secondary and tertiary prevention, 2016 enabled the renewal of internal and external skills to support management of employees: e.g. anonymous freephone life at work hotline, support for teams under stress, assistance with change management.

Organisation and working hours

In order to meet the needs relating to each company's business and particularly to ensure continuous operation, personnel may be required to provide a continuous service 365 days-a-year or be on call outside of regular working hours.

These arrangements are adapted over time according to the changing circumstances at each company, legislation and new authorised work organisation practices, particularly communications technology developments.

For companies based in France, the duration of the working week in France is 35 hours, with services available for a minimum of 5 days.

To face up to the industrial and commercial challenges and changes to the environment at EDF, actions plans by business line have been implemented in order to adapt organisation and correct certain practices pinpointed by the assessment carried out as part of the "Working performance and organisation" project. This project is intended to improve collective performance by optimising working organisation, take account of technological changes and laws introducing fixed numbers of working days and recognise the autonomy of managers.

In 2016, a category-wide agreement regarding the organisation of managers' working time at EDF SA was signed. This agreement introduces fixed numbers of working days, with a standard number of 209 days. It accordingly aims to develop the autonomy of managers in the organisation of their working time, to increase the overall time worked by managers, to support simplification and accountability measures, and to meet their expectations in terms of changes to working methods, flexible organisation and quality of life.

At the end of 2016, approximately 80% of managers had opted for fixed numbers of working days.

Two other collective agreements were signed in 2016 at EDF SA: an agreement on teleworking as well as an agreement on organisation of work, the latter aiming to seek more effective functioning of the teams both in terms of performance and improvement of methods of management and collective functioning.

The signing of these three agreements in 2016 marks EDF's commitment to seeking more effective and innovative functioning of teams and organisation of work.

3.3.3 COMPENSATION AND SOCIAL WELFARE: AN ATTRACTIVE EMPLOYER

Total compensation is a key component in recognising the contribution of every staff member to the Group's performance. It contributes to employee engagement, increases the loyalty of talent and adds to the Group's attractiveness.

Accordingly, the Group is committed to offering its employees fair and competitive compensation, while paying great attention to the quality and level of social welfare it proposes, particularly in terms of cover against the major risks of life. The Group accordingly formally introduced a total compensation and fringe benefits policy in 2013. It covers all employees of the main companies controlled by the Group.

Since 2014, the Group's main foreign companies' compensation and social welfare systems have been reviewed based on this policy. Following each review carried out by the Group Human Resources Division, an action plan is jointly drawn up with the subsidiary and its implementation is monitored during subsequent reviews.

At the same time, a network of Compensation and Fringe Benefits managers was set up to back up the scheme, particularly in order to present the policy and share good practices.

3.3.3.1 A fair and competitive total compensation policy

Total compensation policy is guided by four principles that are reviewed by the Group Human Resources Division:

- competitiveness with the external market;
- consistency and internal equity;
- financial sustainability;
- communication.

It is based on fixed compensation and individual and/or collective variable compensation which serves to recognise the achievement of objectives, connected to the companies' economic results. There is a direct and visible link between the employee's contribution and the related compensation.

The Group's companies guarantee the meeting of the minimum legal or professional requirements in each country and the absence of discrimination.

In the "communication" section, each employee receives information on the compensation rules and arrangements with the utmost transparency in accordance with the principles detailed above. Each EDF group employee must have visibility on their total compensation. Accordingly, in France, EDF and Enedis have offered each of their employees a full individual review of their annual compensation and its components.

Variable compensation plans to boost performance

Within the Group, most employees have individual or collective performance-related variable compensation. The terms and conditions of this variable compensation differ from one Group company to another, based on historical agreements and the applicable regulations.

At EDF Démász (Hungary), all staff are eligible for individual performance-based variable compensation, recognising the meeting of objectives on three levels: company performance, employee entity performance, and individual performance.

At EDF Energy (United Kingdom), a similar system applies to the majority of staff.

At Dalkia (France) performance-based variable compensation was reviewed and recognises individual and collective performance for managers.

At Edison (Italy), all employees, excluding executives, benefit from collective performance-based compensation schemes, based on profitability and productivity criteria (*Premio di Risultato & Premio di Produttività*).

At EDF Luminus (Belgium), managers and most non-managers are eligible for individual and collective performance-based compensation schemes.

The China Division also introduced performance-based individual variable compensation for employees based in Beijing, designed to stimulate and recognise collective performance.

At EDF, all management staff are eligible for individual variable performance-related compensation. With an average figure of 8% of annual salary per manager, the company is on a par with other major French companies. Furthermore, EDF decided to introduce an individual variable compensation scheme for all its non-management employees, which represented in 2015 approx. 2% of their annual salary.

EDF and Enedis pay special attention to the professional training of their managers on issues of compensation so that they fully understand the compensation policy.

In France, EDF and Enedis's employees benefit from a profit-sharing scheme, introduced more than 20 years ago in the case of EDF and for Enedis when it became a subsidiary. Most of the Group's European subsidiaries have similar schemes. EDF and Enedis employees can choose either to receive payment and/or to invest it into either the Group Corporate Savings Plan or the Group Collective Retirement Saving Plan (see below).

The EDF and Enedis profit-sharing agreements are three-yearly and require the profit-sharing amount payable to be set based on the meeting of national objectives reflecting the different components of the companies' performances (economic, business lines, social and environmental). The EDF SA three-yearly agreement signed in 2014 was still in force in 2016. It includes the following five national performance criteria: progress of Group EBITDA, electrical generation, customer satisfaction, employee health & safety training and control of greenhouse gas emissions in tertiary buildings.

In 2016, the EDF SA agreement saw the payment of €142 million to EDF employees for the 2015 fiscal year, *i.e.* €2,000 on average per beneficiary.

In 2016, Enedis paid for 2015 profit-sharing the sum of €77 million, *i.e.* €1,960 on average per beneficiary.

EDF and Enedis are not eligible for the shareholding scheme.

In 2016, Dalkia paid for 2015 profit-sharing the sum of €1.6 million, *i.e.* a median amount of €129. The median amount of the shareholding in 2016 for 2015 amounted to €1,107 per employee.

A comprehensive employee savings policy

The Group corporate savings plan

It is open to employees of EDF and of the Group's French companies in which EDF owns directly or indirectly at least 40% of the share capital and which have signed up for the Group Corporate Savings Plan.

Five varied mutual funds, including a socially-responsible investment fund, a solidarity mutual fund and the "EDF Share" fund, are open to subscriptions.

The EDF group Corporate Savings Plan totalled €4.34 billion at the end of 2016.

Profit-sharing, as well as individual payments and transfers from the Time Savings Accounts that employees make to the Group Corporate Savings Plan, are matched by the company under conditions negotiated within each company.

Collective Retirement Savings Plan

The EDF group Collective Retirement Savings Plan is open to employees of EDF and of the Group's French companies in which EDF owns directly or indirectly at least 40% of the share capital and which have signed up for the Collective Retirement Savings Plan.

Two mutual investment funds are offered to employees: a solidarity mutual fund and the "Cap Horizons" umbrella fund, offering targeted management of the savings invested depending on retirement age.

The EDF group's Collective Retirement Savings Plan totalled approximately €731 million at the end of 2016. Profit-sharing, as well as individual payments and transfers from the Time Savings Account that employees make to the

Collective Retirement Savings Plan, are matched by the company under conditions negotiated within each company.

In 2015, Dalkia and EDF EN signed up for the EDF group Corporate Savings Plan and Collective Retirement Savings Plan. Approximately 7,500 saver employees at these companies (shareholders) transferred their credits, totalling €40 million to the Group's employee savings plans.

Time Savings Account

Time Savings Account agreements have been signed within the Group's principal French subsidiaries, specifically EDF and Enedis.

On 31 December 2016, the total number of hours saved in the time savings account by employees of EDF was valued at €717 million, and at €188 million for hours saved in the time savings account by the employees of Enedis. This negotiated scheme enables employees who want to take leave to receive compensation corresponding to the saved time. It is also possible to monetise the time saved based on the current Time Savings Account agreement or make transfers to the Group Corporate Savings Account and the Collective Retirement Savings Plan.

Employee shareholding

On 31 December 2016, current and former employees of the EDF group held a total of 33,097,739 EDF shares, *i.e.*, 1.57% of share capital. This number includes, firstly, 28,771,251 shares (*i.e.* 1.36% of capital) based on the definition of employee shareholding in accordance with article L. 225-102 of the French Commercial Code (shares held by employees and former employees of EDF via "EDF Share" mutual plans of the EDF group corporate savings plan and the EDF International group corporate savings plan). This number includes, secondly, nearly 4,326,488 shares, *i.e.* 0.21% of capital, held directly or indirectly, without a non-transferability period or after the non-transferability periods, by current or former employee shareholders. Most of the shares held by employees are held via the Group Corporate Savings Plan.

3.3.3.2 Social welfare policy

The Group fringe benefits policy is guided by three principles:

- a principle of responsibility, which covers three requirements:
 - guaranteed social cover, in terms of health, welfare and pensions,
 - non-discrimination (access to health cover must not be dependent on the employee's state of health),
 - regulatory compliance;
- a principle of balance between competitiveness and sustainability:
 - the combined level of compensation and fringe benefits meets the need for the Group's companies to be attractive on their local markets,
 - fringe benefits must be able to be maintained over time and accordingly be financially sustainable in the long-term both for employees and the employer;
- a principle of appropriation by beneficiaries:
 - employees are informed of the content of the fringe benefits in order to make it easier for them to understand and actually receive them.

Status of employees in the Electricity & Gas Industries (EGI): a specific social welfare plan

In France, the vast majority of the Group's workforce are employed by companies descended from "historic operators" (EDF, Enedis, PEI) which have electricity and gas industry or "EGI" status. This is also the case, in particular, of part of the Tiru group and the main components of Électricité de Strasbourg.

Fringe benefits at these “historic operators” were mainly introduced via the Law of 8 April 1946 organising the monopoly on electrical generation and distribution electricity and via the maintaining of a special social security plan linked to the professional status of employees in the EGI branch (Decree of 22 June 1946). Today still, the main fringe benefits that set EDF apart from other major groups are based on these legislative or regulatory texts: special pension plan, special health plan for, firstly, incapacity for work and, secondly, healthcare costs, including an additional mandatory part also covering retired employees, centralised social activities in the professional branch, financed by 1% of sales and managed independently by the unions.

In addition to these schemes, which have remained very stable over the last few decades, is a benefit in kind historically based on a company decision which covers gas and electricity supplied by historic operators to employees and is maintained for retired employees.

Significant changes have been made over the last decade:

- EDF's IPO and the application of international accounting standards required the valuation and provisioning of commitments to retired employees. The maintaining of the industry's special pension and healthcare cost plans faced with this requirement was made possible by the overhaul of their financing: affiliation with standard mandatory plans for pensions and strengthening of affiliation between current and retired employee plans for complementary health insurance cover;
- the special pension plan has also, like other public sector special pension plans, been increasingly affected by efforts to reform mandatory pension plans launched by successive governments. Except for the pension calculation method (specific rate, applied to a salary at the end of career, with a reduced base), the main parameters (retirement age, required contribution period, etc.) are currently being brought into line with the standard compulsory plan; a number of other less wide-ranging rules remain specific. The definition of active service, enabling earlier retirements, has also been revised and how it is taken into account significantly overhauled for newly-hired employees, via the creation of a Retirement Days Savings Account.

Finally, unlike other historic benefits, the level of employee health, disability and life cover appeared significantly less generous than that offered by other major groups, which led from 2008 to the introduction, in agreement with the professional branch, of complementary cover in these three areas.

Other Group employees' social welfare

The Group's other employees in France are covered by several collective bargaining agreements and can have fringe benefits provided by their own employer. Each employer must therefore ensure the consistency of the benefits offered with the Group policy presented above. This issue is regularly discussed with Group Human Resources.

The same applies to Group companies based outside France, for which the regulatory context specific to each country should also be taken into account.

Social activities

Unlike the common practice in French law, the management of social and cultural activities is delegated to specific organisations in the EGI sector.

The central social activity fund (CCAS), mutual and social welfare funds (CAS) and the CAS Coordination Committee are legal entities and are fully independent from EDF. The CCAS is administered exclusively by employee representatives and is supervised by the public authorities.

3.3.4 AN EMPLOYER ENGAGED ALONGSIDE ITS STAKEHOLDERS

The EDF group acts responsibly to promote diversity and respect for human rights alongside its stakeholders: employees, sub-contractors and employee representatives. Its work also affects the general population as a contributor to the development of the regions in which it operates.

3.3.4.1 Responsible sub-contracting: a reality

The EDF group's sub-contracting policy focuses on three major themes:

- providing service providers with visibility and having long-term supply partners;
- helping the Group improve its sub-contracting practices by defining criteria to support decision-making in terms of strategy, economics, skills and social impact;
- developing socially-responsible sub-contracting practices, particularly via the EDF group CSR agreement signed in 2005 and extended in 2009 as well as the agreement signed on 19 October 2006 on socially-responsible sub-contracting at EDF.

Group CSR agreement commitments

The EDF group's CSR agreement (see section 3.3.4.5 “High-quality social dialogue”) shows our commitment to ensuring that the sub-contractors that the companies employ do high-quality work in accordance with the law and current international standards (e.g. ban on child labour). They strive to enable sub-contractors and their employees to work on their account under the highest working and health & safety conditions in the industry and country in question.

The Group CSR agreement's commitments impacting sub-contractors particularly focus on:

- abiding by the law;
- employee health and safety;
- ethical behaviour with clients, particularly respect for people and integrity;
- respect for the environment.

Appropriate sub-contractor selection and assessment procedures meeting these requirements have been put in place. In case of any serious breach, unresolved when the issue is raised, of legislation, employee health and safety rules, principles governing relations with clients, or current environmental regulations, relations with the sub-contractor can be suspended in accordance with the contractual obligations.

Furthermore, the sub-contractor must ensure the meeting by any sub-contractors with which it has signed an agreement, for the work in question, of the requirements that the EDF group has set it.

Areas of sub-contracting at EDF

At EDF, the major areas in which work is sub-contracted include industrial and commercial activities, as well as Information Systems. In 2016, there was no major change in the type of activities sub-contracted.

In the industrial field

Following on from the measures taken in 2015 intended to systematically include the “Social Specifications” in all Generation and Engineering contracts (and particularly article 10 imposing the retention of personnel assigned on a permanent basis to a site in case of change of holder when the contract is renewed), a new Progress Code was signed in June 2016 between EDF SA and the Professional Organisations representing the Group’s sub-contractor service providers. This Code sets the themes on which the signatories intend to collectively make progress: quality of work, safety, radiation protection, environment, quality of life at work, and contractual relations.

2016 saw the continued deployment of the nuclear service provider safety training course.

In the field of Information Systems

In 2016, the company continued to implement its industrial strategy in the IT field which determines the sub-contracted share. This is particularly demonstrated by the proactive decision in favour of “Open Source” – unrestricted and free – software as well as the implementation of a fast-track contractualisation procedure with start-ups, which are vectors for innovation. Vigilance regarding training conditions and service provider turnover has been maintained, particularly as the total number of suppliers in the IT field continued to increase.

In the commercial field

In an increasingly competitive context, the sales division maintained its use of outsourcing with the objective of providing the flexibility required to meet variations in the level of customer demand, stabilise internal workload, cover the full hours during which domestic customers can contact customer service (particularly in the evening and on Saturdays) and help deal with any technical issues. All EDF’s customer relations centres, both internal and external, are located in mainland France.

EDF “service provider” surveys

Service providers’ view of EDF as an “instructing party” is measured regularly via surveys in certain business lines, in order to take into consideration the progress to be made in terms of conditions for the provision of services (see section 3.2.3.1.2 “Listening to provide better service or enrich projects”).

3.3.4.2 A significant contribution to local development via occupational integration

The Group’s commitment to occupational integration

The Group maintains an ambitious work-study scheme, whose role as a “social elevator” is continuously underlined (see section 3.3.1.3 “Skill development: preparing for the future”).

Work-study programmes are considered as a key tool to develop the occupational integration of young or long-term unemployed people, and to enable them to acquire or finish a qualification.

Certain work-study offers are specifically proposed to young people in major social difficulty, in conjunction with occupational integration organisations. These offers prepare them to obtain a qualification corresponding to at least the first level of occupational qualification.

Partnerships are formed with local and regional employment and training organisations (*Mission Locale, École de la deuxième chance, AFPA, Compagnons du Devoir*, etc.) in order to encourage young people, particularly from deprived areas, to train for promising lines of business.

Via its apprenticeship tax award policy or via contributions, the EDF group provides financial support for organisations that work for occupational integration (*Écoles de la deuxième chance, Compagnons du Devoir, Association Jeunesse et Entreprise, C Génial*, etc.).

Contribution to occupational integration

Introduction of social clauses in contracts

EDF includes, in some of its contracts for which it launches calls for bids, the application of integration clauses, which provide in concrete terms for reserving a certain number of working hours to hiring people who are having difficulty in finding work.

The Group works in partnership with local employment organisations (Pôle Emploi, *Maisons de l’Emploi et de la Formation*, Chambers of Commerce and Industry, etc.), particularly for major projects. The principal beneficiaries are young people under 26 with a low level of training, long-term jobseekers, young people who have never worked, beneficiaries of minimum social benefits or persons to whom the 2005 law on disability applies.

Purchasing from companies that employ only disabled people and provide them with special facilities and support and integration enterprises

Purchasing from companies that employ only disabled people and provide them with special facilities and support

The Group Purchasing Division continued in 2016 its work to increase or guarantee the level of purchases from companies that employ only disabled people and provide them with special facilities and support in accordance with the provisions of the EDF SA 2016-2018 agreement for “equal opportunities and occupational integration of disabled persons”.

Purchasing from integration organisations

EDF continues purchasing from organisations supporting integration via economic activity, particularly integration enterprises. In 2015, the volume of purchases was €1.5 million¹.

3.3.4.3 Promotion of and respect for all forms of diversity

The EDF group is committed to promoting diversity as a vector for performance in order to:

- better understand the diversity of its clients and meet their expectations as best as possible;
- better reflect the society in which it operates;
- allow women and men to express their talents to the best of their ability.

In 2005, the company devoted several articles of its global agreement on Corporate Social Responsibility to combating all forms of discrimination, respecting diversity, and promoting equal opportunities. With the Group Code of Ethics, this agreement constitutes the main frame of reference for the Group’s companies. The challenges of all the strategic objectives in terms of diversity are managed by Group HR.

All the various themes are coordinated in three areas: at Group level, a “Diversity & Inclusion” network has been in place since 2011 and features the diversity officers of the international subsidiaries, a France Diversity network, consisting of the EDF SA business line divisions was expanded in 2016 to include French subsidiaries and coordination for EDF SA.

¹. The 2016 data was not available on the date of this reference document.

Each Group company has a specific level of commitment which can vary according to the model of activities and the current legislative framework. For example, Dalkia was awarded the "Diversity" standard whereas EDF has the GEEIS (Gender Equality European & International Standard) and EDF Energy, the NES (National Equality Standard).

The six Corporate Responsibility Objectives launched in 2016 by the Group feature "integrating the best practices of industrial groups in terms of human development" including "setting an example in terms of gender equality", EDF ensures diversity at all levels of corporate management and is strongly committed to a policy to promote executive women to key positions. For EDF SA, the diversity of the Executive Committees reached at the beginning of 2016 26.7% with a target of 28% by 2018¹.

EDF's "Diversity" commitments led to the creation of several awareness and professional training programmes for managers, HR staff, employee representatives and employees. Approximately 9,000 employees attended courses, over the last eight years, as part of these programmes.

Tools such as serious games have been developed and released on themes of diversity management, equal access to employment and intergenerational issues. To support these schemes, a communication campaign was launched for Diversity Day.

In terms of diversity, the measures taken by French companies are most often based on collective agreements or action plans on equal access to employment for women and men, disability and age management.

To prevent any risk of discrimination, EDF regularly carries out studies and regular tests of its HR processes. In 2016, EDF conducted a qualitative survey on stereotypes at work and a quantitative survey on sexism at work. These two surveys showed that the stereotypes found throughout French society are also present at EDF but that employees are aware of and positively appreciate the actions taken by the company, particularly in terms of equal access to employment between women and men and integration of disabled persons.

The Company has also conducted, since 2008, five tests on its main HR processes such as recruitment, work-study programmes or access to placements.

3.3.4.3.1 Support for employee network initiatives

Promoting diversity also involves supporting schemes organised by employee networks. These networks (ethnic minorities, women, working parents, disability, LGBT) are now active at many Group companies and concern several thousand employees.

Internal networks	Company	Launch date	Number of members on 31/12/2016
Women	EDF SA	2004 <i>Interp'Elles</i> , which became <i>Énergies de Femmes</i> in 2015	2,600
	EDF Energy	2009	891
	EDF Polska	2014	88
LGBT	EDF SA	2011 Energy	91+806 "allies"
	EDF Energy	2010	368
Ethnic minorities	EDF Energy	2010 (Black Asian Multicultural-Ethny)	372
Parents	EDF Energy	2014	415
Forces Support ex-military personnel	EDF Energy	2015	162
Young professionals (seniority <10 years)	EDF Energy	2016	150

These networks develop schemes to allow discussion, increase awareness and sometimes provide mentoring. For example, in 2016, the company has a little more than 250 "Elles Bougent" godmothers who work, on their territories, to increase awareness among young women of the attractiveness of the Group's technical business lines.

In France, the women's network "Énergies de Femmes" and "Energy" (the LGBT association for EDF and the Electricity & Gas Industries) have received financial and logistical support from EDF since 2012. Furthermore, EDF and its partner the "L'Autre Cercle" association, which fights against discrimination based on sexual orientation and homophobia at work signed on 21 December 2015, an LGBT (Lesbian, Gay, Bisexual or Transgender) commitment charter.

The work carried out jointly with these associations enabled the company to publish in June 2015 a "guidelines" document on respect for sexual orientations at work, aimed at managers and HR.

The "guidelines" document on religion published by EDF in 2010 aimed at managers and HR personnel was updated in July 2016 and distributed from the month of September.

3.3.4.3.2 Gender equality

Equal access to employment for men and women is a key tool for organisations to change and modernise. It is a key component of the Group's diversity policy.

Several Group companies began the process to gain European recognition regarding equal access to employment (EDF, EDF Energy and EDF Polska in 2014, confirmed in 2016, Fenice in 2015) and were accordingly awarded the Gender Equality European & International Standard (GEEIS). EDF and WIN France created a "Fem'Énergia" prize which since 2006 has recognised and supported women involved in the nuclear industry.

¹. The 2016 final data was not available on the date of this reference document.

For example, EDF commits:

Main ambitions	Related objectives
To increase awareness among its staff of the bias created by stereotypes and to fight against any form of discrimination, sexism at work and more generally against violence done to women	Distribution of a communication kit on “everyday sexism at work” to increase awareness among work teams
To put in place schemes that guarantee equal pay, that neutralise the impact of maternity or adoption on career development, and that also attempt to better understand, analyse and deal with persistent wage differentials	To preserve equal pay for “equal work, equal skills and equal value”, achieved since 2009. Systematic examination of the pay situation of women returning from maternity leave. External auditing & analysis of wage differentials at the company (INED/INSEE researchers)
To guarantee equal access to occupational and promotional training	Annual training reviews by gender. Monitoring by gender of employees who have not attended a training course for 3 years. Covering of childcare costs incurred due to absence for promotional training and for any course and from the first day of training for single parents.
To mobilise all the career path tools and stakeholders to advance gender-related representation of business lines in order to favour the recruitment of women in technical business lines and, more globally, to enable greater variety and diversity at work	Support for the “Énergies de Femmes” and “Elles Bougent” networks. Increased proportion of women recruited. Promotion of fast-tracking between business lines enabling reconversion from tertiary to technical.
To promote, finally, employee engagement via better work-life balance, by adapted working conditions and an organisation of work encouraging women to hold key positions and responsibilities at the company.	Parenthood charter signed, adapted and implemented. Parenthood guide distributed to all employees. Aim to achieve diverse Management teams. Deployment of teleworking and the right to disconnect for all.

3.3.4.3.3 Measures taken in favour of the occupational integration of disabled people

Group Vision

The Group Corporate Social Responsibility agreement mentions the issue of disability in two of its articles. Within the framework of the legislative contexts specific to them, the Group's companies put in place disability awareness campaigns for employees (including awareness campaigns aimed at employees coming into contact with customers). They enter into local partnerships with associations working in the field of disability and strive to make premises and workstations accessible.

EDF and Enedis implement their respective disability agreements, both unanimously signed with representative trade union organisations, and that impact approximately 2,150 employees recognised as disabled workers at the end of 2016 at EDF and 1,465 employees recognized as disabled workers at Enedis.

On 7 June 2016, EDF SA and its four representative organisations unanimously signed a new agreement in favour of equal access to employment and occupational integration of disabled persons. It covers the 2016-2018 period. This is the 10th such agreement, which places EDF amongst the companies that have been committed to disabled issues for the longest time.

Via this agreement, EDF SA undertakes over the 2016-2018 period to:

- recruit an annual average of 3.5% persons benefiting from the obligation to employ disabled workers; in any event, there shall be at least 130 of these recruitments in total over 3 years;
- welcoming at least 90 disabled persons on work-study contracts (apprenticeship or vocational training contracts), i.e. an annual average of 30 persons over 3 years.

The EDF SA agreement insists on the conditions required to promote equal opportunities at every stage of careers, Enedis' on the accessibility of the company's different business lines, the training courses that it proposes and dynamic career paths.

Action plans were drawn up by each business line based on the agreement in conjunction with union organisations. New tools have also been proposed to stakeholders consistent with the objectives of the new agreement: communication kit, complementary manager guide for preparing for interviews focusing on disability, guide aimed at mobility advisers, etc.

In accordance with its 2016-2018 disability agreement signed on 18 December 2015, the Electricité de Strasbourg group has recruited 4 disabled workers in 2016.

3.3.4.4 Organised forecasting and management of reorganisation and restructuring

The Group, which is aware of the need for organisations to adapt to changes in the economic and social environment, both in France and abroad, signed an agreement in 2005 (renewed in 2009) on Corporate Social Responsibility. The involvement of management and the special focus placed on Dialogue with employees and their representatives are key.

3.3.4.5 High-quality social dialogue

EDF relies on high-quality social dialogue to manage the company's industrial changes and contribute to the development of its employees.

In France

Throughout EDF, there are currently 56 works councils, one Central Works Council (CWC), a France Group Committee and 104 employee representative councils and 207 Health, Safety & Working Conditions Committees. The chairs of these bodies meet regularly for discussions and sharing of good practices.

Central Works Council

With 21 meetings including a number of extraordinary meetings and forty or so points on its agenda, the EDF CWC was highly active in 2016. The council gave its opinion on very important projects for the future of the company and the Group, such as the Hinkley Point C project, the EDF-AREVA merger, the disposal of 49.9% of RTE's capital, and the upgrading of generation facilities. Certain consultations were combined following the introduction of legislative changes.

In 2016, the collective negotiations were intense with 19 agreements and amendments signed covering all fields of HR:

- performance, organisation and quality of working life;
- skill development with a new agreement on occupational and skill forecasting, training, work-study programmes, and the generational contract;
- diversity with the unanimous agreement on integration of disabled persons, 10th three-yearly agreement signed on this theme since 1989;
- compensation with six amendments signed on profit-sharing, employee savings, time savings accounts, and the supplemental pension plan;
- social dialogue on the organisation of elections, particularly including the Pre-electoral Memorandum of Understanding and a unanimous agreement on the use of electronic voting.

France Group Committee

The France Group Committee, a forum for discussion at France-level featuring 28 elected representatives of the Group's main subsidiaries (EDF, Enedis, Dalkia, EDF EN, etc.) met three times in 2016, including one off-site meeting for a visit to the Electropolis museum in Mulhouse which was hosting the "EDF 70 ans intensément" exhibition to commemorate the creation of EDF.

Other than the statutory themes on which it is regularly informed (results, employment, strategy), the France Group Committee discusses issues involving the Group's activities, professional training and health at work.

International

European Works Council

At the end of 2001, the Group created a European Works Council (EWC), which is consulted on the Group's major policies and informed on changes to the Group's scope. Through its workgroups, the EWC initiated numerous discussions on human resources policies at European level, notably concerning health and safety and equal access to employment within the Group's different companies in Europe.

In 2016, the EWC met three times to inform the members on the progress of the projects for the disposal of Group companies in Hungary (EDF Démász) and in Poland. Furthermore, two more traditional meetings in June and December were about the strategy of the Group's companies, employment, Group results and the work of the workgroups.

CSR agreement and governance

The Dialogue Committee on the Group's Social Responsibility (DCSR) was created in accordance with the CSR framework agreement signed in 2005 then extended in 2009 by all the employee representatives and union organisations of the Group's principal companies, as well as the international trade union federations for the industry.

This agreement governs social dialogue on the issue of CSR. It has enabled the Group to put in place a set of basic shared commitments and common objectives that contribute to the renewal and extension of social dialogue issues. Like every year, at the social responsibility dialogue committee meeting held on 7 July 2016, the Group's Chairman and the Senior Executive Vice President, Human Resources, met the trade union representatives of the companies that have signed up to the CSR agreement to discuss the Group's strategy, social news and reporting on CSR measures taken by the Group in year N-1. An environmental theme was also proposed this year for discussion at a plenary session based on COP 21 and article 10 of the CSR agreement.

3.3.4.6 Employees' view: My EDF engagement survey

At the end of the first "My EDF" internal engagement survey conducted in November 2012 involving all Group employees, a plan to issue results to employees was implemented. The companies drew up action plans to increase or introduce improvement measures based on the results observed within their scope. This process has been repeated every year since.

The survey was organised for the fifth time in September and October 2016. A major internal communication campaign was organised to encourage employees to express their opinion (videos, posters and communication kit).

Employee participation (78% and nearly 111,000 respondents), clearly up on the first year (63%), demonstrates the Group employees' interest in this survey. The results of the fifth survey show progress in how human resources policies are viewed (57%; +8 points) and in the sharing of knowledge and good practices (68%; +5 points). Despite a fall in confidence in the future of the Group (53%; -21 points) which is accounted for by a context of major changes, employee engagement was maintained at a satisfactory level of 68% Group-wide. 75% of employees would recommend EDF as an employer to a friend or relative. The survey demonstrates that confidence in local management remains a real strong point (74%) as well as employee implication (75%). Globally, 69% (-3 points) of employees say they are satisfied with the content of their work, 73% enjoy coming to work in the morning and 78% (+3 points) say that they have clear personal objectives. Finally, 88% of them (+4 points) consider safety is a concern shared by all.

3.4 Reporting mechanism and methodological elements

3.4.1 REPORTING SYSTEM

Legal and regulatory requirements for non-financial reporting change rapidly, and as others, EDF organises itself to comply with them. This reporting comes within legal requirements under article 116 of the NRE Law of 15 May 2001, requiring listed companies to communicate on the environmental and social impact of their activities; article 225 of the Law of 12 July 2010 on the national commitment for the environment (Grenelle 2) which reforms company's social and environmental reporting requirements, as well as its application Decree of 24 April 2012 and the ruling of 13 May 2013 fixing the modalities within which independent third-party organisations carry out their tasks; article 173 of the Law on Energy Transition for Green Growth of 18 August 2015 introducing a requirement for transparency with regard to the consequences of climate change on corporate activities and the use of the products and services that they supply; the Law of 9 August 2016, on work, the modernisation of social dialogue and the security for career paths, modifying Article 225-102-1 of the French Commercial Code.

The form and content of the Group's reporting are continuously reviewed for improvement, going beyond the requirements of French law. The Group is engaged in a progressive process to have the reliability of its social, environmental and societal indicators and information verified by the Statutory Auditors, initially on a volunteer basis since 2007 and since 2013 in compliance with Article L. 225-102-1 of the French Commercial Code.

The sustainable development information published by the Group forms the basis for evaluations by ratings agencies or non-financial analysis departments acting on behalf of investors.

3.4.2 METHODOLOGICAL ELEMENTS ON THE SOCIAL AND ENVIRONMENTAL DATA

3.4.2.1 Reporting scope

Principles

The scope covered by the reporting process (economic, environmental and social indicators) includes the entire EDF group as defined by the financial consolidation. More precisely, this scope includes EDF and the comprehensively integrated subsidiaries (integration of 100% of the value of the social and environmental indicators). Subsidiaries accounted for using the equity method are excluded from the reporting scope.

The entities acquired during the fiscal year are included in the scope of consolidation on the year following the date of acquisition for environmental data, and the year of acquisition for social data if the acquisition was made more than six months from the reporting date. The social data for entities sold during the fiscal year is not included in the scope of consolidation at 31 December.

The reporting indicators are used on the following basis:

- the scope of consolidation established by the Financial Department;
- the aforementioned rules in terms of variation of scope;
- the criteria linked to relevance of the subsidiaries' activities in terms of environmental and social impact:
 - for the environmental data, data from industrial activities that are significant in terms of environmental impact is reported, therefore, some subsidiaries included in the financial scope may not appear in the report due to their activity or their small size with respect to the environmental challenges,
 - concerning social data, the selection criterion is the entity's workforce (greater than 50).

For 2016, given the criteria presented above, the differences between the reporting scopes for the social and environmental indicators are as follows:

- subsidiaries taken into account in the reporting of environmental indicators and not in the reporting of social indicators: EDF Belgium (Belgium), EES (USA);
- subsidiaries taken into account in the reporting of social indicators and not in the reporting of environmental indicators: CHAM, Citelum, EDF Paliwa (Poland) and China Holding.

Given the collection difficulties, the reporting scope may vary depending on the indicators. This is specified for each indicator provided in the summary table.

List of main entities included in the consolidation scope of the social or environmental data as of 31/12/2016		Scope of environmental indicators	Scope of social indicators
France	Électricité de France	X	X
	Enedis	X	X
	EDF PEI	X	X
Other activities	G2S		X
	É S	X	X
	Tiru	X	X
	Socodei	X	X
	EDF Énergies Nouvelles	X	X
	Dalkia	X	X
	Citelum		X
	EES	X	
	CHAM		X
UK	EDF Trading		X
	EDF Energy	X	X
Italy	Edison of which Fenice	X	X
Other International	EDF Luminus (Belgium)	X	X
	EDF Belgium (Belgium)	X	
	EDF Polska (Poland)	X	X
	Kogeneracja (Poland)	X	X
	Zielona Gorá (Poland)	X	X
	EDF Paliwa (Poland)		X
	EDF Démász (Hungary)	X	X
	EDF Norte Fluminense (Brazil)	X	X
	Meco (Vietnam)	X	X
China Holding		X	

Changes in scopes

The CCGT power plant belonging to EDF Trading, BE Zrt, Estag and Figlec have been fully excluded from the scope following the sale of these activities during 2015. A cogeneration power plant in Poland is now included within the scope of Dalkia.

3.4.2.2 Further details on the environmental data

The environmental data in this report are based on descriptive and methodological sheets. This is the Group's standard for reporting in force in 2016. All of the indicators relating to consumption and to emissions are linked to the electricity and heat generation data.

Dalkia's environmental indicators are reported over a sliding year, from 1 December N-1 to 30 November N.

Further details on the indicators relating to water withdrawn and water returned

Indicators on cooling water include water withdrawn and water returned to rivers, the sea and water tables. For nuclear power electricity plants located on coastlines and for thermal power plants, the amounts of cooling water withdrawn and water returned are calculated on the basis of the operating time and nominal debit of pumps.

This indicator is not collected by EDF RE, a subsidiary of EDF Énergies Nouvelles in the United States, and some Edison sites (within the scope of Fenice).

Further details on air emissions

Direct emissions

CO₂, SO₂, N₂O, NO_x and CH₄ emissions from thermal power plants of the EDF group are measured or calculated on the basis of analyses of the fuels or based on standard emissions factors. As they are not significant, fleeting emissions of CO₂ and CH₄ from dams within the entity of the scope of consolidation are not included in the calculation the indicator.

The Group's emissions of SF₆ are calculated, in priority on the basis of a mass balance or, otherwise, by a rate of a maximum annual nominal leakage equal to 2% of SF₆ contained in the equipment.

MECO does not collect emissions of N₂O or SF₆, without any significant impact at the scale of the Group.

The Global Warming Potential (GWP) coefficients¹ were updated for 2016 according to the recommendations of the ADEME. They are 30 for CH₄, 23,500 for SF₆ and 265 for N₂O.

Indirect emissions

Every year, EDF establishes a greenhouse gas emission report within the scope of the Group. The scope for the 2015 fiscal year covers 100% of companies having direct emissions, whether they are consolidated financially by full consolidation or by the equity method. Within this scope, the direct and indirect emissions (scopes 1, 2 and 3) are calculated according to the principles of the GHG Protocol Corporate Standard. Any emissions relating to Group investments in non-consolidated assets were not included.

The 2015 GHG report enabled us to identify the significant information items adopted for the 2016 fiscal year. In 2015, the two items representing the strongest contributions to GHG emissions were: direct emissions with 60 million tonnes of CO₂ (50% of total emissions) and indirect emissions associated with the combustion of gas sold to our final customers (25% of total emissions).

Further details on conventional waste

The conventional waste data were obtained on the basis of data available on the closing date for the quantities removed and the disposal channels. It should be noted that the reported data is not comprehensive concerning conventional industrial waste from Tiru, Dalkia and EDF Énergies Nouvelles and from certain operational sites belonging to Edison (scope: Fenice), as this data cannot, at this stage, be reported within the Group's reporting deadlines.

Construction and decommissioning waste is included in this report, if its management falls under the responsibility of the EDF group. On the other hand, waste managed by service providers is not accounted for. A reflection process is in progress on disposal of waste from construction of new assets. Regarding Enedis, waste reporting is done on a rolling-year basis, from 1 November N-1 to 31 October N.

Details on radioactive waste

Concerning EDF

Indicators pertaining to "Very Low-Level radioactive Waste (VLLW) from activity and from decommissioning" take into account:

- the actual volume of the VLLW directly evacuated from the Industrial Gathering, Storing, and Stockpiling Centre (*Centre industriel de regroupement, d'entreposage et de stockage* – CIRES) from the production sites, which corresponds:
 - to the volume of waste produced in the year for operating sites,
 - to the volume of waste sent in the year for sites being decommissioned;
- the actual volume of VLLW waste packages sent to CIRES from Centraco (after upgrading) connected to processing by incineration and by merging EDF metallic waste. The volume to be attributed to sites in operation and sites being decommissioned is determined in proportion to the tonnages delivered by the sites in operation and by the sites being decommissioned.

Indicators pertaining to "Short-Lived Low- and Intermediate-Level radioactive Waste (short-lived LLW and ILW) from activity and from decommissioning" take the following into account:

- the actual volume of the short-lived LLW and ILW waste directly evacuated into the Aube Storage Centre (CSA) from the production sites, which corresponds:
 - to the volume of waste produced in the year for operating sites,
 - to the volume of waste shipped in the year for sites being decommissioned;
- the actual volume of LLW and ILW waste packages sent to the CSA from Centraco (after upgrading) connected to treatment by incineration and by merging with EDF waste. The volume to be attributed to sites in operation and sites being decommissioned is determined in proportion to the tonnages delivered by the sites in operation and by the sites being decommissioned.

Since 2016, the reduction in the volume contributed by treatment before storage (by Andra) has also applied to VLLW and also to packages sent by Centraco, where applicable. It includes the reduction in volume contributed by treatment before storage (the case of super-compacted waste).

For the indicator "Long-Lived High- and Intermediate-Level solid radioactive Waste", the packaging of the waste is taken into account in the calculation.

Given the technical constraints linked to processing operations, the packages are produced approximately ten years after the fuel has effectively generated waste. The indicator is thus an estimate that relies on the long existence of current practices of packaging of Long-Lived waste that projects the current packaging ratio into the near future (number of packages effectively created following the processing of one tonne of fuel). This ratio essentially depends on the mixtures used to optimise the operations and is a combination:

- for waste coming directly from spent fuel: of factors coming from the national inventory of radioactive materials and waste created by the National Agency for the Management of Radioactive Waste (ANDRA);
- for waste not coming directly from fuel (control clusters, etc.) for which an average life time of ten years is assumed: on the basis of feedback.

Concerning EDF Energy

The data relating to the indicator "Intermediate-Level radioactive Waste" of nuclear activities of EDF Energy, are founded on the inventory of radioactive waste produced during the year, established by the Nuclear Decommissioning Authority. This is an estimate of the annual volume of waste that will be considered and classified as Intermediate-Level radioactive Waste at the end-of-life of the nuclear generation sites. These estimates include packaging necessary to allow the transport of wastes off site. All of the Intermediate-Level radioactive Waste is temporarily stored at the nuclear generation sites while waiting for a national decision on their final processing. An update of the national inventory was performed in 2016 and the inventory will be published on the official site of the "UK Radioactive Waste Inventory"² at the beginning of 2017. The data reported in 2016 corresponds to data reported for the 2016 inventory.

"Low-Level radioactive Waste" includes dessicants that are sent for processing in the form of Intermediate-Level Waste in compliance with applicable regulations.

1. 5th report from the IPCC (2013): <http://www.ecoinvent.org/database/>.

2. <https://ukinventory.nda.gov.uk>.

Further details on operational releases

EDF operational releases into air and water are subject to on-going measures. The published data correspond to:

- measured data for tritium, over the period from December N-1 to November N;
- calculated data from generation, for Carbon-14, for the period from January N to December N.

Further details on the quantity of electricity and heat generated from renewable energies

For Dalkia, the quantity of electricity and heat generated from renewable energies has been calculated on a pro rata basis to the quantities of renewable energies entering into their systems.

Further details on environmental expenditure

Expenditure for environmental protection is based on the expenditure reported by different entities of EDF.

The definition adopted for expenditure for protection of the environment is based on the recommendations made by the French National Accounting Council (*Conseil national de la comptabilité*) on 21 October 2003 (itself based on the European recommendation of 30 May 2001). Environmental expenditure is the additional identifiable expenditure aimed at preventing, reducing or repairing any environmental damage effectively or potentially caused by the company's activities.

These costs are linked, for example, to:

- nuclear operation and exploitation prior to the fuel cycle;
- the elimination of waste and efforts to reduce its quantity;
- the fight against ground pollution, as well as surface water and underground water;
- the preservation of air quality and the limitation of greenhouse gases;
- the reduction of noise emissions;
- the protection of biodiversity and the natural landscape;
- the decommissioning of power plants.

The assessment covers the costs, excluding taxes, broken down into the following three main categories:

- operating expenditure (including studies related to operating costs), excluding the expenditure that had previously been provisioned;
- investment expenditure (including the related studies);
- provisions (in particular, those connected to protection against radiation), including therein discounting expenses.

3.4.2.3 Further details on the social data

Since 2011, the population considered in data collection is all employees who have a non-suspended employment contract with one of the Group's companies.

Further details on calculating the workforce and movements

The workforce includes employees shared between EDF and Engie. An employee working 50% for EDF is counted for 0.5 in the published workforce.

The indicators "Other arrivals" and "Other departures" include:

- movements between companies of the Group;
- movements of workers in the electricity and gas industry, in compliance with industry-based agreement (IEG status);
- movements of certain categories of employees, in particular those with rotating shifts, doctors and personnel made available by outside entities.

These movements are thus not recognised in hires, resignations or redundancies.

Further details on calculating absenteeism

In its calculation of absenteeism, EDF includes absences for the following reasons: absences due to sickness, work and travel-related injuries as well as absences due to other reasons such as unpaid leave and unjustified absences. Absences related to company and union activities, pre-retirement leave and maternity absences are not included. The number of hours worked used in the calculation of the absenteeism rate is the number of hours theoretically worked.

At the Group level, the "average number of absences" is the sum of absences due to sickness, counted in days worked in proportion to time worked by employees and absences due to work-related accidents, counted in calendar days.

Further details on the accident indicators

For EDF and Enedis, the data related to the number of accidents occurring over the year and the number of lost work days due to work-related accidents are extracted from the human resources information system tool (Sprint) or otherwise by the safety information system (Ariane Web). In the case of a difference reported in the number of accidents or the number of lost work days recognised under Sprint and under Ariane Web, the rule followed by the Group is to use the most penalising data of the two systems.

The frequency rate for employees does not include the accidents occurring in transit between home and work. Road accidents may be taken into account when local laws consider them as work-related accidents. The number of fatal accidents takes into account work-related accidents and employee transit accidents. It does not include fatal accidents of subcontractors. The hours worked used for calculating the frequency rate are actual hours.

Details on counting occupational diseases

During 2015, the process for listing occupational diseases of agents working for EDF SA was changed. To ensure that all declarations of occupational diseases are processed in a harmonised manner and that the number of occupational diseases published does correspond to their number declared during the year and not rejected by the CPAM, EDF SA has set up a centralised declaration management system.

The published figure corresponds to occupational diseases declared and not rejected by the CPAM for the year N-1 (2015).

This offset in time enables taking into account those cases which occurred after 31 December of the year in question and withdrawing from the account those cases which were rejected for said year.

Further details on the training indicators

The trainings for which supporting documentation are not received on the date of closure of the report are not taken into account.

Further details on the indicators on tracking employees with disabilities

In countries in which regulations do not impose any mandatory declaration of the number of employees with disabilities, the reported data is provided on the basis of voluntary statements of employees. Certain subsidiaries do not communicate this type of data.

3.4.3 INDICATORS

3.4.3.1 Economic indicators

	Unit				Scope ⁽¹⁾			Ref. GRI ⁽²⁾
		2016	2015	2014	2016	2015	2014	
Economic indicators								
Amount of indemnities paid or to be paid following a legal decision in environmental matters ⁽³⁾	€k	21.0	10.5	25	1	1	1	EN 29
Management								
Expenditure for environmental protection		2,688	3,553	3,043				
of which provisions	€M	1,848	2,560	1,996	1a	1	1	EN 31
Environmental management ⁽⁴⁾ (% of the Group's consolidated sales covered by an ISO 14001 certification)	%	98	98	98	2	2	2	

(1) Scope 1: EDF.

Scope 1a: EDF + EDF PEI.

Scope 2: EDF group.

(2) GRI: Global Reporting Initiative, version G4.

(3) Excluding court fees.

(4) Including companies not integrated in the Group certificate.

3.4.3.2 Environmental indicators

	Unit	Scope ⁽¹⁾						Ref. GRI ⁽²⁾
		2016	2015	2014	2016	2015	2014	
Fuel and raw materials – fuel consumption								
Nuclear fuel loaded in reactors	t	1,277	1,120	1,272	2	2	2	EN 1
Coal-fired	kt	9,306	15,065	18,151	2	2	2	EN 1
Heavy fuel oil	kt	885	867	833	2	2	2	EN 1
Domestic fuel oil	kt	371	368	345	2	2	2	EN 1
Natural gas	GWh PCI	110,720	100,013	95,340	2	2	2	EN 1
Industrial gas	GWh PCI	335	4	474	2	2	2	EN 1
Biomass	kt	2,676	3,172	3,078	2	2	2	EN 1
Water – raw materials consumed originating from sources outside the company								
Cooling water withdrawn	10 ⁹ m ³	47.3	49.3	49.8	2	2	2	EN 8
of which fresh water	10 ⁹ m ³	16.2	18.3	18.1	2	2	2	EN 8
of which brackish (or estuary) water	10 ⁹ m ³	6.1	5.2	5.8	2	2	2	EN 8
Cooling water returned	10 ⁹ m ³	46.8	48.7	49.3	2	2	2	EN 22
of which fresh water	10 ⁹ m ³	15.7	17.8	17.6	2	2	2	EN 22
of which brackish (or estuary) water	10 ⁹ m ³	6.1	5.2	5.8	2	2	2	EN 22
Air – gas emissions								
Total CO ₂ emissions (scope 1), due to electricity and heat generation (including facilities not subject to quotas)	Mt	47.7	59.1	64.3	2	2	2	EN 15
Indirect CO ₂ emissions (scope 3), due to the combustion of gas sold to final customers	Mt eq. CO ₂	47.5	n.a.	n.a.	2	n.a.	n.a.	EN 17
SO ₂ emissions	kt	37.3	70.0	82.5	2	2	2	EN 21
NO _x emissions	kt	59.5	92.2	117.6	2	2	2	EN 21
Dusts	t	2,783	4,385	5,205	2	2	2	EN 21
Particulates (PM ₁₀) – EDF	t	320	713	1,189	1	1	1	EN 21
Particulates (PM ₁₀) – Group	t	1,449	2,660	3,374	2	2	2	EN 21
Mercury – EDF	t	0.02	0.04	0.07	1	1	1	EN 21
Mercury – Group	t	0.21	0.18	0.27	2	2	2	EN 21
CH ₄ emissions	kt eq. CO ₂	44.4	37.3	32.3	2	2	2	EN 15
N ₂ O emissions	kt eq. CO ₂	267.1	238.9	274.3	2	2	2	EN 15
SF ₆ emissions – EDF	kt eq. CO ₂	52.1	58.6	64.2	1	1	1	EN 15
SF ₆ emissions – EDF + EDF PEI + Enedis	kt eq. CO ₂	60.8	69.2	72.5	1a	1a	1a	EN 15
SF ₆ emissions – Group	kt eq. CO ₂	67.5	80.3	82.1	2	2	2	EN 15

n.a.: not available.

(1) Scope 1: EDF.

Scope 1a: EDF, EDF PEI and ENEDIS.

Scope 2: EDF group.

(2) GRI: Global Reporting Initiative, version G4.

	Unit	Scope ⁽¹⁾						Ref. GRI ⁽²⁾
		2016	2015	2014	2016	2015	2014	
Conventional waste								
Hazardous waste	t	51,643	64,411	82,504	2	2	2	EN 23
Non-hazardous waste	t	623,957	389,471	409,245	2	2	2	EN 23
Conventional industrial waste recycled or transported for recycling	t	607,171	365,744	392,815	2	2	2	EN 23
Ash produced	kt	1,205	2,657	3,062	2	2	2	EN 23
Energy								
Renewable energies: electricity generation of hydropower origin (excluding marine)	GWh	46,045	43,439	51,523	2	2	2	
Renewable energies: quantity of electricity and heat generated using renewable energies (other than hydropower)	GWh	20,900	19,163	18,811	2	2	2	
Direct energy consumption, by primary source								
Internal consumption, pumping electricity	TWh	7.0	7.0	8.0	2	2	2	EN 3
Internal consumption, heat and electricity (excluding pumping)	TWh	499	622	365	2	2	2	EN 3

(1) Scope 1: EDF.

Scope 1a: EDF, EDF PEI and ENEDIS.

Scope 2: EDF group.

(2) GRI: Global Reporting Initiative, version G4.

NUCLEAR INDICATORS – EDF

	Unit	2016	2015	2014	Ref. GRI
Radioactive emissions to water⁽¹⁾					
Carbon-14	GBq/react.	12.853	12.9	12.8	EN 24
Tritium	TBq/react.	17.423	18.1	17.5	EN 24
Radioactive emissions to air⁽¹⁾					
Carbon-14	TBq/react.	0.161	0.17	0.17	EN 21
Tritium	TBq/react.	0.640	0.50	0.50	EN 21
Fuel					
Transported spent nuclear fuel	t	1,170	1,216	1,124	EN 25
Decommissioning nuclear waste					
Very Low-Level radioactive Waste (VLLW) ⁽²⁾	m ³	2,171	1,847 (1723)**	2,580 (2461)**	EN 25
Low and Intermediate-Level radioactive Waste (LLW and ILW) ⁽²⁾	m ³	443	914	659 (576)*	EN 25
Nuclear waste from operations					
Very Low-Level solid radioactive Waste ⁽²⁾	m ³ /TWh	8.849	6.0 (5.98)**	7.6 (7.4)*	EN 25
Short-Lived Low- and Intermediate-Level solid radioactive Waste ⁽²⁾	m ³ /TWh	14.764	16.4 (16.3)**	15.4 (15.8)*	EN 25
Long-Lived High and Intermediate-Level solid radioactive Waste	m ³ /TWh	0.873	0.88	0.88	EN 25

(1) EDF operational releases into air and water are subject to on-going measures.

The published data correspond to:

- measured data for tritium, over the period from December N-1 to November N;
- calculated data from generation, for Carbon 14, for the period from January N to December N.

(2) The methodology concerning nuclear waste from decommissioning and from the activity has been updated (see section 3.4.2 "Methodological elements on the social and environmental data").

The values determined according to the new methodologies are presented between parentheses:

* for the changes made in 2015;

** for the changes made in 2016.

NUCLEAR INDICATORS – EDF ENERGY

	Unit	2016	2015	2014	Ref. GRI
Radioactive emissions to water					
Tritium – AGR reactor (Advanced Gas-cooled Reactor)	TBq/react.	156.154	120	129	EN 24
Tritium – PWR reactor (Pressurised Water Reactor)	TBq/react.	23.374	19	67	EN 24
Radioactive emissions to air					
Carbon-14 – AGR reactor	TBq/react.	0.762	0.69	0.64	EN 21
Carbon-14 – PWR reactor	TBq/react.	0.231	0.24	0.26	EN 21
Tritium – AGR reactor	TBq/react.	0.674	0.71	0.66	EN 21
Tritium – PWR reactor	TBq/react.	0.557	0.68	0.92	EN 21
Fuel					
Uranium sent off site	t	180	172	193	EN 25
Nuclear waste					
Transported Low-Level radioactive Waste	m ³	774	485	452	EN 25
Generated Intermediate-Level radioactive Waste	m ³	161	178	178	EN 25

3.4.3.3 Social indicators

EDF group	Unit	2016	2015	2014	Ref. GRI
Workforce on 31/12/2016 and breakdown					
EDF	Number	68,464	71,580	72,181	
Enedis		38,742	39,030	38,859	
Total EDF group *	Number	154,845	159,112	158,161	G4-10
Employee breakdown by age					
Under 25 years *	%	7%	8%	9%	
From 25 to 35 years *	%	29%	28%	27%	
From 36 to 45 years *	%	26%	25%	25%	
From 46 to 55 years *	%	27%	28%	30%	
56 years and older *	%	11%	11%	10%	
Employees by geographic area (per head office location)					
France	Number	129,703	133,406	132,107	
<i>of which DALKIA France and Citelum</i>	<i>Number</i>	<i>15,516</i>	<i>16,036</i>	<i>14,207</i>	
Great Britain	Number	14,370	14,908	15,727	
Italy	Number	4,949	4,950	4,955	
Rest of Europe	Number	5,505	5,521	5,207	
Rest of the world	Number	318	327	165	
<i>Managers</i>	<i>Number</i>	<i>45,474</i>	<i>45,935</i>	<i>44,539</i>	<i>G4-10</i>
Women at managerial level ⁽¹⁾	%	31.06%	30.0%	28.65%	G4 LA 12
<i>Non-management employees</i>	<i>Number</i>	<i>109,372</i>	<i>113,177</i>	<i>113,623</i>	<i>G4 LA 12</i>

(1) This percentage represents the number of women in managerial positions/the number of female employees.

EDF group	Unit	2016	2015	2014	Réf. GRI
Gender equality					
Male workforce *	Number	114,503	117,295	116,582	G4 LA 12
Female workforce *	Number	40,342	41,817	41,579	G4 LA 12
Male managers	Number	32,941	33,383	32,626	G4 LA 12
Female managers	Number	12,533	12,552	11,913	G4 LA 12
Hires/departures					
Hires	Number	7,724	8,866	10,385	G4-LA1
Retirement departures/inactive employees	Number	6,591	4,722	4,665	G4-LA1
Resignations ⁽²⁾	Number	2,062	2,104	1,727	G4-LA1
Redundancies – dismissals – people made inactive	Number	1,882	1,097	815	G4-LA1
Turnover ⁽³⁾	%	5.89	5.30	5.60	G4-LA1
Other arrivals ⁽⁴⁾	Number	8,270	8,466	6,628	G4-LA1
Other departures ⁽⁴⁾	Number	8,152	8,289	7,963	G4-LA1
Compensation					
Total gross compensation	Millions of euros	See note 10.1 "Personnel expenses"	See p. 341	See MR note 10.1	
Part-time employees	Number	10,061	11,491	11,977	G4-10
Absenteeism					
Absenteeism: Average number of days lost through illness and accidents	Number	9.55	9.2	9.1	
Health and safety conditions					
Fatal accidents	Number	1	3	4	G4 LA 6
Accident frequency rate ⁽⁵⁾		2.7	3.2	3.1	G4 LA 6
Workplace accidents involving at least one lost day	Number	645	757	694	G4 LA 6
Accident severity rate ⁽⁶⁾		0.16	0.20	0.17	G4 LA 6
Employee relations					
Employees covered by collective bargaining agreements	%	91%	90%	91%	G4-11
Training					
Hours of training provided	Number	8,306,479	9,085,028	8,915,338	G4 LA 9
Number of employees benefiting from training	Number	133,130	138,839	135,040	GA LA 9
Employment and integration of employees with disabilities					
Number of employees with disabilities ⁽⁷⁾	Number	5,211	5,232	5,086	G4 LA 12

(2) The end of special contracts (including work-study employees) are counted under "Other departures", regardless of the action that may be taken. Departures during probationary periods are counted under "Other departures".

(3) Turnover is calculated as follows: entries (number of hires) + exits from the workforces (number of retirements + number of resignations + number of redundancies, dismissals, compulsory inactivity) divided by two related to the total physical workforce at the end of the period multiplied by 100.

(4) Entries and exits from scope are accounted for under: "Other arrivals" and "Other departures" respectively. Entries of work-study employees are accounted for under "Other entries".

(5) The frequency rate represents the number of workplace accidents involving at least one lost day for every million hours worked.

(6) The accident severity rate represents the number of days lost for every thousand hours worked.

(7) Incertain subsidiaries, this data is declarative.

EDF SA	Unité	2016	2015	2014	Réf. GRI
Workforce on 31/12 & breakdown					
Statutory employees (as of 31/12)	Number	64,300	67,088	67,567	G4 10
Employees under unlimited-term contracts (CDI) not covered by collective bargaining agreement	Number	487	479	461	G4 10
Employees under fixed-term contracts (CDD) not covered by collective bargaining agreement	Number	3,677	4,013	4,153	G4 10
Total not covered by collective bargaining agreements	Number	4,164	4,492	4,614	G4 10
Total workforce	Number	68,464	71,580	72,181	G4 9
<i>Managers</i>	<i>Number</i>	<i>30,404</i>	<i>31,192</i>	<i>30,701</i>	<i>G4 LA 12</i>
Women at managerial level	%	28.6%	28.4%	27.8	G4 LA 12
<i>Non-management employees</i>	<i>Number</i>	<i>38,060</i>	<i>40,388</i>	<i>41,480</i>	<i>G4 LA 12</i>
Technicians and supervisory staff	Number	31,354	33,016	33,531	G4 LA 12
Operatives	Number	6,705	7,372	7,949	G4 LA 12
Gender equality					
Male workforce	Number	47,490	49,099	49,524	G4 LA 12
Female workforce	Number	20,974	22,481	22,657	G4 LA 12
Male managers	Number	21,718	22,315	22,175	G4 LA 12
Female managers	Number	8,686	8,877	8,526	G4 LA 12
Hires/departures					
Hires	Number	1,889	2,760	4,236	G4 LA 1
Integration & rehiring	Number	278	256	230	G4 LA 1/LA 3
Other arrivals ⁽¹⁾	Number	2,589	2,809	3,022	G4 LA 1
Retirement departures/inactive employees	Number	3,696	2,433	2,499	G4 LA 1
Resignations	Number	146	110	107	G4 LA 1
Redundancies – dismissals – people made inactive	Number	27	23	9	G4 LA 1
Deaths	Number	69	77	68	G4 LA 1/LA6
Other departures ⁽¹⁾	Number	3,935	3,786	3,713	G4 LA 1
Overtime					
Overtime worked hours	In thousands	2,887	2,835	2,770	
Outside contractors					
Monthly average of temporary employees ⁽²⁾	Number	n.d	1,510	1,683	G4 10
Organisation of working hours					
Full-time employees	Number	62,641	64,318	64,534	G4 10
Part-time employees	Number	5,822	7,261	7,647	G4 10
Employees working shifts	Number	6,597	6,860	6,955	G4 10
Absenteeism					
Absenteeism	%	3.8%	3.7%	3.7	G4 LA 6
Hours of maternity or paternity leave/hours worked	%	0.90%	0.8%	0.8	G4 LA 6

(1) The arrivals and departures of seasonal fixed-term contract employees have been excluded from the counting.

(2) The 2016 figure is not available at the date of reporting.

EDF SA	Unité	2016	2015	2014	Réf. GRI
Health and safety conditions					
Number of occupational diseases ⁽³⁾		29	64	51	G4 LA 6
Fatal accidents	Number	0	0	2	G4 LA 6
Accident frequency rate		2.28	2.6	2.8	G4 LA 6
Accident severity rate		0.127	0.16	0.14	G4 LA 6
Workplace accidents involving at least one lost day	Number	228	261	284	G4 LA 6
Compensation/Personnel expenses/Profit-sharing					
Main monthly compensation					
Managers	euros	4,518	4,361	4,334	G4 EC 1
Technicians and supervisory staff	euros	2,618	2,606	2,608	G4 EC 1
Operatives	euros	1,889	1,871	1,864	G4 EC 1
Personnel expenses	Millions of euros	6,597	6,525	6,408	G4 EC 1
Average amount of profit-sharing per employee	euros	2,000	2,107	1,980	G4 EC 1
Employee relations					
Collective bargaining agreements signed in France	Number	19	2	3	G4 11/ G4 LA 8
Employees covered by collective bargaining agreements ⁽⁴⁾	%	93,552	93%	93	G4 11
Training					
Number of employees benefiting from training	Number	61,056	63,748	63,252	G4 LA 9
Employment and integration of employees with disabilities					
Number of employees with disabilities	Number	2,150	2,157	2,093	G4 LA 12
Number of employees hired with disabilities	Number	76	91	112	G4 LA 12
Social work					
Charitable works Committee budgets (fulfilling 1% requirement)	Millions of euros	182.7	201	199	

(3) See section 3.4.2.3 "Further details on the social data".

(4) EDF SA employees are not covered by a legally-defined collective agreement but benefit from the status of the electricity and gas industry.

3.5 Non-financial rating

Evaluations by the primary specialised rating agencies and managers of ethical funds indicate the Group's CSR performance, in its benchmark sector. The evaluations and assessments underscore the outside recognition of the Group's sustainable development performance.

In 2016, EDF's results once again progressed with two major advances: entry into DJSI World and CDP's A List.

ETHICAL MARKET INDICES AND EVALUATIONS BY NON-FINANCIAL RATING AGENCIES

Dow Jones Sustainability Indexes (DJSI)

In 2016, EDF obtained the excellent score of 87 out of 100, up 7 points compared to 2015 (79 out of 100) and for the first time integrates the prestigious DJSI World index. In its 2017 annual report (Sustainability Yearbook), RobecoSam again distinguishes the EDF group by the rating "Bronze Class", which means that the Group is in the top 10% of the best performing companies in its sector of activity (Electric Utilities) and the rating "Industry Mover", which means that the EDF group is the company that made the most progress amongst the 72 Electric Utilities evaluated.

EDF obtained a score of 60 out of 100, an increase of 2 points compared to the previous score (58 at the end of 2014), and achieved for the first time the "advanced" level. It is ranked amongst the best 48 companies in the Electric & Gas Utilities sector.

Sustainalytics

In 2015, EDF obtained a score of 78 out of 100, up 2 points compared to 2014 and up 7 points compared to 2013, and was ranked 14th out of the 224 companies in the Utilities sector. For the 2016/2017 period, EDF once again was a member of the STOXX ESG Leaders Index.

Carbon Disclosure Project (CDP)

In 2016, EDF obtained the maximum grade of A and the Leadership level for the first time. In 2015, EDF had obtained the score of 100 out of 100 for transparency (an increase of 2 points compared to 2014 and 5 points compared to 2013) and the grade of A- for performance (B in 2014 and 2013, the grading range being A to F). EDF's response is published on the CDP website.

OEKOM

In 2015, EDF obtained the grade of C+, the same as in 2014 (C+ in 2014 and C in 2013, on a scale from D- to A+). The next assessment will take place during the 1st half-year 2017.

EDF belongs to the Climate Disclosure Leadership Index (CDLI) for France and the Benelux region.

Morgan Stanley Capital International (MSCI)

In 2016, EDF obtained the Advanced Level, with an A-grade (on a scale from CCC to AAA), the same as in 2015 and 2014.

CDP Water

EDF obtained a B-grade in 2016 with Management level, the same as in 2015 (grades from D- to A). EDF's response is published on CDP's site.

EcoVadis

In 2016, EDF obtained the Advanced Level with a score of 72 out of 100, up 5 points compared to 2015.

FTSE4Good Index

In March 2012, the EDF group was admitted to the FTSE4Good Index. This admission is reviewed every six months, and EDF's acceptability has been confirmed at every review since it first joined the index. In 2016 its overall score was 4.6 out of 5, moving up regularly and continuously in relation to previous years (4.5 in 2015 and 4.3 in 2014) and coming second in its sector (utilities) among all the businesses assessed by obtaining the relative performance of 99/100.

Afnor Acesia Solutions Achats (Purchasing Solutions)

In 2015, EDF obtained a score of 91 out of 100, an improvement of 6 points compared to the preceding assessment (85 out of 100). Currently, the result of the 2016 rating is not yet known.

Euronext Vigeo Indices

In November 2012, Euronext and Vigeo jointly launched a range of indices distinguishing listed companies demonstrating the best performance in Social Responsibility. The indices are updated twice annually, in May and November.

PAP 50 Entreprises

In this study conducted every three years by WWF France, on the evaluation of the paper policy of the 50 largest French companies, EDF obtained a score of 74 out of 100 and rose to the 7th place in the overall ranking (up 22 points compared to the previous survey conducted in 2013 at 20th overall).

At the end of 2016, EDF was part of all indices for which it is eligible: Euronext Vigeo World 120, Europe 120, Eurozone 120 and France 20 indices. In 2016,

3.6 Assurance report of one of the statutory auditors

Report by one of the Statutory Auditors, appointed as independent third party, on the consolidated human resources, environmental and social information included in the management report.

This is a free English translation of the Statutory Auditors' report issued in French and is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

For the year ended 2016

To the Shareholders,

In our capacity as Statutory Auditor of Electricité de France SA, appointed as independent third party and certified by COFRAC under number 3-1048¹, we hereby report to you on the consolidated human resources, environmental and social information for the year ended 31 December 2016 included in the management report (hereinafter named "CSR Information"), pursuant to Article L. 225-102-1 of the French Commercial Code (*Code de commerce*).

Company's responsibility

The Board of Directors of Electricité de France SA is responsible for preparing a company's management report including the CSR Information required by Article R. 225-105-1 of the French Commercial Code in accordance with the reporting protocols and guidelines used by the Company (hereinafter the "Guidelines"), summarised in the section entitled "Methodological elements on the social and environmental data" in the management report included in the reference document and available on request from the company's head office.

Independence and quality control

Our independence is defined by regulatory texts, the French Code of ethics (*Code de déontologie*) of our profession and the requirements of Article L. 822-11 of the French Commercial Code. In addition, we have implemented a system of quality control including documented policies and procedures regarding compliance with the ethical requirements, French professional standards and applicable legal and regulatory requirements.

Statutory Auditor's responsibility

On the basis of our work, our responsibility is to:

- attest that the required CSR Information is included in the management report or, in the event of non-disclosure of a part or all of the CSR Information, that an explanation is provided in accordance with the third paragraph of Article R. 225-105 of the French Commercial Code (Attestation regarding the completeness of CSR Information);
- express a limited assurance conclusion that the CSR Information taken as a whole is, in all material respects, fairly presented in accordance with the Guidelines (Conclusion on the fairness of CSR Information);
- express, at the company's request, a reasonable assurance on the fact that the information selected by the company and identified by the sign* in chapter 3 of the Reference Document was prepared, in all material aspects, in accordance with the Reporting Guidelines.

Our work involved 12 persons and was conducted between September 2016 and February 2017 during a 15 week period. We were assisted in our work by our sustainability experts.

1. Whose scope is available at www.cofrac.fr.

2. ISAE 3000 – Assurance engagements other than audits or reviews of historical financial information.

We performed our work in accordance with the order dated 13 May 2013 defining the conditions under which the independent third party performs its engagement and the professional guidance issued by the French Institute of statutory auditors (*Compagnie nationale des commissaires aux comptes*) relating to this engagement and with ISAE 3000² concerning our conclusion on the fairness of CSR Information and the reasonable assurance report.

1. ATTESTATION REGARDING THE COMPLETENESS OF CSR INFORMATION

Nature and scope of our work

On the basis of interviews with the individuals in charge of the relevant departments, we obtained an understanding of the Company's sustainability strategy regarding human resources and environmental impacts of its activities and its social commitments and, where applicable, any actions or programmes arising from them.

We compared the CSR Information presented in the management report with the list provided in Article R. 225-105-1 of the French Commercial Code.

For any consolidated information that is not disclosed, we verified that explanations were provided in accordance with Article R. 225-105, paragraph 3 of the French Commercial Code.

We verified that the CSR Information covers the scope of consolidation, i.e., the Company, its subsidiaries as defined by Article L. 233-1 and the controlled entities as defined by Article L. 233-3 of the French Commercial Code within the limitations set out in the methodological note, presented in paragraph 3.4.2 of the Reference Document.

Conclusion

Based on the work performed and given the limitations mentioned above, we attest that the required CSR Information has been disclosed in the management report.

2. CONCLUSION ON THE FAIRNESS OF CSR INFORMATION

Nature and scope of our work

We conducted around a hundred interviews with the persons responsible for preparing the CSR Information in the departments in charge of collecting the information and, where appropriate, responsible for internal control and risk management procedures, in order to:

- assess the suitability of the Guidelines in terms of their relevance, completeness, reliability, neutrality and understandability, and taking into account industry best practices where appropriate;

- verify the implementation of data-collection, compilation, processing and control process to reach completeness and consistency of the CSR Information and obtain an understanding of the internal control and risk management procedures used to prepare the CSR Information.

We determined the nature and scope of our tests and procedures based on the nature and importance of the CSR Information with respect to the characteristics of the Company, the human resources and environmental challenges of its activities, its sustainability strategy and industry best practices.

Regarding the CSR Information that we considered to be the most important listed in Annex 1 of the report:

- at parent entity level, we referred to documentary sources and conducted interviews to corroborate the qualitative information (organisation, policies, actions), performed analytical procedures on the quantitative information and verified, using sampling techniques, the calculations and the consolidation of the data. We also verified that the information was consistent and in agreement with the other information in the management report;
- at the level of a representative sample of entities, listed in Annex 2 of this report, selected by us on the basis of their activity, their contribution to the consolidated indicators, their location and a risk analysis, we conducted interviews to verify that procedures are properly applied and we performed tests of details, using sampling techniques, in order to verify the calculations and reconcile the data with the supporting documents. The selected sample represents 90% of headcount and between 23% and 100% of quantitative environmental data.

For the remaining consolidated CSR Information, we assessed its consistency based on our understanding of the company.

We also assessed the relevance of explanations provided for any information that was not disclosed, either in whole or in part.

We believe that the sampling methods and sample sizes we have used, based on our professional judgement, are sufficient to provide a basis for our limited assurance conclusion; a higher level of assurance would have required us to carry out more extensive procedures. Due to the use

of sampling techniques and other limitations inherent to information and internal control systems, the risk of not detecting a material misstatement in the CSR information cannot be totally eliminated.

Conclusion

Based on the work performed, no material misstatement has come to our attention that causes us to believe that the CSR Information, taken as a whole, is not presented fairly in accordance with the Guidelines.

3. REASONABLE ASSURANCE REPORT ON A SELECTION OF CSR INFORMATION

Nature and scope of our work

For the information selected by the company and listed in Annex 1 of this report, our procedures were of the same kind yet more intensive than those described in paragraph 2 above for the CSR information considered to be the most important, in particular concerning the number of tests.

The selected sample represents 90% of the workforce and 42% of CO₂ emissions (scope 1) from electricity and head production.

We believe that these procedures enable us to express a reasonable assurance on the information selected by the company.

Conclusion

In our opinion, the information selected by the company has been prepared, in all material aspects, in accordance with the Reporting Guidelines.

Neuilly-sur-Seine, on 14 February 2017

One of the Statutory Auditors
Deloitte & Associés

Anthony Maarek
Partner, Audit

Florence Didier-Noaro
Partner, Sustainability Services

ANNEX 1 CSR INFORMATION CONSIDERED TO BE MOST IMPORTANT**Quantitative social data under reasonable assurance**

EDF group:

- Total EDF group workforce as of 31 December
- Employee breakdown by age
- Male workforce
- Female workforce

Quantitative social data under limited assurance

EDF group:

- Male workforce
- Female workforce
- Women at managerial level
- Hires
- Other arrivals
- Retirement departures/inactive employees
- Resignations
- Redundancies, dismissals, people made inactive
- Other departures
- Absenteeism: Average number of days lost through illness and accidents
- Fatal accidents (employees)
- Fatal accidents (third party provider)
- Accident frequency rate
- Workplace accidents involving at least one lost day
- Accident severity rate
- Hours of training provided
- Number of employees benefiting from training
- Number of employees with disabilities

EDF:

- Work related illnesses reported in the year to Social Security

Quantitative environmental data under reasonable assurance

EDF group:

- CO₂ emissions (scope 1) from electricity and heat production (including installations not subject to quotas)

Quantitative environmental data under limited assurance

EDF group:

- Fuel and raw materials
 - Coal
- Water – raw materials consumed originating from sources outside the company

- Cooling water withdrawn
- Cooling water withdrawn, of which fresh water
- Cooling water returned
- Cooling water returned, of which fresh water
- Air – gas emissions
 - SO₂ emissions
 - NO_x emissions
 - Dusts
 - SF₆ emissions
 - Indirect CO₂ emissions (Scope 3) from combustion of natural gas sold to end users
- Conventional waste
 - Hazardous waste
 - Non-hazardous waste
 - Conventional industrial waste recycled or transported for recycling
 - Ash produced
- Energy
 - Renewable energy: quantity of electricity and heat generated using renewable energy sources (other than hydropower)
- Nuclear indicators – EDF
 - Nuclear fuel loaded in reactors
 - Radioactive emissions to air
 - Carbon-14
 - Tritium
 - Radioactive emissions to water
 - Carbon-14
 - Tritium
 - Transported spent nuclear fuel
 - Decommissioning nuclear waste
 - Very Low-Level radioactive Waste (VLLW)
 - Low and Intermediate-Level radioactive Waste (LLW and ILW)
 - Nuclear waste from operations
 - Very Low-Level solid radioactive Waste
 - Short-Lived Low- and Intermediate-Level solid radioactive Waste
 - Long-Lived High and Intermediate-Level solid radioactive Waste
- Nuclear Indicators – EDF Energy:
 - Radioactive emissions to water:
 - Tritium – AGR reactor (Advanced Gas-cooled Reactor)
 - Tritium – PWR reactor (Pressurised Water Reactor)
 - Radioactive emissions to water
 - Carbon-14 – AGR reactor
 - Carbon-14 – PWR reactor
 - Tritium – AGR reactor
 - Tritium – PWR reactor
 - Uranium sent to off site
 - Transported low-level radioactive waste
 - Generated Intermediate-Level radioactive waste

Qualitative social information reviewed at Group level

- Paragraph “Skill development: for preparing the future”
- Paragraph “Guaranteeing the best health & safety conditions at work for all”
- Paragraph “Gender equality”

Qualitative environmental information reviewed at Group level

- Paragraph “Decarbonising electricity generation” part 4 “Generating a GHG Reporting”

- Paragraph “Adapting the Group’s business to climate change”
- Paragraph “Biodiversity”
- Paragraph “Management and prevention of environmental risks”

Qualitative societal information reviewed at Group level

- Paragraph “Corporate Social Responsibility Goals”
- Paragraph “Ethics & compliance”
- Paragraph “Dialogue and communities”, part 2 “Working together”
- Paragraph “Fragile populations: vulnerable customers”
- Paragraph “Fragile populations: access to energy”

ANNEX 2 SELECTED ENTITIES

Selected entities for EDF

- Nancy HR agency
- Lyon HR agency
- Gravelines Nuclear Power Plant
- Flamanville Nuclear Power Plant
- Bugey Nuclear plant in decommissioning
- Blénot 5 Thermal Power Plant
- Le Havre Thermal Power Plant
- Vaires-sur-Marne exploitation engineering unit
- Nuclear production Division – Exploitation engineering unit (DPN - UNIE)
- Nuclear Production Division – Operational technic unit (DPN - UTO)
- Nuclear Engineering Division – Decommissioning and waste projects Division (DP2D)
- Nuclear Fuel Division (DCN)
- Guyana Insular Energy Systems (HS)

Selected entities for ENEDIS

- Enedis consolidation level
- Île-de-France Regional Service Unit

Selected entities for SOCODEI

- Nuclear center for the treatment and conditioning of low-level radioactive waste – Centraco

Selected entities for Insular Electrical Generation

- Port-Est (La Réunion) Thermal Power Plant

Selected entities for EDF Energy

- Combined Cycle Gas Turbine of Westburton
- Heysham A Nuclear Power Plant
- Heysham B Nuclear Power Plant
- HR center of Crawley

Selected entities for EDF Energies Nouvelles

- EDF Renewable Energy UK (HR)

Selected entities for Edison

- Di Altomonte Power Plant
- Di Simeri Crichi Power Plant
- Edison Italy (HR)

Selected entities for TIRU

- Saint-Ouen waste incineration unit

Selected entities for Dalkia

- East Region
- Center West Region
- Dalkia in France (managed companies) (HR)
- Optimal Solutions (HR)

Selected entities for EDF Luminus

- Ringvaart (Gand) Power Plant
- EDF Luminus (HR)



Corporate governance

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4.1 Corporate Governance Code

EDF has signed up to the AFEP-MEDEF Code, which is the Corporate Governance Code to which the Company refers, in accordance with Article L. 225-37 of the French Commercial Code¹, subject to the specific laws and regulations applicable to EDF.

These specific laws and regulations, which result from EDF's status as a state-owned company and in particular the application to the Company of Order no. 2014-948 of 20 August 2014 and its implementing texts, French Law no. 83-675 of 26 July 1983 relating to the democratisation of the public sector and Decree no. 53-707 of 9 August 1953, are specified in this reference document and relate specifically to:

- the members of the Board of Directors (see section 4.2.1 "Members of the Board of Directors");

- the terms and conditions for the appointment of the Chairman and Chief Executive Officer of EDF (see section 4.2.2.3 "Method of Executive Management – Appointment and powers of the Chairman & Chief Executive Officer");
- the terms and conditions for the setting of the compensation of the Chairman and Chief Executive Officer (see section 4.6.1.1.1 "Terms and conditions for the setting of compensation"); or
- the method of Executive Management (see section 4.2.2.3 "Method of Executive Management – Appointment and powers of the Chairman & Chief Executive Officer").

In addition to the aforementioned specific laws and regulations, the table below sets out the AFEP-MEDEF code recommendations that are not applied by the Company and the related explanations:

AFEP-MEDEF code recommendation ⁽¹⁾	Company's position	Explanation	Relevant section of the reference document
Meeting of the Board not attended by the executive officers Recommendation 10.3: <i>"It is recommended that a meeting not attended by the executive Officers be organised each year."</i>	No meeting of the members of the Board was held in 2016 that was not attended by the Chairman and Chief Executive Officer.	The internal rules of procedure of the Board of Directors does not currently require the organisation of this type of meeting. This option may however be re-examined when preparing the next update of the Board's internal rules of procedure.	See section 4.2.2.8 "Activity of the Board of Directors in 2016".
Staggered re-election of the Board of Directors Recommendation 13.2: <i>"Terms should be staggered so as to avoid replacement of the entire body and to favour a smooth replacement of directors."</i>	The replacement of the entire Board of Directors every five years is no longer mandatory in accordance with the order of 20 August 2014 but the Company has not implemented the staggered re-election of the Board of Directors.	The Company modified its articles of association at the General Shareholders' Meeting held on 21 November 2014 with the aim of reducing the term of office of directors to 4 years. Regarding the staggering of the re-election to offices, this option is now available to the Company. The General Shareholders' Meeting held on 12 May 2016 appointed Mrs. Claire Pedini, whose term of office is out of sync with that of the other directors.	See section 4.2.2.1 "Term of office of directors"
Terms of office for executive officers Recommendation 18.2: <i>"An executive Officer (...) must also seek the opinion of the Board before accepting a new directorship in a listed corporation."</i>	The internal rules of procedure of the Board of Directors does not include a rule according to which the Chairman and Chief Executive Officer must seek the opinion of the Board before accepting a new directorship in a listed corporation.	The acceptance of a new directorship by the Chairman and Chief Executive Officer is a matter for their individual situation and their personal appreciation, provided that they comply with the rules for the limitation of the number of terms of office resulting from the French Commercial Code and the AFEP-MEDEF code.	See section 4.2.1 "Members of the Board of Directors".

1. After having considered the AFEP-MEDEF recommendations of October 2008 on the compensation of corporate officers and executives of companies, the Company's Board of Directors met as soon as 17 December 2008 to approve these recommendations, deeming that they are in line with EDF's corporate governance approach, and that they had already been implemented by the Company.

AFEP-MEDEF code recommendation ⁽¹⁾	Company's position	Explanation	Relevant section of the reference document
<p>Holding of Company shares by directors Recommendation 19: <i>"The director should personally be a shareholder and, by virtue of the provisions in the by-laws or the internal regulations, hold a minimum number of shares that is significant in relation to the directors' fees awarded. If he or she does not hold these shares when assuming office, he or she should use his or her directors' fees to acquire them."</i></p>	<p>The Company's articles of association and the Board's internal rules of procedure do not require directors to hold a minimum number of shares that is significant in relation to the directors' fees awarded.</p>	<p>In accordance with the Law of 26 July 1983, the directors representing the employees receive no directors' fees. Furthermore, the directors' fees payable to members recommended by the French state who are civil servants are paid to the French state budget. Representatives of the French state who are not civil servants can only receive 30% of the directors' fees due to them, the remainder being paid to the French state budget. Finally, the Chairman of the Board of Directors does not receive any directors' fees. Taking account of the wide range of situations, the Board has not established a unique rule on the holding of the Company' shares. Each director must also act in the Company's best interests, irrespective of the number of Company shares they hold personally.</p>	<p>See sections 4.6.1.2 "Total compensation of directors") and 4.5 ("Shareholding by directors and trading in EDF securities by corporate officers and executives".</p>
<p>Requirement for company officers to hold shares Recommendation 22: <i>"The Board of Directors defines a minimum number of registered shares that the company Officers must retain through to the end of their term of office. This decision is reviewed at least on each extension of their term of office. (...) Until this objective regarding the holding of shares has been achieved, the company Officers will devote a proportion of exercised options or awarded performance shares to this end as determined by the Board."</i></p>	<p>The Board of Directors has not set rules for the holding by the Chairman and Chief Executive Officer of a minimum number of the Company's shares.</p>	<p>The Chairman & Chief Executive Officer does not receive directors' fees. His compensation is limited in accordance with Decree no. 2012-915 of 26 July 2012 modifying Decree no. 53-707 of 9 August 1953. Finally, the Company has not put in place a stock and/or performance stock option plan in favour of the Chairman and Chief Executive Officer. Accordingly, it was decided to not implement this recommendation. Furthermore, the executive corporate officer must also act in the Company's best interests, irrespective of the number of Company shares they hold personally.</p>	<p>See sections 4.6.1.1 "Total compensation of the Chairman & Chief Executive Officer", 4.6.2 "Stock options – Bonus shares" and 4.5 "Shareholding by directors and trading in EDF securities by corporate officers and executives".</p>
<p>Rules for the distribution of directors' fees Recommendation 20.1: <i>The method of distribution of directors' compensation "should take account, in such ways as it shall determine, of the directors' actual attendance at meetings of the Board and committees, and the amount shall therefore consist primarily of a variable portion."</i></p>	<p>A significant but not "preponderant" share of the directors' fees is dependent upon actual attendance by the directors of the Board and Committee meetings</p>	<p>Special distribution rules were adopted, which in particular take account of the level of responsibilities and the time spent by the directors on their duties. Though the variable share of compensation paid in directors' fees that compensates the actual presence of directors is not preponderant, the Company considers that it is nonetheless significant, insofar as it accounts for 50% of the total budget of directors' fees and, as recommended by the AFEP-MEDEF Code, as it is appropriate to the level of responsibilities assumed by the directors and to the time that they must spend on their duties.</p>	<p>See section 4.6.1.2 "Total compensation of directors".</p>

(1) Code updated in November 2016.

4.2 Members and functioning of the Board of Directors

4.2.1 MEMBERS OF THE BOARD OF DIRECTORS

In accordance with Order no. 2014-948 of 20 August 2014 regarding governance and trading in state-owned companies, EDF is now administered by a Board of Directors consisting of three to eighteen members, including members appointed by the General Shareholders' Meeting, if applicable on recommendation from the French state in accordance with Article 6 of the Order, a French State Representative chosen by the Minister for the Economy from the civil service in accordance with Article 4 of the Order, and one third employee representatives elected in accordance with the provisions of the Law of 26 July 1983¹.

On the date of filing of this reference document, the Board of Directors has eighteen members:

- eleven directors appointed by the General Shareholders' Meeting, including five on recommendation from the French state;

- six directors elected by the employees;
- one Representative of the French State.

The Government Commissioner² and Head of the French State General Economic and Financial Supervisory Mission to the Company³ and the Secretary of the Central Works Council attend the meetings of the Board of Directors, but are not entitled to vote. However, in accordance with Article L. 311-5-7 of the French Energy Code, based on Law no. 2015-992 of 17 August 2015 relating to the Energy Transition for Green Growth, the Government Commissioner is informed of investment decisions and can oppose decisions whose implementation would be incompatible with the objectives of the strategic plan developed by the Company or with those of the multi-year energy programme.

Between 1 January 2016 and the date of filing of this reference document, the following modifications were made to the membership of the Board of Directors:

First name, surname	Director	Date of appointment / resignation	Replacing
Mr. Philippe Varin	Directors appointed by the General Shareholders' Meeting	Resignation on 31 March 2016 effective from the General Shareholders' Meeting held on 12 May 2016	n.a.
Mrs. Claire Pedini	Director appointed by the General Shareholders' Meeting	General Shareholders' Meeting of 12 May 2016	Mr. Philippe Varin
Mr. Gérard Magnin	Director appointed by the General Shareholders' Meeting on recommendation from the French state	Resignation of 28 July 2016	n.a.
Mrs. Michèle Rousseau	Director appointed by the General Shareholders' Meeting on recommendation from the French state	Board of Directors of 30 September 2016 ⁽¹⁾	Mr. Gérard Magnin

(1) The Company's Board of Directors decided, in accordance with Articles L. 225-24 of the French Commercial Code and 13 of Order no. 2014-948 of 20 August 2014 relating to governance and trading in state-owned companies, to name on a provisional basis Mrs. Michèle Rousseau, in the capacity of director replacing Mr. Gérard Magnin, resigning, for the remainder of the latter's term of office, i.e. until the end of the General Shareholders' Meeting called to approve the financial statements for the fiscal year ending 31 December 2018. The appointment of Mrs. Rousseau shall be submitted for ratification to the General Shareholders' Meeting called for 18 May 2017.

Balanced representation of men and women on Boards of Directors

In accordance with Article L. 225-18-1 of the French Commercial Code and the order of 20 August 2014, EDF, as a listed company and a state-owned company, is subject to the rules relating to balanced representation of women and men on Boards of Directors and Supervisory Boards and the Company had to comply with a proportion of 40% women on the Board of Directors in 2017. This proportion was achieved in the course of the 2016 fiscal year.

Indeed, on the date of filing of this reference document, and taking account of the co-opting of Mrs. Rousseau at the meeting of the Board of Directors

held on 30 September 2016, the EDF Board of Directors featured seven women, including two directors elected by the employees, i.e. a proportion of 41.7% women in relation to the members of the Board taken into account to calculate this percentage in accordance with the AFEP-MEDEF Code (i.e. excluding directors representing the employees).

Information regarding the directors

The list of directors, their personal details as well as information on their terms of office on 15 January 2017⁴ are provided below.

1. The representatives of the employees mentioned in I of Article 7 of the Order of 20 August 2014 are subject, for their election and their status, to the same provisions as those provided, for representatives of the employees of companies subject to the Law of 26 July 1983, to Sections II and III of Title II of this Law.
2. Article 15 of the order of 20 August 2014.
3. This mission exercises the French State's economic and financial supervision of EDF, in accordance with Article 8 of Decree no. 55-733 of 26 May 1955. It can exercise extensive supervisory procedures.
4. Unless otherwise stated in the table.

DIRECTORS APPOINTED BY THE GENERAL SHAREHOLDERS' MEETING

Jean-Bernard LÉVY, 61 years old

Position held within the Company

Chairman and Chief Executive Officer since 27 November 2014⁽¹⁾

Date of appointment to the Board

23 November 2014

Expiry of current term

General Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Chairman of the Strategy Committee

Shares held

0

Nationality

French

A former student of École polytechnique (graduating in 1973) and Telecom Paris Tech, Jean-Bernard Lévy began his career at France Télécom in 1979 as a works engineer at the Angers Division. In 1982, he became responsible for managing executive managers and HR budgets at head-office, then assistant to the head of HR. In 1986, he was appointed Technical Advisor to the office of Gérard Longuet, Minister for Postal Services and Telecommunications. From 1988 to 1993, Jean-Bernard Lévy managed the telecommunications satellite activity of Matra Espace, now Matra Marconi Space. From 1993 to 1994, he ran the office of Gérard Longuet, Minister for Industry, Postal Services and Communications and Foreign Trade. In 1995, he was appointed Chairman & Chief Executive Officer of Matra Communication. In 1998, he joined Oddo & C^e as Chief Executive Officer then Managing Partner. In summer 2002, Jean-Bernard Lévy joined Vivendi. He served as its Chief Executive Officer until April 2005 and became Chairman of its Management Board in April 2005, until June 2012. From December 2012 to November 2014, he was Chairman & Chief Executive Officer of the Thales defence and aerospace group. EDF director since 23 November 2014, Jean-Bernard Lévy has been the Company's Chairman & Chief Executive Officer since 27 November 2014.

Offices and positions held during 2016

Principal position held within the Company

- Chairman and Chief Executive Officer of EDF

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>	
Chairman and Chief Executive Officer	EDF	France	L
Chairman of the Board of Directors	Edison	Italy	G/L
Chairman of the Board of Directors	EDF Energy Holdings	United Kingdom	G
Chairman of the Board of Directors	EDF Foundation	France	G
Director	Dalkia	France	G
Director	EDF Énergies Nouvelles	France	G
Director	Société Générale	France	L
Deputy Chairman of the Board of Directors	Eurelectric	Belgium	
Representative of EDF	French High Committee for Transparency and Information on Nuclear Safety	France	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- Chairman and Chief Executive Officer of Thales
- Chairman and Chief Executive Officer of SFR
- Chairman of the Board of Directors of Institut Mines Télécom (formerly Institut Télécom)
- Chairman of the Board of Directors of Institut Télécom
- Chairman of JBL Consulting & Investments
- Chairman of the Supervisory Board of Viroxis
- Chairman of the Management Board of Vivendi
- Chairman of the Supervisory Board of Canal+ Group
- Chairman of the Supervisory Board of Canal+ France
- Deputy Chairman of GIFAS (French Aerospace Industries Association)
- Director of DCNS
- Director of Institut Pasteur
- Director of Vinci

Abroad

- Chairman of the Board of Directors of Activision Blizzard
- Chairman of the Board of Directors of Global Village Telecom (Holding) GVT
- Deputy Chairman of the Supervisory Board of MarocTelecom

(1) Mr. Jean-Bernard Lévy was appointed temporary Chairman & Chief Executive Officer from 23 November 2014, by ministerial decisions of 21 November 2014.

Olivier APPERT, 67 years old*Position held within the Company*

Director appointed by the General Shareholders' Meeting on recommendation from the French state

Date of appointment to the Board

17 June 2013

Last re-elected

23 November 2014

Expiry of current term

General Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Nuclear Commitments Monitoring Committee and the Strategy Committee

Shares held

0

Nationality

French

A former student of the École polytechnique and a Corps des Mines engineer, Olivier Appert began his career at the Service des Mines in Lyon. After having held a range of positions at the Ministry for Industry and the Prime Minister's office, he was then appointed Deputy Director of the office of the Minister for Industry from 1984 to 1986. In 1987 he became director of strategy at Télécommunications Radioélectriques & Téléphoniques (TRT). Appointed in 1989 as Director of Hydrocarbons at the Ministry for Industry, in 1994 Olivier Appert joined the General Directorate of IFP where he was in charge of research and development. In 1998, he became Chief Executive of Isis, a technological holding whose majority shareholder was IFP. In 1999, he became Director of Long-Term Cooperation and Analysis of Energy Policies at the International Energy Agency (IEA). From 2003 to 2015, he was Chairman and Chief Executive Officer of IFP, which became IFP Énergies Nouvelles (IFPEN) in July 2010. Olivier Appert has been general representative of the National Academy of Technologies of France since March 2015 and is also Chairman of the French Energy Council since 2010, Chairman of France Brevets since December 2016 and has been a director of EDF since June 2013.

Offices and positions held during 2016*Principal positions held outside the Company*

- General representative of the National Academy of Technologies of France
- Chairman of the French Energy Council

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
General representative	National Academy of Technologies of France	France
Chairman	French Energy Council	France
Chairman of the Board of Directors	France Brevets	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years*In France*

- Chairman & Chief Executive Officer of IFP Énergies Nouvelles
- Director of CGG
- Director of the *Institut de physique du globe de Paris* (Paris Institute of Earth Physics)
- Director of Storengy
- Director of Technip

Philippe CROUZET, 60 years old

Position held within the Company

Director appointed by the General Shareholders' Meeting

Date of appointment to the Board

23 November 2009

Last re-elected

23 November 2014

Expiry of current term

General Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Chairman of the Nuclear Commitments Monitoring Committee and member of the Audit Committee

Shares held

210 shares

Nationality

French

A graduate of the Institut d'études politiques de Paris (Paris Institute of Political Studies) and a former student of the École nationale d'administration, Philippe Crouzet is a former Counsel (Maître des requêtes) at the French Council of State. He spent most of his career at Saint-Gobain, which he joined in 1986. He served successively as Head of Corporate Planning, Chief Executive Officer of Papeteries de Condat, General Manager for Spain and Portugal and Head of the Industrial Ceramics Branch. From 2000 to 2004, he held the position of Vice President for Finance, Purchasing and Information Systems. He was then appointed Group Vice President in charge of the Building Distribution Division, before joining Vallourec, the world leader in steel tubes for the energy markets. He has been a member of the Supervisory Board of Vallourec since April 2008 and became Chairman of the Group Management Board in April 2009. He is also Deputy Chairman of the Institut de l'Entreprise and director of the Théâtre National de l'Opéra-Comique and the Théâtre de la Ville (Paris). Philippe Crouzet has been a Director of EDF since November 2009.

Offices and positions held during 2016

Principal position held outside the Company

- Chairman of the Management Board of Vallourec

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>	
Chairman of the Management Board	Vallourec	France	L
Chairman and Director	Vallourec Tubes	France	
Director	Théâtre National de l'Opéra-Comique	France	
Director	Théâtre de la Ville (Paris)	France	
Deputy Chairman	Institut de l'entreprise	France	
Director	Vallourec Tubos do Brasil SA	Brazil	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- Chairman and member of the Supervisory Board of Vallourec Tubes France
- Director of Vallourec Oil & Gas

Bruno LAFONT, 60 years old*Position held within the Company*

Director appointed by the Shareholders' Meeting

Date of appointment to the Board

20 May 2008

Last re-elected

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Chairman of the Appointments & Remuneration Committee

Shares held

171 shares

Nationality

French

Graduate of the École des hautes études commerciales (HEC) and a former student of the École nationale d'administration (ENA), Bruno Lafont began his career with the Lafarge Group in 1983, serving in several positions in the Corporate Finance Division and internationally. In 1995, he became Group Vice President Finance and joined the Executive Committee. In 1998, he became Chairman of the plaster business. In 2003, he was appointed Group Deputy Chief Executive Officer and then director in 2005. Appointed Chief Executive Officer in 2006, he became Chairman & Chief Executive Officer of Lafarge from 2007 to 2015. He has been Joint Chairman of the Board of LafargeHolcim and Honorary Chairman of Lafarge since July 2015. He has been a Director of ArcelorMittal since 2011 and Director of the AFEP since May 2013. He has been a member of the World Business Council for Sustainable Development (WBCSD) Executive Committee since November 2013 and Chairman of the MEDEF Sustainable Development Centre since February 2014. Bruno Lafont has been a Director of EDF since May 2008.

Offices and positions held during 2016*Principal position held outside the Company*

- Joint Chairman of the Board of LafargeHolcim
- Honorary Chairman of Lafarge

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>	
Co-Chairman of the Board of Directors	LafargeHolcim	Switzerland	L
Chairman and Director	Lafarge Ciments	France	
Director	ArcelorMittal	Luxembourg	L
Director	Association française des entreprises privées (AFEP)	France	
Chairman of the Sustainable Development Centre	MEDEF (Mouvement des entreprises de France)	France	
Member of the Executive Committee	World Business Council for Sustainable Development (WBCSD)	Switzerland	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years*In France*

- Chairman and Chief Executive Officer of Lafarge
- Chairman of the Entreprises pour l'Environnement (EPE) association

Abroad

- Director of Lafarge India (India)
- Director of Lafarge Cement Shui On (China)

Bruno LÉCHEVIN, 65 years old

Position held within the Company

Director appointed by the Shareholders' Meeting on recommendation from the French state

Date of appointment to the Board

6 May 2013

Last re-elected

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Ethics Committee

Shares held

0

Nationality

French

Holder of a postgraduate degree from the Institut d'études politiques in Paris, Bruno Léchevin began his career at EDF and subsequently held various union roles. Federal secretary of the CFDT Gaz-Electricité federation from 1983 to 1988, he was then its General Secretary in 1988 and member of the national board of the CFDT union association from 1988 to 1997 then Secretary of the Chimie-Énergie union from 1997 to 1999. At the same time, he was member of the Haut Conseil du secteur public (High Council of the Public Sector) from 1992 to 1999. Appointed in 2000, for two years, commissioner of the French Energy Regulation Committee, his term of office was extended for six years. General Representative of the French National Energy Mediator from March 2008 to March 2013, he was at the same time Special Advisor to the Chairman of the French Energy Regulatory Commission. Bruno Léchevin is also Deputy Chairman, founder member of Électriciens sans frontières (Electricians without borders), an organisation that works to provide access to energy and water in developing countries. Its principal areas of intervention are energy markets, regulation, energy efficiency, energy management, the environment, and protecting energy consumers. Appointed as a member of the Board of Directors of the French Environment and Energy Management Agency (ADEME) in February 2013, he became its Chairman in March 2013. Bruno Léchevin is also Chairman of the National Fuel Poverty Monitoring Center (Observatoire national de la précarité énergétique) since June 2016. He has been a Director of EDF since May 2013.

Offices and positions held during 2016

Principal position held outside the Company

- Chairman of the French Environment and Energy Management Agency (ADEME)

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
Chairman	ADEME	France
Deputy Chairman	Électriciens Sans Frontières	France
Chairman	National Fuel Poverty Monitoring Center (Observatoire national de la précarité énergétique)	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- General Representative to the French national energy mediator
- Special advisor to the Chairman of the CRE (French Energy Regulatory Commission)

Marie-Christine LEPETIT, 55 years old**Position held within the Company**

Director appointed by the Shareholders' Meeting on recommendation from the French state

Date of appointment to the Board

7 May 2012

Last re-elected

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Chair of the Audit Committee and member of the Nuclear Commitments Monitoring Committee

Shares held

0

Nationality

French

A former student of the École polytechnique and the École nationale d'administration (ENA), Marie-Christine Lepetit joined the Inspectorate General of Finance in 1987, where she held auditing and advisory positions. In 1991, she was recruited by Jean Lemierre to the Directorate General for Tax in order to introduce management control. In 1995, she was placed in charge of synthesis work at the tax law department before joining the office of the Prime Minister, Alain Juppé, as technical advisor in tax matters and macroeconomic studies then taxation and SMEs from 1995 to 1997. She continued her career at the General Directorate for Tax, working to improve service quality (pre-filled tax returns, remote procedures, certification). She was appointed Director of Tax Law at the Ministry for the Economy and Finance in 2004 and used this role to push through tax reforms from 2004 to 2012. At the same time, she co-chaired the working group on reform of the financing of social welfare in 2006 and co-signed the report by the conference of experts on the "energy-climate contribution" chaired by Michel Rocard. She also sat on the Local Authorities Reform Committee chaired by Edouard Balladur as executive director and was a member of the Public Life Renewal and Ethics Committee chaired by Lionel Jospin. Head of the Inspectorate General of Finance at the Ministry for the Economy, Industry and Digital Affairs and the Ministry for Finance and Public Accounts since March 2012. She has been director of the Établissement public de la Réunion des Musées Nationaux et du Grand Palais des Champs-Élysées since 2015. Marie-Christine Lepetit has been a Director of EDF since May 2012.

Offices and positions held during 2016**Principal position held outside the Company**

- Head of the Inspectorate General of Finance at the Ministry for the Economy, Industry and Digital Affairs and the Ministry for Finance and Public Accounts

Office / Position	Name	Country
Director	Établissement public de la Réunion des Musées Nationaux et du Grand Palais des Champs-Élysées	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years**In France**

- Director of the *Fondation nationale des sciences politiques*

Colette LEWINER, 71 years old

Position held within the Company

Director appointed by the Shareholders' Meeting

Date of appointment to the Board

11 April 2014

Last re-elected

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Chair of the Ethics Committee and member of the Audit Committee and Appointments & Remuneration Committee

Shares held

1,807 shares ⁽¹⁾

Nationality

French

A former student of the École normale supérieure and holder of an Agrégation degree in physics and Doctorate in science, Colette Lewiner joined Électricité de France in 1979. In 1989 she created the Development and Commercial Strategy Division, accordingly becoming the first woman appointed Executive Officer at EDF. From 1992 to 1998, she was Chair and Chief Executive Officer of SGN, a subsidiary of AREVA. In 1998, she joined Capgemini to create then manage until in June 2012 the Global Energy and Utilities sector. Since July 2012, she has been, as Manager of Cowin, a Consultant in the energy field. Non-executive Chair of TDF (SAS) from 2010 to 2015, she is a member of the National Academy of Technologies of France since 2002 and has been a member of the Strategic Research Committee reporting directly to the French Prime Minister since February 2014. She is a director of Bouygues group as well as Eurotunnel, Nexans and Ingenico. Colette Lewiner has been a Director of EDF since April 2014.

Offices and positions held during 2016

Principal position held outside the Company

- Professional Director

Office / Position	Name	Country	
Director	Bouygues	France	L
Director	Nexans	France	L
Director	Eurotunnel	France	L
Director	Ingenico	France	L

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- Chair of the Board of Directors of TDF
- Director of Lafarge

Abroad

- Director of Crompton Greaves (India)
- Director of TGS Nopec (Norway)

(1) Shares held directly and through a mutual fund.

Christian MASSET, 60 years old*Position held within the Company*

Director appointed by the Shareholders' Meeting on recommendation from the French state

Date of appointment to the Board

26 September 2014

Last re-elected

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Strategy Committee

Shares held

0

Nationality

French

A former student of the École nationale d'administration (ENA), graduate from the Institut d'études politiques (IEP) in Paris and the École supérieure des sciences économiques et commerciales (ESSEC), Christian Masset began his career at the Political Affairs Division of the Ministry for Foreign Affairs in 1984. In 1987, he was appointed First Secretary to the French Embassy in London, before joining, in 1989, the Economic Affairs Division of the Ministry for Foreign Affairs in Paris. From 1991 to 1994, he was Chief Advisor to the French Embassy in Pretoria, then, from 1994 to 1997, Advisor to the French permanent representation to the European Union. From 1997 to 1999, he served as Technical Advisor to the office of the Minister for Foreign Affairs. Diplomatic advisor at the French Embassy in Rome between 1999 and 2002, he was France's deputy permanent representative to the European Union between 2002 and 2007, then was appointed Director of Economic and Financial Affairs at the Ministry for Foreign Affairs. In 2009, he was appointed Director of the General Directorate for Globalisation, Development and Partnerships. Accordingly, he held, among others, the position of Chairman of the Board of Directors of the Agency for French Education Abroad as well as the public interest group France Coopération Internationale. From January 2012 to July 2014, he was French Ambassador to Japan. Since 1 August 2014, he has been General Secretary at the Ministry for Foreign Affairs and International Development. Christian Masset has been a Director of EDF since September 2014.

Offices and positions held during 2016*Principal position held outside the Company*

- General Secretary at the Ministry for Foreign Affairs and International Development

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>	
Director	AREVA	France	L
Director	France Médias Monde	France	
Director	Agence nationale des titres sécurisés (French national agency of secure shares)	France	
Director	Commission de récolement des dépôts d'œuvres d'art (Commission for the Verification of the Registration of Works of Art)	France	
Director	Établissement de préparation et de réponse aux urgences sanitaires (Organisation for preparing for and responding to health emergencies)	France	
Director	École nationale d'administration (ENA)	France	
Director	Institut français	France	
Member	Comité de l'énergie atomique (French atomic energy board) (CEA)	France	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years*In France*

- Member of the Supervisory Board of AREVA

Laurence PARISOT, 57 years old

Position held within the Company

Director appointed by the Shareholders' Meeting

Date of appointment to the Board

23 November 2014

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Audit Committee and Strategy Committee

Shares held

100

Nationality

French

Holder of a Masters in public law from Université Nancy II, graduate from the Institut d'études politiques (IEP) and holder of a MAS. in Political Studies from the IEP, Laurence Parisot began her career in 1983 working with Alain Lancelot, Chairman of CEVIPOF (Centre for the Study of French Political Life). In 1985, she became survey manager at the Louis Harris Survey Institute, of which she became Chief Executive Officer in 1986. In 1990, she joined the IFOP Survey and Market Study Institute and was appointed as its Chair & Chief Executive Officer, and then Deputy Chair of its Management Board from 2006 to 2016. She was Chair of MEDEF from 2005 to 2013. She is now Associate Director of the Gradiva consulting firm. She is also a director of BNP Paribas, member of the Board of Directors of the FNSP, and she chairs the Scientific Board of Fondapol. Laurence Parisot has been a Director of EDF since November 2014.

Offices and positions held during 2016

Principal position held outside the Company

- Associate Director of the Gradiva consulting firm

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>	
Manager	Gradiva	France	
Director	BNP-Paribas	France	L
Chair of the Scientific Committee	Fondapol	France	
Director	Fondation Nationale des Sciences Politiques (FNSP)	France	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- Deputy Chair of the Management Board of the IFOP group
- Director of Coface
- Member of the Supervisory Board of Fives
- Member of the Supervisory Board of Michelin

Claire PEDINI, 51 years old*Position held within the Company*

Director appointed by the Shareholders' Meeting

Date of appointment to the Board

12 May 2016

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2019

Other position(s)

Member of the Ethics Committee

Shares held

0

Nationality

French

Claire Pedini is a graduate of the École des hautes études commerciales and holds a Master's degree in media management from the École supérieure de commerce de Paris. In 1988, she joined Total as Corporate Controller. She assumed responsibility for Total's admission to trading on the New York Stock Exchange in 1991, and became President of Investor Relations in 1992, Vice-President of Media Relations in 1994 and President of New Information Technologies in 1999. In 1998, she joined Alcatel as Chief of Financial Information and Shareholder Relations, becoming successively Vice-President, Investor Relations and Public Affairs in 2001, Deputy Chief Financial Officer in 2004, Senior Vice-President, Human Resources and Corporate Communications and member of the Executive Committee in 2006, Senior Vice-President, Human Resources, Corporate Communications and Real Estate in 2007, and Executive Vice-President, Human Resources and Transformation, of Alcatel-Lucent in 2009. Since June 2010, Claire Pedini has served as Senior Vice-President in charge of Human Resources for the Saint Gobain Group. She was a director of Arkema from 2010 to 2016 and has been a director of EDF since May 2016.

Offices and positions held during 2016*Principal position held outside the Company*

- Senior Vice-President in charge of Human Resources for the Saint Gobain Group

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
None		

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years*In France*

- Director of Arkema

Michèle ROUSSEAU, 59 years old

Position held within the Company

Director appointed by the Shareholders' Meeting on recommendation from the French state

Date of appointment to the Board

30 September 2016⁽¹⁾

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Nuclear Commitments Monitoring Committee

Shares held

0

Nationality

French

Michèle Rousseau is a graduate of the École nationale supérieure des Mines de Paris, and is an Ingénieur Général des Mines. She started her career at the Nord-Pas de Calais DRIRE (Regional Directory for Industry, Research and the Environment) as Head of the Environment Division. She went on to join the Ministry of the Environment where she was responsible for waste, and later the Ministry of Industry where she held the post of Deputy Director of the Nuclear Installation Safety Directorate with responsibility for oversight of EDF's nuclear fleet. She then moved to the French research and innovation agency, ANVAR, as Deputy Director General where she conducted policies supporting innovative projects driven by SMEs, and later to the Ministry of Economy, Finance and Industry as Director with responsibility for energy demand and markets. Here, she was tasked in particular with developing a new legislative and regulatory framework in the wake of the opening up of European electricity and gas markets and expanding energy conservation and renewables energies. Michèle Rousseau subsequently returned to the Ministry of Ecology and Sustainable Development, where she held the positions of Secretary General and, in 2008, Director, Deputy Commissioner General for Sustainable Development, with particular responsibility for implementing the Grenelle Environment initiative. In 2011, she was appointed Director General of the Seine-Normandie Water Agency before returning in 2016 to the General Council for Environment and Sustainable Development where she is Chair of the Hauts-de-France Regional Environmental Authority (MRAe). She has been a director of EDF since September 2016.

Offices and positions held during 2016

Principal positions held outside the Company

- Chair of the General Council for Environment and Sustainable Development's Hauts-de-France Regional Environmental Authority (MRAe)

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
None		

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years:

None

(1) The appointment of Mrs. Rousseau shall be submitted for ratification to the General Shareholders' Meeting called for 18 May 2017.

DIRECTOR REPRESENTING THE FRENCH STATE

Martin VIAL, 63 years old*Position held within the Company*

Director – Representative of the French State

Date of appointment to the Board

9 September 2015

Expiry of current term

Shareholders' Meeting called to approve the financial statements for the fiscal year closing 31 December 2018

Other position(s)

Member of the Appointments & Remuneration Committee and Strategy Committee

Shares held

0

Nationality

French

Graduate from the École supérieure des sciences économiques et commerciales (ESSEC) and the École nationale supérieure des postes et télécommunications, Martin Vial began his career as postal services and telecommunications director at the financial division of the General Postal Directorate. In 1986, he joined the Treasury Division at the Ministry for the Economy and Finance. From 1988 to 1993, he was successively Technical Advisor, Deputy Director then Director of the offices of the Minister for Postal Services and Telecommunications and Space, the Ministry for Equipment, Housing, Transport and Space, and finally the Postal Services and Telecommunications Minister. In 1993, Martin Vial was appointed Chairman and Chief Executive Officer of Aéropostale, airline and joint subsidiary of Air France, La Poste and TAT, and he was elected Chairman of the Chambre syndicale du transport aérien (French air transport union) and Fédération nationale de l'aviation marchande (French national commercial aviation union). At the end of 1997, he became Chief Executive Officer of La Poste group. In September 2000, he was appointed Chairman of La Poste group and at the same time Deputy Chairman of the Caisse Nationale de Prévoyance (CNP). Martin Vial joined the French National Audit Office in September 2002 as Chief Advisor. From 2003 to 2014, he was Chief Executive Officer and Director of the Europ Assistance group, world leader on the assistance market and director and Chief Executive Officer of Europ Assistance Holding. He also chairs several boards of directors of this group's companies. In January 2015, he founded the company Premium Care, which provides assistance to the elderly. Commissioner of the French State Shareholdings since August 2015, Martin Vial is a director of Renault, Thales and Bpifrance. He has been a Director of EDF since September 2015.

Offices and positions held during 2016*Principal position held outside the Company*

- Commissioner of the French State Shareholdings

Office / Position	Name	Country	
Director	Renault	France	L
Director	Thales	France	L
Director	Bpifrance	France	

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years*In France*

- Chief Executive Officer and director of Europ Assistance Holding
- Chairman of International Health Solutions
- Chairman of Sicav Libertés et Solidarités
- Director of Hormair Vacances
- Director of Business Solutions Capital

Abroad

- Chairman of Club Santé Afrique (United States)
- Chairman of Europ Assistance Brazil, Belgium, France, UK, USA
- Director of Europ Assistance South Africa, Germany, China, Spain, Italy, Portugal

DIRECTORS ELECTED BY THE EMPLOYEES:

Christine CHABAUTY, 45 years old

Position held within the Company

Director elected by the employees

Date of appointment to the Board

23 November 2009

Last re-elected

23 November 2014

Expiry of current term

22 November 2019

Other position(s)

Member of the Ethics Committee

Shares held

0

Nationality

French

Graduate in Law, Christine Chabauty gained professional experience in a legal environment and in 2000 joined EDF's Trading Department as commercial attaché to the Key Accounts department. She now works for the Key Accounts Division's Marketing and Trading Department. Since December 2008, she has also served as a member of an elected industrial tribunal (conseiller prud'hommal). Sponsored by the CGT union, Christine Chabauty has been a Director of EDF since November 2009.

Offices and positions held during 2016

Principal position held outside the Company

- Commercial attaché to the EDF Trading Division Key Accounts department

Office / Position	Name	Country
Member of an elected industrial tribunal (conseiller prud'hommal)	Conseil de Prud'hommes (Industrial Tribunal)	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

None.

Jacky CHORIN, 57 years old

Position held within the Company

Director elected by the employees

Date of appointment to the Board

23 November 2014⁽¹⁾

Expiry of current term

22 November 2019

Other position(s)

Member of the Audit Committee, Strategy Committee, and Ethics Committee

Shares held

259 shares⁽²⁾

Nationality

French

A graduate from the Institut d'études politiques (IEP) in Paris and a Doctor of Law, Jacky Chorin began his career at EDF as a legal specialist at the Corporate Office of the Equipment Division in 1983. He is currently representative of the Human Resources Manager at the EDF Nuclear and Division. He was a member of the French National Ecological Transition Council from 2014 to 2016 and has been a member of the French Higher Energy Council since 2012. Sponsored by the Force Ouvrière (FO) trade union, Mr. Chorin was a director of EDF from September 2004 to November 2009, and was re-elected Director of EDF in November 2014.

Offices and positions held during 2016

Principal position held outside the Company

- Representative of the Director of Human Resources at the EDF Nuclear and Thermal Division.

Office / Position	Name	Country
Member	French Higher Energy Council	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- Member of the French National Ecological Transition Council
- Member of the Economic, Social and Environmental Council
- Representative of the Force Ouvrière trade union to the Board of IRES (French institute for economic and social research), a multi-union research body reporting to the French Prime Minister
- Federal Secretary of the FO *Énergies & Mines* trade union, in charge of the Skills Centre

(1) Jacky Chorin was previously director of EDF (EPIC then SA) from September 2004 to November 2009.

(2) Shares held through a mutual fund.

Marie-Hélène MEYLING, 56 years old*Position held within the Company*

Director elected by the employees

Date of appointment to the Board

1 September 2011

Last re-elected

23 November 2014

Expiry of current term

22 November 2019

Other position(s)

Member of the Audit Committee, Nuclear Commitments Monitoring Committee, Strategy Committee, and Ethics Committee

Shares held

28 shares

Nationality

French

Graduate in communication (Université Paris V), Marie-Hélène Meyling joined EDF in 1982 where she has held a range of communication positions. She then focused on activities relating to the opening of the electricity market as well as support for renewable energy. From 2008 to 2011, she was a member of the EDF Central Works Council. She is currently Senior Engineer at the EDF Innovation, Strategy and Planning Division. In November 2012, Marie-Hélène Meyling also obtained the Company Director Certificate jointly issued by the IEP and the Institut français des administrateurs (French Institute of Directors). Sponsored by the CFDT trade union, Marie Hélène Meyling has been a Director of EDF since September 2011.

Offices and positions held during 2016*Principal position held outside the Company*

- Senior Engineer at the EDF Innovation, Strategy and Planning Division.

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
Representative of employees in the Electricity and Gas Industries for the CFDT union	French Higher Energy Council (CSE)	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

None.

Jean-Paul RIGNAC, 54 years old*Position held within the Company*

Director elected by the employees

Date of appointment to the Board

1 November 2007

Last re-elected

23 November 2014

Expiry of current term

22 November 2019

Other position(s)

Member of the Strategy Committee

Shares held

0

Nationality

French

Holder of a doctorate in energy from the Institut National Polytechnique in Toulouse, Jean-Paul Rignac joined EDF in 1991. He served as secretary of EDF Research & Development's joint generation committee for five years. He is now a research engineer at EDF's Research & Development Division (Renardières Centre), and currently works on energy efficiency in industrial buildings. Sponsored by the CGT union, Jean-Paul Rignac has been a Director of EDF since November 2007.

Offices and positions held during 2016*Principal position held outside the Company*

- Research Engineer at the EDF Research and Development Division

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
None.		

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

None.

Christian TAXIL, 41 years old

Position held within the Company

Director elected by the employees

Date of appointment to the Board

23 November 2014

Expiry of current term

22 November 2019

Other position(s)

Member of the Audit Committee and Strategy Committee

Shares held

1,090 shares ⁽¹⁾

Nationality

French

Graduate from the ESCP Europe School, holding an Executive MBA diploma, and from the École des Mines in Douai, Christian Taxil began his career in 1997 at EDF Gaz de France Distribution in customer, local authority and concession management positions. From 2004 to 2008, he was in charge of electricity and gas industry social dialogue on the Fédération CFE-CGC Énergies union's management team. In 2008, he began work at the EDF group Auditing Division before being elected, from June 2009 to September 2014, General Secretary of the Fédération CFE-CGC Énergies union. Sponsored by the CFE-CGC trade union, Christian Taxil has been a Director of EDF since 23 November 2014.

Offices and positions held during 2016

Principal position held outside the Company

- Representative of the Human Resources Division

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
Elected representative	Board of the <i>Syndicat mixte d'électricité, de gaz et de télécommunications du Val-d'Oise (SMDEGTVO)</i>	France

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

In France

- General secretary of the Fédération CFE-CGC Énergies union
- Local councillor in Courdimanche (95)

(1) Shares held through a mutual fund.

Maxime VILLOTA, 57 years old

Position held within the Company

Director elected by the employees

Date of appointment to the Board

5 December 2006

Last re-elected

23 November 2014

Expiry of current term

22 November 2019

Other position(s)

Member of the Audit Committee, Nuclear Commitments Monitoring Committee, and Appointments & Remuneration Committee

Shares held

38 shares ⁽¹⁾

Nationality

French

Maxime Villota began his career at EDF in 1981 at the Dampierre-en-Burly nuclear power plant (CNPE), before joining the Tricastin nuclear power plant in 1987, where he is currently purchasing policy coordinator. He is a member of the Fédération CGT Mines Énergie trade union. Sponsored by the CGT union, Maxime Villota has been a Director of EDF since December 2006.

Offices and positions held during 2016

Principal position held outside the Company

- Purchasing policy coordinator at the finance and industrial relations department of the EDF nuclear power plant (Tricastin)

<i>Office / Position</i>	<i>Name</i>	<i>Country</i>
None.		

G: EDF group company – L: listed company.

Expired offices held outside the Company over the past five years

None.

(1) Shares held through a mutual fund.

4.2.2 FUNCTIONING OF THE BOARD OF DIRECTORS

The internal rules of procedure of the Board of Directors set the principles of its functioning and the terms and conditions according to which the Board and its specialised committees fulfil their duties. It also defines the role and powers of the Chairman and Chief Executive Officer.

The Board's internal rules of procedure are regularly updated, particularly to take account of legislative and regulatory changes and changes to the AFEP-MEDEF Code (see section 4.1 "Corporate Governance Code").

4.2.2.1 Term of office of directors

In accordance with the option provided by the aforementioned order of 20 August 2014, the EDF General Shareholders' Meeting held on 21 November 2014 modified the Company's articles of association and reduced the term of office of the directors to four years. As an exception, the articles of association state that the first term of office of the directors representing the employees that came into effect after the Shareholders' Meeting held on 21 November 2014 shall be five years and that the term of office of the directors appointed by the Shareholders' Meeting held on 21 November 2014 shall expire at the end of the Shareholders' Meeting called to approve the financial statements for the fiscal year ending 31 December 2018.

In accordance with the provisions of Article 2 of Decree no. 2014-949 of 20 August 2014 regarding the implementation of the order of 20 August 2014, the Representative of the French State is appointed for a term equal to the term of office of the members of the Board of Directors.

The directors appointed by the Shareholders' Meeting can be dismissed at any time by the Shareholders' Meeting. In accordance with Article 12 of the Law on the democratisation of the public sector, the directors elected by the employees can be individually dismissed for gross negligence in the exercise of their duties by order of the Presiding Judge at the District Court delivered at summary proceedings upon request from the majority of the members of the Board. However, in the event that serious dissent disrupts the Company's administration, dismissal pronounced by the Shareholders' Meeting can be extended to representatives of the employees. The Representative of the French State ceases their duties by resigning or if they lose the capacity by virtue of which they were appointed; they can be replaced at any time for the remainder of the term of office.

4.2.2.2 Obligations and duties of directors

The internal rules of procedure of the Board of Directors state that its members are subject to obligations such as: acting in the corporate interest of the Company, informing the Board of situations of conflict of interest (see also section 4.4.3 "Conflicts of interest"), and refraining from contributing to the discussions and voting on any decision in which there might be a conflict of interest, fulfilling the obligation of confidentiality and complying with the EDF Stock Exchange Code of Ethics.

Members of the Board and the Chairman and Chief Executive Officer are required to immediately inform the Board of any agreement entered into by the Company in which they hold a direct or indirect interest, or which might be entered into through an intermediary.

Each director receives a directors' guide, which is regularly updated and specifically contains the following documents: the Company's articles of association, the internal rules of procedure of the Board of Directors and

its Committees, the Stock Exchange Ethics Code (see section 4.5.2 "Trading in Company securities", below), Group Ethics & Compliance Policy, Group Corporate Responsibility Objectives and the AFEP-MEDEF Code of Corporate Governance and the implementation guides of the High Committee for Corporate Governance (HCGE).

4.2.2.3 Method of Executive Management – Appointment and powers of the Chairman & Chief Executive Officer

In accordance with the option provided for in Article 18 of the Order of 20 August 2014, EDF's articles of association state that the Chairman of the Board of Directors is the Executive Manager of the Company and holds the title of Chairman and Chief Executive Officer. The "non-separated" executive management structure is therefore set out in the Company's articles of association. The Board's internal rules of procedure, and in particular the limitations it applies to the powers of the Chief Executive Officer, ensure a satisfactory balance, in the Company's interest, between the Chairman and Chief Executive Officer and the Board of Directors, whilst preserving the flexibility, effectiveness and responsiveness necessary in the administration and management of the Company.

EDF's Chairman and Chief Executive Officer is appointed by decree of the President of the Republic of France, on recommendation from the Board of Directors. They can be dismissed by decree in accordance with Article 20 of the Order of 20 August 2014. In accordance with the provisions of Article 13 of the French Constitution, the Chair is appointed based on the candidates' interviews and the opinion of the permanent committees of the French National Assembly and Senate. Mr. Jean-Bernard Lévy was appointed following this process as Chairman and Chief Executive Officer of EDF by Decree of 27 November 2014.

In case of vacation of the office of Chairman and Chief Executive Officer, Article 21 of the Order of 20 August 2014 states that the French state can appoint someone to the role temporarily until the appointment of the new Chairman and CEO¹.

Subject to the specific legal provisions governing public sector companies and the powers specifically reserved by law or by the articles of association to the Board of Directors or to Shareholders' Meetings, and the limits to the powers of the Chairman and Chief Executive Officer provided for by the internal rules of procedure of the Board of Directors as internal rules (see section 4.2.2.4 "Powers and duties of the Board of Directors" below), the Chairman and Chief Executive Officer is vested with the most extensive powers to act on behalf of the Company under all circumstances, within the limits of the corporate purpose. The Chairman and Chief Executive Officer organises and supervises the work of the Board of Directors and reports to the Shareholders' Meeting. They oversee the proper running of the Company's bodies and, in particular, ensure that the directors are in a position to fulfil their duties.

4.2.2.4 Powers and duties of the Board of Directors

In accordance with the law, the Board of Directors sets the strategies for the Company's activities and oversees their implementation. It defines the major strategic, economic, financial and technological objectives for the Company and the Group. Subject to powers expressly attributed to the Shareholders' Meetings and as limited by the Company's corporate purpose, the Board may consider any question relating to the proper running of the Company and acts, through its deliberations, on any such issue.

1. In accordance with this text, Mr. Jean-Bernard Lévy had been appointed, by ministerial decisions of 21 November 2014, temporary Chairman and Chief Executive Officer of the Company from 23 November 2014.

In accordance with its internal rules of procedure, the Board of Directors alone is competent to authorise the following transactions:

- transactions of external or internal growth or disposals involving a financial exposure for the Company exceeding €350 million; this threshold falls to €150 million for acquisitions not in line with the Company's strategic objectives; prior authorisation from the Board of Directors is required for these same transactions, and according to the same thresholds, when they are carried out by a company controlled exclusively by the Company;
- coherent and inseparable industrial transactions and programmes of investments or works on existing assets exceeding €350 million per programme;
- real-estate transactions exceeding €200 million;
- certain financial transactions, whenever their amount exceeds a value set each year by special decision of the Board; for the 2016 fiscal year, the Board set: (i) at €1.5 billion, the total authorised budget for sureties, endorsements or guarantees (the Chairman and Chief Executive Officer reports to the Board on any transaction of this kind that exceeds €100 million, granted on behalf of the Company or by a company controlled by the Company) and (ii) at €5 billion, the individual unit amount of certain financial transactions according to an annual global limit set at €15 billion. For 2017, the Board of Directors decided to maintain the same authorisation limits;
- contracts (supplies, work or services with or without financial commitment) involving amounts, including any necessary subsequent amendments, equal to or exceeding €350 million, or between €200 million and €350 million if these contracts relate to a new strategic direction or a new business line for the Group; the Board is also informed of amendments signed on contracts that it authorised that result in increasing the value of the initial contract by more than 30% or by more than €350 million;
- long-term contracts for the purchase or sale of energy, CO₂ emission credits and quotas, by the Company or by a company it exclusively controls, for annual volumes or amounts in excess of 10TWh for electricity, 20TWh for gas (detailed information must also be provided on long-term gas purchase or sale agreements greater than 5TWh and less than 20TWh at the meeting of the Board of Directors following their signing) and €250 million for coal and CO₂;
- strategies relating to upstream and downstream operations of the nuclear fuel cycle;
- strategies relating to gas purchases;
- operations involving the transfer of obligations relating to decommissioning or downstream processes of the nuclear fuel cycle;
- strategic agreements constituting firm and irrevocable commitments relating to cooperation or partnerships with one or more foreign partners, in the nuclear industry involving significant transfers of intellectual property or technologies on the Group's part and constituting major challenges for the Group.

The Board of Directors sets the framework of the policy for the constitution, management and risk management of assets for hedging EDF's nuclear commitments, specifically ruling on asset/liability management, asset allocation strategy, asset quality and the method of selecting any financial intermediaries. If the Nuclear Commitments Monitoring Committee issues a negative opinion on a plan for investment in unlisted assets for dedicated assets, the Board of Directors has sole authority to authorise the aforementioned plan (see section 4.2.3.2 "Nuclear Commitments Monitoring Committee"). The Board set limits on market, counterparty and liquidity risks.

Furthermore, in accordance with the provisions of Article L. 225-37-1 of the French Commercial Code, the Board of Directors deliberates annually on the Company's policy in terms of equal access to employment and equal pay and defines annually the Company's strategic aims drawn up with a

view to consultation of the EDF Central Works Council in accordance with Article L. 2323-10 of the French Labour Code.

4.2.2.5 Evaluation of director independence

The AFEP-MEDEF Corporate Governance Code recommends that, in companies with a controlling shareholder, the proportion of independent directors should be at least one third of the Board of Directors and specifies that directors representing employees are not taken into account to calculate the proportion of independent directors.

Given the specific legal framework applicable to the Company, the Board of Directors has, out of a total of eighteen members, one representative of the French state who cannot meet the independence criteria defined by the AFEP-MEDEF code, as well as six directors representing the employees who are not taken into account to calculate the proportion of independent directors. Likewise, the Chairman and Chief Executive Officer in his capacity as Executive Officer cannot be considered as independent as regards the criteria defined by the AFEP-MEDEF code.

At a joint meeting on 13 January 2017, the Ethics Committee and Appointments & Remuneration Committee examined the individual situations of directors appointed by the Shareholders' Meeting. Upon recommendation from these Committees, at its meeting on 24 January 2017, the Board of Directors conducted the annual evaluation of the independence of the directors based on the criteria defined by the AFEP-MEDEF corporate governance code, and classified Mrs. Colette Lewiner, Laurence Parisot and Claire Pedini as well as Messrs. Philippe Crouzet and Bruno Lafont as independent directors, as the Board deemed that these directors had no relations with the Company, its Group or its Management that might compromise the exercise of their freedom of judgment.

In particular, the Ethics Committee and the Appointments & Remuneration Committee examined any business ties that might exist between the Company and companies at which the directors hold offices, as well as groups to which they belong, on a quantitative level, via the importance of any business relations existing between the Company and these companies (and their groups) and sales and billing invoices between them recorded in the course of the 2016 fiscal year, and on a qualitative level (type and continuity of the relation, director's position in the companies in question, any economic dependence, exclusivity, etc.). The Board of Directors particularly observed based on rankings of the Group's clients and suppliers that none of these companies could be classified as a significant Group client or supplier. Following this analysis, the Board concluded on the absence of significant business ties involving the directors that it classified as independent.

On the date of this reference document, the Company's Board of Directors therefore features five independent directors out of the twelve taken into account to make the calculation in accordance with the AFEP-MEDEF code, *i.e.* a proportion of independent directors of 41.7%, higher than the recommendations of the code (see section 4.2.1 "Members of the Board of Directors").

4.2.2.6 Evaluation of the functioning of the Board of Directors and its Committees

In accordance with the provisions of the AFEP-MEDEF code, the Board's internal rules of procedure state that the Ethics Committee supervises annually an evaluation of the functioning of the Board of Directors and propose areas for improvement. Once a year, therefore, the Board dedicates one item on its agenda to this evaluation and holds a discussion on its functioning and that of its Committees in order to improve its efficiency and ensure that important issues are appropriately prepared and discussed.

Furthermore, every three years, this evaluation is conducted by an external consultant under the supervision of the Ethics Committee.

Annual evaluation

In 2015, the annual evaluation was carried out internally via a detailed questionnaire, reviewed by the Ethics Committee before being sent to directors. Including both closed-ended questions, enabling statistical monitoring of the answers provided by directors, and open-ended questions, enabling directors to give detailed answers, provide qualitative observations and propose changes, this questionnaire is filled in anonymously by directors then analysed by the Board's Secretariat. This evaluation particularly covers the following fields:

- organisation of meetings of the Board of Directors and meetings of the Committees (number and duration, document sending deadlines, etc.);
- areas of expertise and working methods of the Board (organisation and quality of discussions, follow-up of decisions) and of the Committees;
- members of the Board of Directors;
- relations between the Board and the Chairman and Executive Management;
- information made available to the directors.

The 2015 results, reviewed by the Ethics Committee on 8 December 2015 and presented to the Board on 9 December 2015 showed that the directors were generally satisfied with the functioning of the Board and of the Committees. The directors considered particularly that the quality of the presentations and the discussions as well as the work of the Committees contributed to providing the information they need to vote. The number of meetings and their duration, the work programme as well as the balance of powers between the Chairman & Chief Executive Officer and the Board were deemed satisfactory. The directors considered that they had sufficient access to the Chairman & Chief Executive Officer and to the other members of the Company's Management. They particularly appreciated the holding in 2015 of an annual seminar devoted to strategy and considered the work of the workgroup consisting of independent directors as part of the project for the acquisition by EDF of the exclusive control of the activities of AREVA NP to be useful (see section 4.2.2.8 "Activity of the Board of Directors in 2016").

The areas for improvement identified principally concerned the time spent by the Board on examining certain issues and the membership of the Board. The Ethics Committee accordingly presented to the Board the following proposals: adding to the 2016 work programme of the Board and of the Committees, taking account of the expectations stated, reducing the length of the presentations in order to ensure better balance between presentations and discussions and reviewing the membership of the Board, particularly with the aim of achieving in 2017 a proportion of 40% women on the Board, in accordance with the law, and increasing if applicable the number of independent directors. These proposals were monitored and implemented in 2016 (see sections 4.2.2.5 "Evaluation of director independence" and 4.2.1 "Members of the Board of Directors").

Three-yearly evaluation

As the last external evaluation was conducted in 2013, the 2016 evaluation was conducted by a specialist external firm, selected following a call for tenders, under the supervision of the Ethics Committee. The evaluation was conducted, at the end of 2016 and the start of 2017, via in-depth interviews with each of the directors based on a questionnaire and an interview guide prepared by the specialist firm with the Chair of the Ethics Committee.

Accordingly and for the first time, the analysis of the individual contribution of each director to the Board's work was also conducted.

As of the date of filing of this reference document, the three-yearly evaluation is still in progress.

4.2.2.7 Information and training of directors

Under the terms of the Board's internal rules of procedure, it periodically receives information on the financial, treasury and commitments position of the Company and the Group, as well as information such as the financial balance sheet for agreements approved by the Company for the purchase of nuclear fuels, a performance review of the Company's principal subsidiaries on the occasion of the presentation of the annual and semi-annual financial statements, sales policy, purchasing and subcontracting policy and human resources policy. The Board of Directors is informed of changes to the Company's markets, competitive environment and main challenges, including in the field of social and environment responsibility.

A document reviewing the Group's current major sectors of business and the market trends, as well as the economic, financial and institutional context is regularly submitted to the Board of Directors.

The principal events relating to the Company occurring between two meetings of the Board as well as the monitoring of the decisions taken by the Board of Directors are reported to the directors.

The directors can add to this information by meeting with the principal executives of the Company or Group.

In addition, information meetings are organised on complex matters or issues of major strategic importance, together with any training requested by members. Accordingly, the directors elected by the employees can be trained in business management and the Company's specific industrial and operational characteristics, which can be extended to other directors.

4.2.2.8 Activity of the Board of Directors in 2016

The Board of Directors meets as often as the interest of the Company requires, in accordance with applicable legislative and regulatory provisions.

Over the 2016 fiscal year, the Board of Directors met fifteen times and twenty-seven Committee meetings were held to prepare for these meetings. The directors also met once for a one-day strategic seminar.

Board meetings lasted an average of three hours, allowing for an in-depth review and discussion of the items on the agenda.

The average attendance rate for directors at the meetings of the Board was 92.8% in 2016.

In 2016, the Board of Directors examined and/or authorised, in addition to items relating to the Company's regular business, issues such as the Group's financial trajectory, the project for the development of two EPRs on the Hinkley Point site in the United Kingdom, the issues linked to the extension to 50 years of the amortization period of the 900MW power plants, EDF's project for acquisition of exclusive control of AREVA NP's activities, discussions with the French state regarding the draft compensation agreement relating to the Fessenheim power plant, the project for the disposal by EDF of a 49.9% shareholding in the capital of RTE, the investment programme regarding the extension of the lifespan of the nuclear power plants (Hartlepool, Heysham 1, Heysham 2 and Torness) in the United Kingdom, the disposal by EDF International of its Hungary subsidiary EDF Démász ZRt, the progress of the deployment of the Linky project and the launch of the second phase of the project, the project for the reduction of EDF Trading's coal and freight activities, the Group's Gas strategy and procurement strategy, the response of the Board of Directors to the alternative strategic aims proposed by the EDF Central Works Council in accordance with Article L. 2323-10 of the French Labour Code (2015 consultation), as well as EDF's strategic aims with a view to the 2016 consultation of the Central Works Council, EDF's response to the economic alert procedure introduced in December 2015 by the Central Works Council, the procedure for prior approval by the Audit Committee regarding the supplying by the Auditors and their network of non-auditing services, the reports of the Inspector General on nuclear safety and radiation protection and the Inspector for hydraulic safety or the EDF equal access to employment and equal pay policy.

The Board of Directors was informed of major themes such as the progress of the Flamanville and Taishan (China) EPR projects, the manufacturing quality issues at the AREVA plants and their impact on the trajectory of nuclear generation or even issues relating to the state of nuclear facilities or the ARENH (regulated access to historical nuclear electricity) scheme against a backdrop of rising wholesale energy market prices.

Finally, at a one-day strategic seminar, the Board examined issues such as the functioning of the short-term electricity market and trends on the medium-term electricity markets, the challenges of regulation of European markets as well as non-business Customer strategy.

Independent directors' work groups – AREVA and Fessenheim projects

Following the discussions held in 2015 between EDF and AREVA on the project for the acquisition by EDF of exclusive control of the activities of AREVA NP, the Board of Directors decided on 8 April 2015 to create a workgroup featuring the independent members of the EDF Board of Directors in accordance with the criteria of the AFEP-MEDEF code. Chaired by Mrs. Colette Lewiner, it also featured Mrs. Laurence Parisot and Messrs. Philippe Crouzet and Bruno Lafont. The aim of this workgroup, in conjunction with EDF's Management, was to examine any project resulting from the discussions between EDF and AREVA, particularly regarding its strategic and industrial interests, its financial results and its social issues. Without replacing the work of the Board of Directors' Committees, or the decision-making processes in place at Board level, the workgroup could make, based on its independent analysis, any useful recommendations to the Board of Directors on the project. Accordingly, it received from the Company the information for it to fulfil its duties and received assistance from an advisory bank, particularly to examine the valuation items, and technical advice from legal advisors. This workgroup, which met several times in 2015 and 2016, issued opinions to the Board of Directors and the Strategy Committee at different stages of the discussions with AREVA.

Furthermore, the Board of Directors also decided, on 3 June 2016, to entrust to a workgroup comprised of independent directors, *i.e.* Mrs. Colette Lewiner, Laurence Parisot and Claire Pedini and Messrs. Philippe Crouzet and Bruno Lafont, the monitoring of the discussions held between EDF and the French state on the Fessenheim power plant, in conjunction with EDF Management, and the examination of the terms and conditions of the compensation agreement to be entered into with the French state with the aim of submitting them, at the appropriate time, for deliberation to the Board of Directors. Accordingly, the workgroup received from the Company the information needed to perform its duties and could contact the relevant stakeholders. It was assisted by an economic and financial advisor and a legal advisor. This workgroup, which met several times in 2016 and 2017, issued an opinion on the draft settlement agreement between the French state and EDF with a view to the meeting of the Board of Directors of 24 January 2017 which deliberated on the matter.

4.2.3 BOARD OF DIRECTORS' COMMITTEES

To perform its duties, the Board of Directors has created five Committees to examine and prepare certain projects before they are presented to the whole Board. These specialised committees are: the Audit Committee, the Nuclear Commitments Monitoring Committee, the Strategy Committee, the Ethics Committee, and the Appointments & Remuneration Committee.

The members, functioning and duties of the Committees are governed by the internal rules of procedure of the Board of Directors.

The Committees include at least three directors chosen by the Board, which appoints the Chair of each Committee. The Company's articles of association state that the Committees include at least one director representing the employees.

On the date of this document, the Chairs of the Board Committees were as follows:

- Mr. Jean-Bernard Lévy for the Strategy Committee;
- Mrs. Marie-Christine Lepetit for the Audit Committee;
- Mr. Philippe Crouzet for the Nuclear Commitments Monitoring Committee;
- Mrs. Colette Lewiner for the Ethics Committee;
- Mr. Bruno Lafont for the Appointments & Remuneration Committee.

The membership of each Committee is described below.

The Government Commissioner and the Head of the French State General Economic and Financial Supervisory Mission to the Company can attend the meetings of these Committees.

The work of the Committees is organised within a program prepared for the year. Meetings are recorded in the form of written minutes and reports, which are submitted by the Committee Chair to the Board of Directors. The length of the meetings allows for an in-depth review and discussion of the matters falling within their remit.

The Board's internal rules of procedure provide for a minimum of three working days between the meeting of the Board of Directors for which the agenda features examination of the items examined by a Committee and the meeting of said Committee, except for meetings of the Appointments & Remuneration Committee, which can be held at any time.

The Committees can request external technical advice and studies on issues falling within their remit, at the Company's expense, after having informed the Chairman and Chief Executive Officer or the Board of Directors of this fact, provided that they report this to the Board.

4.2.3.1 Audit Committee

Functioning and members

The Audit Committee performs, under the supervision of the Board of Directors, the duties entrusted to it in accordance with Article L. 823-19 of the French Commercial Code. This Article states in particular that at least one member of the Committee must have specific skills in financial or accounting matters and be independent based on the criteria defined and made public by the Board of Directors. The AFEP-MEDEF Code also states that the members of the Audit Committee must have specific skills in financial or accounting matters.

The Audit Committee is chaired by Mrs. Marie-Christine Lepetit, director appointed by the Shareholders' Meeting on recommendation from the French state. The other members of the Committee are Mrs. Colette Lewiner and Laurence Parisot and Mr. Philippe Crouzet, independent directors appointed by the Shareholders' Meeting, as well as Mrs. Marie-Hélène Meyling and Messrs. Jacky Chorin, Christian Taxil and Maxime Villota, directors elected by the employees. It therefore includes three independent directors out of the four taken into account to calculate the proportion of independent directors (therefore excluding directors representing the employees), *i.e.* a proportion of three-quarters for a minimum of two-thirds recommended by the AFEP-MEDEF code.

In accordance with the provisions of Article L. 823-19 of the French Commercial Code and the recommendations of the AFEP-MEDEF Code, the Committee does not include any Chairman & Chief Executive Officer.

At the joint meeting of 10 December 2014, the Ethics Committee and the Appointments & Remuneration Committee reviewed the situation of Mrs. Colette Lewiner and Laurence Parisot and Mr. Philippe Crouzet and issued a notice to the Board of Directors. The Board of Directors, meeting on 10 December 2014, noted that Mrs. Colette Lewiner and Laurence Parisot

and Mr. Philippe Crouzet have specific skills in financial and accounting matters according to the criteria recommended by the French Financial Markets Authority (AMF) in its report on the Audit Committee dated 22 July 2010. On 24 January 2017, the Board of Directors also confirmed the classification as independent directors of Mrs. Colette Lewiner and Laurence Parisot and Mr. Philippe Crouzet. Mrs. Colette Lewiner and Laurence Parisot and Mr. Philippe Crouzet therefore meet the criteria of both expertise and independence mentioned in Article L. 823-19 of the French Commercial Code.

The Audit Committee met eight times in 2016. The average attendance rate for its members was 87.5%. The Committee's meetings lasted an average of three hours, allowing for an in-depth review and discussion of the items on the agenda.

Duties

In accordance with Article L. 823-19 of the French Commercial Code, the Audit Committee is particularly entrusted with the following duties:

- monitoring the process to prepare financial information and making any recommendations to guarantee its integrity;
- monitoring the effectiveness of the internal control, risk management and internal audit systems, regarding procedures relating to the preparation and processing of accounting and financial information;
- monitoring the performance of the duties of the Auditors, ensuring their independence and approving the provision of the services mentioned in Article L. 822-11-2 of the French Commercial Code.

In fulfilling its duties, it examines and gives its opinion to the Board of Directors, on:

- the Company's financial position;
- the medium-term plan and the budget;
- the preliminary company and consolidated annual and half-yearly financial statements and financial reports prepared by the Financial Division;
- the monitoring of risks and internal control (mapping of Group risks and methods of detection, anticipation and management of risks, organisation and evaluation of internal control processes, preliminary annual report by the Chairman of the Board of Directors on corporate governance, internal control and risk management procedures);
- auditing (annual audit programme, main findings and resulting corrective actions, monitoring of their implementation);
- the monitoring of the Auditors (coordination of the Auditor selection procedure, monitoring of the Auditors' fulfilment of their duties taking account, where applicable, of the findings and conclusions of the High Council of Auditors, verification of the Auditors' compliance with the conditions of independence provided for in the applicable texts, opinion on the amount of fees, approval of the provision by the Auditors of non-auditing procedures according to a procedure approved by the Board of Directors);
- the financial aspects of external growth or disposal activities that are particularly significant (see section 4.2.2.4 "Powers and duties of the Board of Directors");
- changes to how the Group is viewed by analysts;
- the policies in terms of insurance, energy market risks and risk of bankruptcy of the Group's counterparties.

The examination of the financial statements by the Committee is accompanied by a presentation by the auditors underlining the bases for the preparation of the financial statements, the mandatorily-applicable accounting frame of reference, the audit approach implemented and the conclusions of their auditing work or limited review. In addition to the meetings of the Audit Committee devoted to examining the annual and half-yearly financial statements, the Auditors also attend the meetings devoted to risk monitoring, internal control and auditing.

For the purposes of its work, the Committee regularly meets with the Statutory Auditors, Executive Management, Corporate Finance, Group Risk Management and Internal Auditing.

Activity in 2016

In 2016, the Audit Committee, amongst other tasks, examined the half-yearly and annual financial statements and the presentation by the Auditors of the key points of the results of their work on the financial statements, the 2017 budget and the 2017-2020 medium-term plan, the review of the value of assets with a view to the closing of the 2016 financial statements, risk mapping and risk control methods, internal audit summaries and the audit program, the budget for existing nuclear facilities and the financial aspects of the Grand Carénage programme as well as the extension of the amortization period of the 900MW power plants in France, the 2016 financial management and financial risk control agreement, the approval procedure regarding the provision by the Auditors and their network of non-auditing services as well as the Group's off balance sheet commitments. The Audit Committee held two meetings devoted specifically to the Hinkley Point C project prior to the final investment decision by the Board of Directors. It also participated, in the last quarter of 2016, in the launch of the call for tenders process for the appointment of the Auditors for the period 2017-2022 and made a recommendation, on 10 February 2017, to the Board of Directors of 13 February 2017 regarding the reappointment of the Auditors whose mandate expires at the end of the General Meeting convened on 18 May 2017.

The Committee can employ external experts as required. It did not exercise this option during the 2016 fiscal year.

4.2.3.2 Nuclear Commitments Monitoring Committee

Functioning and members

The Nuclear Commitments Monitoring Committee (NCMC), created by Article 9 of Decree no. 2007-243 of 23 February 2007 on the securing of the financing of long-term nuclear expenses, is chaired by Mr. Philippe Crouzet, an independent director appointed by the Shareholders' Meeting. The other members of the Committee are Mrs. Marie-Christine Lepetit, Mrs. Michèle Rousseau (since 3 November 2016) and Mr. Olivier Appert, directors appointed by the Shareholders' Meeting, as well as Mrs. Marie-Hélène Meyling and Mr. Maxime Villota, directors elected by the employees.

The NCMC met three times in 2016. The average attendance rate for its members was 100%. The Committee's meetings lasted an average of two hours and twenty minutes, allowing for an in-depth review and discussion of the items on the agenda.

Duties

The Nuclear Commitments Monitoring Committee is tasked with monitoring changes in nuclear provisions, issuing an opinion on issues relating to governance of dedicated assets, the rules for asset-liability matching and on strategic allocation, as well as ensuring the compliance of the management of the assets constituted by the Company in accordance with the policy for constituting, managing, and controlling the financial risks of dedicated assets. For this purpose, it relies on the works of the Nuclear Commitments Financial Expertise Committee (NCFEC) which is comprised of independent experts¹ whose duty is to assist the Company and its corporate bodies in such matters.

Finally, the Committee issues an opinion prior to any investment in unlisted assets for any project exceeding a unit amount of €400 million as well as for any project (excl. real estate) exceeding a unit amount of €200 million resulting in full consolidation of the target investment by the Company. In

1. The current members of the NCFEC were re-elected or appointed on 3 November 2016 for three years by the Board of Directors on recommendation from the NCMC.

case the Committee issues a negative opinion on an investment plan, the Board of Directors has sole authority to authorise the aforementioned plan.

Activity in 2016

In 2016, the Committee particularly examined changes to the framework of the policy on the constitution and management of dedicated assets and management of financial risks, the state of progress of the first generation nuclear power plant decommissioning programme and the industrial geological storage centre project ("Cigéo") for long-life high- and medium-activity waste, the three-yearly report on the securing of financing for long-term nuclear expenses and the report on internal control which it includes, the nuclear commitments discount rate, as well as the decisions and prospects for investments in the dedicated assets portfolio (see section 1.4.1.1.7 "Assets available to cover long-term nuclear commitments (outside the operating cycle)").

4.2.3.3 Strategy Committee

Functioning and members

The Strategy Committee is chaired by Mr. Jean-Bernard Lévy, Chairman and Chief Executive Officer. The other members are Mrs. Laurence Parisot and Messrs. Olivier Appert and Christian Masset, directors appointed by the Shareholders' Meeting, Mr. Martin Vial, Representative of the French State, as well as Mrs. Marie-Hélène Meyling and Messrs. Jacky Chorin, Jean-Paul Rignac and Christian Taxil, directors elected by the employees.

The directors who are not members of the Strategy Committee may attend the meetings of the Committee.

The Strategy Committee met five times in 2016. The average attendance rate for its members was 97.8%. The Committee's meetings lasted an average of two hours and twenty minutes, allowing for an in-depth review and discussion of the items on the agenda.

Duties

The Strategy Committee issues an opinion to the Board of Directors on the Company's major strategic decisions and, specifically, the strategic referencing system, industrial and commercial policy, the public service contract (see section 1.5.2 "Public service in France"), strategic agreements, alliances and partnerships, research and development policy, and internal and external growth or disposals projects requiring approval from the Board of Directors.

Activity in 2016

In 2016, the Strategy Committee examined, in particular, the project for the development of two EPRs on the Hinkley Point site in the United Kingdom, the Group's strategic discussions regarding 3rd generation, average-power nuclear reactors, the sustainable mobility strategy and storage, research and development policy, EDF's communications strategy and the state of opinion, commercial strategy linked to the abolition of Yellow and Green regulated sales tariffs, the strategic context and fundamental hypotheses of the 2017-2020 medium-term plan, the strategic aims with a view to consultation, for 2016, of the Central Works Council in accordance with Article L. 2323-10 of the French Labour Code as well as the progress of the project for the reduction of EDF Trading's coal and freight activities. An informative meeting was also held with the Chairman of the French Nuclear Safety Authority on nuclear issues with a potential impact on the Group.

4.2.3.4 Ethics Committee

Functioning and members

The Ethics Committee is chaired by Mrs. Colette Lewiner, an independent director appointed by the Shareholders' Meeting. The other members are Mrs. Claire Pedini (since 3 June 2016) and Mr. Bruno Léchevin, directors appointed by the Shareholders' Meeting, as well as Mrs. Christine Chabauty and Marie-Hélène Meyling and Mr. Jacky Chorin, directors elected by the employees.

The Ethics Committee met six times in 2016, including two joint meetings with the Appointments & Remuneration Committee. The average attendance rate for its members was 88.9%. The Committee's meetings lasted an average of one hour and ten minutes, allowing for an in-depth review and discussion of the items on the agenda.

Duties

The Ethics Committee ensures that ethical considerations are taken into account in the work of the Board of Directors and in the management of the Company. It reviews the EDF Mediator's annual report. Each year, it conducts an evaluation of the functioning of the Board and its Committees, and every three years oversees a formal assessment of the work of the Board and its Committees, entrusted to a specialist external consultant (see section 4.2.2.6 "Evaluation of the functioning of the Board of Directors and its Committees"). It can issue an opinion on situations of conflict of interest of which it becomes aware or which are reported to it by the Chairman and Chief Executive Officer.

Activity in 2016

In 2016, the Ethics Committee, amongst other items, examined the Group ethics strategy and 2015 ethics review, EDF's corporate responsibility commitments, policy in terms of equal access to employment and equal pay, the Group's health and safety policy, the 2015 report by the EDF group mediator and the results of the customer satisfaction surveys, the progress of the setting up and deployment of the actions and work of the Group Ethics and Compliance Division. The Committee also participated in the launch of the Board of Directors' three-yearly evaluation process and the call for tenders launched to choose the external service provider in charge of carrying them out. Finally, the Committee held two joint meetings with the Appointments & Remuneration Committee in order to examine the independence of the directors according to the criteria defined by the AFEP-MEDEF code (examination of the situation of directors incumbent at the start of the 2016 fiscal year and the situation of Mrs. Pedini with a view to her appointment proposed at the Shareholders' Meeting of 12 May 2016).

4.2.3.5 Appointments & Remuneration Committee

Functioning and members

The Appointments & Remuneration Committee is chaired by Mr. Bruno Lafont, an independent director appointed by the Shareholders' Meeting. The other members of the Board are Mrs. Colette Lewiner, independent director appointed by the Shareholders' Meeting, Mr. Martin Vial, Representative of the French State as well as Mr. Maxime Villota, director elected by the employees.

The Committee is chaired by an independent director, is comprised of a majority of independent directors as it includes two independent directors out of the three taken into account to calculate this proportion (excluding directors representing the employees) and includes one director representing employees, in accordance with the recommendations of the AFEP-MEDEF code.

The Appointments & Remuneration Committee met five times in 2016, including two joint meetings with the Ethics Committee. The average attendance rate for its members was 95%. The Committee's meetings lasted on average less than thirty minutes.

Duties

In accordance with the internal rules of procedure, the Appointments & Remuneration Committee submits recommendations to the Board of Directors regarding the appointment of directors by the Shareholders' Meeting. It submits, for approval, to the Minister for the Economy and Finance and the Minister for Energy, an opinion on the compensation of the Chairman and Chief Executive Officer regarding the salary, variable portion (criteria for the setting of the variable portion and assessment of the results achieved in regard to the objectives set) and peripheral compensation of the Chairman and Chief Executive Officer. It also submits this opinion to the Board of Directors for deliberation and setting of this compensation. The Committee prepares its proposals within the limits specified by Decree no. 2012-915 of 26 July 2012 relating to French state control of the compensation of the executives of public companies, in accordance with which the Chairman & Chief Executive's annual compensation must not exceed the gross sum of €450,000.

The Committee examines, if applicable, the compensation of the Deputy Chief Executive Officers. It submits its recommendations and its opinion,

for approval, to the Minister for the Economy and the Minister for Energy, and also submits it to the Board of Directors for deliberation and setting of this compensation.

It examines and gives its opinion on the terms and conditions for the setting of the compensation of the principal executives (fixed and variable portions, calculation method and indexing), as well as the amount and terms and conditions for the distribution of the directors' fees to the Board of Directors. It ensures the existence of succession plan charts for Executive Committee positions.

Activity in 2016

In 2016, the Appointments & Remuneration Committee examined and gave opinions to the Board on, amongst other items, the compensation of the Chairman & Chief Executive Officer for the 2016 fiscal year, the application of Mrs. Claire Pedini and Michèle Rousseau to respectively replace Messrs. Varin and Magnin, resigning. The Committee also held two joint meetings with the Ethics Committee in order to examine the independence of the directors according to the criteria defined by the AFEP-MEDEF code (examination of the situation of directors incumbent at the start of the 2016 fiscal year and the situation of Mrs. Pedini with a view to her appointment proposed at the Shareholders' Meeting of 12 May 2016).

4.3 Bodies created by Executive Management

The Chairman and Chief Executive Officer is assisted by an Executive Committee which includes representatives of all the Group's lines of business.

This Committee is a body that makes decisions on, considers and discusses the Group's operational and strategic issues. It examines all the Group's significant underlying and current issues, tracks the operating objectives and results and contributes to the management and forecasting of the EDF group's major challenges. It reviews and authorises significant projects, specifically the Group's investment or disinvestment projects for amounts which exceed certain thresholds. The Executive Committee meets in principle each week.

In order to reinforce the examination and follow-up of projects, an Executive Committee Commitments examines in-depth the most significant projects in terms of level of commitments or risks incurred before the Executive Committee makes its decision. No investment project by the Company may be submitted for review by the Board of Directors without having first been approved by this Committee.

On the date of filing of this reference document, the Executive Committee had thirteen members and a Secretary. The list of members and their personal information appear below.

4.3.1 MEMBERS OF THE EXECUTIVE COMMITTEE

On the filing date of this reference document, the members of the Executive Committee were as follows:

Names	Function
Jean-Bernard Lévy	Chairman and Chief Executive Officer
Marc Benayoun	Group Executive Vice President with responsibility for Gas and Italy, Managing director of Edison ⁽¹⁾
Antoine Cahuzac	Group Senior Executive Vice President, Renewable Energies, Chief Executive Officer of EDF Énergies Nouvelles
Xavier Girre	Group Senior Executive Vice President, Group Finance ⁽²⁾
Véronique Lacour	Group Senior Executive Vice President, Transformation and Operational Efficiency ⁽³⁾
Henri Lafontaine	Group Senior Executive Vice President, Customers, Services and Regional Action
Marianne Laigneau	Group Senior Executive Vice President, Human Resources
Dominique Minière	Group Senior Executive Vice President, Nuclear and Thermal
Vincent de Rivaz	Group Senior Executive Vice President, Chief Executive Officer of EDF Energy
Simone Rossi	Group Senior Executive Vice President, International Division
Pierre Todorov	Group Senior Executive Vice President, Group General Secretary
Philippe Torrion	Group Senior Executive Vice President, Innovation, Strategy and Planning
Xavier Ursat	Group Senior Executive Vice President, New Nuclear Projects and Engineering

(1) Marc Benayoun replaced Bruno Lescœur from 14 January 2016.

(2) Xavier Girre replaced Thomas Piquemal from 7 March 2016.

(3) Véronique Lacour was appointed from 1 December 2016.

Alexandre Perra, Director and chief advisor to the Chairman and Chief Executive Officer, is Secretary of the Executive Committee.

4.3.2 PERSONAL INFORMATION ON MEMBERS OF THE EXECUTIVE COMMITTEE

Marc Benayoun, 50 years old, a graduate of the *École supérieure des sciences économiques et commerciales* (ESSEC), began his career at Paribas Group in 1989, before joining the Boston Consulting Group in 1993. He became Partner and Managing Director at the Paris office in 2001 then at the Moscow office in 2008 and during this period held a range of responsibilities, including the development of skills in the natural gas sector. In 2009, he joined the EDF group as Economics, Tariffs and Prices Director. In 2012, he became Director of the B2B Market within the Trading Division with responsibility for electricity, gas and service sales. In this role, he supervised the project linked to the end of regulated electricity tariffs for businesses and local authorities (more than 400,000 sites in all, 120TWh of electrical consumption), with the objective of regaining a leading position in a competitive environment. He is a member of the Supervisory Board of Trimet France, Chairman of Transalpina di Energia, Deputy Director of Edison, Chairman of Fondazione Edison and Director of Fenice.

Antoine Cahuzac, 62 years old, a graduate of the *École polytechnique* and *École de la météorologie nationale*. After a first engineering position at the Ministry for Transport, Antoine Cahuzac joined EDF's Study and Research Department in 1982. In 1985, he joined the swaps department at Crédit Commercial de France (CCF), before becoming its manager in 1988. After

spending three years at Vinci, where he was chief advisor to the company's CEO, he returned to CCF in 1994 where he held a range of successive positions at CCF's Investment Bank then HSBC from 2000 at the same time as being, for many years, joint manager of the Energy and Utility sector for the HSBC group. Before returning to France in 2008 to monitor MSEs for the Chief Executive Officer of HSBC France, he was based in Dubai, for nearly three years, to monitor the MENAT region for the Investment Bank. From May 2011, he managed HSBC's private banking activities in France. He was also a member of HSBC France's management board for a number of years. Antoine Cahuzac has been Chief Executive Officer of EDF Énergies Nouvelles since 2012, and Group Senior Executive Vice President, Renewable Energies since March 2015. He is also a director of EDF Luminus and EDF Trading as well as the Renewable Energies Syndicate and the French Electricity Union.

Xavier Girre, 48 years old, graduated HEC, is the holder of a Masters in business law, a graduate of IEP Paris and is ENA alumni. Xavier Girre began his career at the French National Audit Office in 1995, before joining the Veolia Environnement group in 1999 where he was successively representative of the Chief Executive Officer of Dalkia, Group Risk and Auditing Director, SVP, and CFO of Veolia Transportation then of Veolia Environmental Services. From 2011 to 2015, he was SVP, CFO of La Poste Group and Chairman of XAnge Private Equity. Xavier Girre joined EDF in 2015 as France CFO, then was appointed Group Senior Executive Vice President, responsible for the Finance Division on 7 March 2016. Xavier Girre is also a member of the MEDEF Ethics Committee, director and Chairman of the Audit Committee of La Française des Jeux.

Véronique Lacour, 52 years old, holds a postgraduate diploma in Information Systems from the University of Paris I Panthéon Sorbonne. Véronique Lacour started her career at Thales in 1987, where she gained solid experience in Information Systems, before taking up the position of Chief Information Officer for a new division of Thales in 2004. Between 2007 and 2009, she managed the HR information systems shared services of such division. She moved to Safran in 2009 where she held the position, first, of Chief Information Officer for Safran Aircraft Engines (formerly Snecma), and later, in 2013, Vice President Improvement Initiatives, where she managed continuous improvement and transformation initiatives. She went on to become Vice President Programs for Safran Analytics, and was involved in the creation of this new Big Data-focused entity as part of the Group's digital transformation strategy. She joined EDF on 1 December 2016 as Group Senior Executive Vice President, Transformation and Operational Efficiency and is a member of the Executive Committee. She is tasked with overseeing the Group's activities in the areas of information systems, purchasing, property, counselling and shared services.

Henri Lafontaine, 59 years old, a graduate of the Supélec Engineering School with a Master's in Mathematics, joined EDF in 1983 where he had a wide range of responsibilities in the Distribution Division, finally becoming Director of the Distribution Division of EDF GDF Services Marseille in 2000. In 2002, he was appointed as Chief Executive Officer of Edenor, EDF's subsidiary in Argentina. He became Director of EDF Island Power Systems Division in 2007, before being made Director of EDF Entreprises in the Commerce Division in 2010. In July 2013, Henri Lafontaine was appointed Group Senior Executive Vice President responsible for Commerce, Optimisation and Trading as well as Island Energy Systems. Since March 2015, he has been Group Senior Executive Vice President, Customers, Services and Regional Action. He supervises the energy service subsidiaries. He is also Chairman of Citelum, and Director of Dalkia and EDF Energy. He is also responsible for the Operational Management of the EDF Commerce Division.

Marianne Laigneau, 52 years old, is a graduate of the *École normale supérieure de Sèvres*, the *École nationale d'administration* ("Condorcet" Class) and the *Institut d'études politiques de Paris*; she also holds an aggregation in Classics and a Masters Degree in French Literature. After graduating from the *École nationale d'administration*, Marianne Laigneau joined the Council of State as an auditor, then became Counsellor in 1995 and Counsellor of State in 2007. In 1997, she was assigned to the Ministry for Foreign Affairs and served as First Counsellor to the French Embassy in Tunis, where she was in charge of negotiations, political, community and legal affairs and communications. From 2000 to 2002, as a member of the French Council of State, she was specifically responsible for being representative to the Director of ENA, legal advisor to the Ministry for Culture, and senior lecturer in public law at ENA. In 2003, Marianne Laigneau joined Gaz de France as Head of the Institutional Affairs Department at Headquarters, and then became Representative for Public Affairs (2004). She joined the EDF group in January 2005 as Group General Counsel, then held the position of Corporate Secretary, member of the Executive Committee, from June 2007. She was appointed Group Senior Executive Vice President Human Resources, member of the Executive Committee from 1 December 2010.

Dominique Minière, 58 years old, graduate of the *École des Mines de Paris* (1981). He joined EDF in 1982 as a young engineer and quickly took on responsibilities within the "Maintenance" department of the division in charge of the operation of nuclear and thermal power plants; nearly a third of facilities currently in operation were commissioned during this period. From 1986 to 1989, he participated in the start-up of the Golfech nuclear power plant (Tarn-et-Garonne), then, from 1993 to 1997, in the start-up of the Daya Bay nuclear power plant in China. In 1997, he moved to the Cattenom power plant (Moselle) where he became manager in 1999. From 2002 to 2013, he successively occupied the positions of Deputy Director

then Director of the Nuclear Generation Division, which supervises EDF's 58 nuclear generation units in France. In March 2013, he became Deputy Director of the Generation & Engineering Division, with responsibility for EDF's whole nuclear, thermal and hydraulic electrical generation fleet. Since March 2015, he has been Group Senior Executive Vice President, Nuclear and Thermal.

Vincent de Rivaz, 63 years old, graduate in Engineering from the *École nationale supérieure d'hydraulique* in Grenoble. Vincent de Rivaz began his career with the EDF group in 1977 as hydraulic engineer in the External Engineering Department, participating in the building of hydroelectric works in Africa, Guyana and New Caledonia. From 1985 to 1991 he was responsible for the Far East Region at the International Division and contributed to the Group's development in China in the nuclear, thermal, hydraulic and distribution sectors. From 1991 to 1994 he was Director of the EDF National Centre for Hydraulic Equipment, responsible for engineering on the EDF group's hydraulic projects, in France and abroad, and specifically managed the launch of the Nam Theun 2 project in Laos. In 1995, he was appointed Deputy Director of the International Division, and then became Director of Major Projects. In this capacity, he contributed to the development of EDF's investment projects in IPPs, specifically in China, Egypt, Mexico, Vietnam and Laos, as well as acquisitions of companies in Poland, Switzerland and England, including London Electricity in 1998. In 1999, Vincent de Rivaz was appointed Vice President of the Corporate Finance Division and in 2000 became Director of Strategy and Financial Operations. Appointed Chairman and Chief Executive Officer of LE Group in England in February 2002, he directed the acquisition and integration operations of Seaboard, with the former London Electricity and the grids of eastern England, creating EDF Energy in 2003. In 2008 and 2009, the acquisition then integration of British Energy, the largest British nuclear plant operator, made EDF Energy the leader on the British electricity market, the number one electricity producer and supplier. In 2010, he managed the implementation of the disposal of EDF Energy's distribution network activity. He led the development of EDF's new nuclear projects in Great Britain with the Hinkley Point C project as the first objective. Vincent de Rivaz is currently Chief Executive Officer of EDF Energy and has been EDF group Senior Executive Vice President since March 2015.

Simone Rossi, 48 years old, graduate of the university of Bocconi (Milan) in business administration. Simone Rossi began his career as a consultant, firstly at KPMG Consulting in corporate finance, then from 1996 at McKinsey & Company, where he mainly specialised in the sectors of energy, financial institutions, and information and communication technologies. In 2004, he joined Edison SpA in Milan (Italy) as Head of Strategy, before being promoted to become Director of Planning, Control and IT in 2007. At the end of 2009, he was appointed Chief Financial Officer of Constellation Energy Nuclear Group (CENG), a company based in Baltimore in the United States. He then became Chief Financial Officer of EDF Energy in April 2011. Since March 2015, Simone Rossi has been EDF group Senior Executive Vice President, International Division.

Pierre Todorov, 59 years old, a graduate of the *École normale supérieure* (Ulm) and the *École nationale d'administration* and holder of an advanced teaching degree in philosophy. Pierre Todorov was an auditor then Counsel at the French Council of State from 1986 to 1990. He then joined Lagardère Group, where he held a range of responsibilities in the media branch, particularly serving as International Deputy Chief Executive Officer of Hachette Filipacchi. In 1997, he was appointed General Secretary of Accor Group, a position he held until 2008. Between 2008 and 2011, he was partner at the law firm Hogan Lovells LLP, then joined PSA Peugeot Citroën in 2011, as General Secretary, member of the Executive Management Committee. Pierre Todorov has been EDF group General Secretary and a member of the Executive Committee since 2 February 2015.

ABSENCE OF FAMILY TIES, CONVICTIONS, CONFLICTS OF INTEREST AND CONTRACTS FOR SERVICES AMONG MEMBERS OF THE ADMINISTRATIVE BODIES AND EXECUTIVE MANAGEMENT

Philippe Torrion, 62 years old, graduated from the *École polytechnique* and the *École nationale supérieure des Mines*. Philippe Torrion began his career at EDF in 1977 as manager at the Paris Regional Division and until 1999 held a range of positions at the company: technical manager at the Boulogne-sur-Mer distribution centre, engineer in economics then head of the Internal Economics Department at the General Economic Studies Department. He became Director of the EDF-GDF Services Centre in the Gard-Cévennes region in 1992, then five years later Head of the Economics and Systems Development section at the Generation & Transmission Division. In 1999, he was appointed Director of Strategy, then in 2001 Delegate to Regional Action and PACA Regional Delegate, before becoming Chief Executive Officer of EDF Trading in 2005. From August 2008, he headed up the Upstream-Downstream Optimisation & Trading Division. Since March 2015, Philippe Torrion has been EDF group Senior Executive Vice President, Innovation, Strategy and Planning. He is also Chairman of the Board of Directors of EDF Trading.

Xavier Ursat, 50 years old, a graduate of the *École polytechnique* and Télécom Paris. He joined EDF in 1991, first holding various positions in the hydraulic engineering department until 2002. He oversaw the construction of EDF's hydraulic engineering centres and contributed to international projects, especially in South America. From 2002 to 2005, he was a special advisor to EDF's Deputy General Manager in charge of Generation and Engineering. From 2005 to 2007, he was Assistant Director of the Alps Generation Unit in Grenoble and from 2007 to 2010, Director of the Southwest Generation Unit in Toulouse. From 2010 to 2014, he was successively Deputy Manager and Manager of the Hydraulic Generation & Engineering Division. Since March 2015, Xavier Ursat has been Group Senior Executive Vice President, New Nuclear Projects and Engineering. He is also a member of the Board of Directors of Onema (French national water and aquatic environments office), director of EDF Énergies Nouvelles and EDF Norte Fluminense, member of the French National Water Committee and governor of the World Water Council.

4.4 Absence of family ties, convictions, conflicts of interest and contracts for services among members of the administrative bodies and Executive Management

4.4.1 ABSENCE OF FAMILY TIES

To EDF's knowledge, there are no family ties between members of the administrative bodies or Executive Management.

4.4.2 ABSENCE OF CONVICTIONS

To EDF's knowledge, within at least the past five years, no member of the EDF Board of Directors or Executive Management has been subject to: (i) a conviction for fraud, (ii) bankruptcy, receivership or liquidation, or (iii) conviction and/or official public sanction issued by the statutory or regulatory authorities.

Moreover, to EDF's knowledge, no member of the EDF Board of Directors or Executive Management has been prevented by a court from serving as a member of an administrative, management or supervisory body of an issuer or from participating in the management or direction of an issuer's affairs during the past five years.

4.4.3 CONFLICTS OF INTEREST

To the Company's knowledge, on the date of filing of this reference document, there were no potential conflicts of interest involving EDF between the duties of the members of the Company's Board of Directors and Executive Management and their private interests or other duties (regarding the rules

applicable to the members of the Board of Directors in terms of conflicts of interest, see section 4.2.2.2 "Obligations and duties of directors").

Subject to the specific legal and regulatory provisions applicable to the members of the Company's Board of Directors (see section 4.2.1 "Members of the Board of Directors"), to the Company's knowledge, no arrangements or agreements have been entered into with shareholders, clients, suppliers or others under which a member of the Board of Directors or Executive Management has been appointed in this capacity.

To the Company's knowledge, no member of the Board of Directors has agreed to restrict for a fixed period of time his/her ability to sell his/her holdings in the Company's capital, except for the restrictions resulting from the EDF Stock Exchange Ethics Code (see section 4.5.2 "Trading in Company securities"). In addition, corporate officers holding shares in mutual funds through an EDF group Corporate Savings Plan invested in EDF shares, or who have acquired shares from the French state within the legal framework of the privatisation, can be subject to the lock-in and non-transferability rules resulting from the provisions applicable to these transactions.

4.4.4 CONTRACT FOR SERVICES

EDF's company officers did not enter into any contract for services with the Company or any of its subsidiaries pursuant to which they would be entitled to any kind of benefits.

4.5 Shareholding by directors and trading in EDF securities by corporate officers and executives

4.5.1 SHAREHOLDING BY DIRECTORS

On 31 December 2016, the members of the Company's Board of Directors held a total of 3,703 shares. The table, below, details the number of EDF shares held individually by directors on 31 December 2016:

	Number of EDF shares held on 31/12/2016
Jacky CHORIN ⁽¹⁾	259
Philippe CROUZET	210
Bruno LAFONT	171
Colette LEWINER ⁽²⁾	1,807
Marie-Hélène MEYLING	28
Laurence PARISOT	100
Christian TAXIL ⁽¹⁾	1,090
Maxime VILLOTA ⁽¹⁾	38
TOTAL	3,703

(1) Shares held through a mutual fund.

(2) Shares held directly and through a mutual fund.

Mrs. Chabauty, Lepetit and Rousseau and Messrs. Appert, Léchevin, Lévy, Magnin, Masset, Rignac and Vial held no EDF shares on 31 December 2016.

On 31 December 2015, the members of the Company's Board of Directors held a total of 3,359 shares. The table, below, details the number of EDF shares held individually by directors on 31 December 2015:

	Number of EDF shares held on 31/12/2015
Jacky CHORIN ⁽¹⁾	229
Philippe CROUZET	200
Bruno LAFONT	150
Colette LEWINER ⁽²⁾	1,748
Marie-Hélène MEYLING	33
Christian TAXIL ⁽¹⁾	965
Maxime VILLOTA ⁽¹⁾	34
TOTAL	3,359

(1) Shares held through a mutual fund.

(2) Shares held directly and through a mutual fund.

Mrs. Chabauty, Lepetit and Parisot and Messrs. Appert, Léchevin, Lévy, Magnin, Masset, Rignac, Vial and Varin held no EDF shares on 31 December 2015.

4.5.2 TRADING IN COMPANY SECURITIES

In 2006, the EDF group adopted a set of principles and rules applicable to trading in shares in EDF or listed EDF group subsidiaries. These rules were compiled into an Ethics Code presented to the EDF Executive Committee on 4 April 2011. This code was updated in 2016 to take account of the entry into force of Regulation (EU) no. 596/2014 on market abuse (so-called "MAR" – market abuse regulation), its implementing regulations¹, Law no. 2016/819 of 21 June 2016 reforming the system for the repression of market abuse and the new guide on ongoing information and the management of inside information published by the AMF on 26 October 2016.

At the same time as this Code was distributed, awareness campaigns on stock exchange rules were launched for Group employees, specifically regarding precautions and obligations relating to the holding of inside information and the black-out periods during which permanent or temporary insiders, including third parties acting in the name or on behalf of the Group, and, more specifically regarding black-out periods, all persons performing executive duties within the Group, are required to refrain from trading Company securities or other related financial instruments.

The Ethics Code also notes the obligations imposed on executives, high-level managers as well as persons closely linked to them to declare to the AMF and to the Company trades in EDF securities or other related financial instruments that they make on their own behalf. Indeed, under the terms of Article 19 of MAR, specified in Article 223-22 A of the AMF general regulations, the executives of companies with shares listed for trading on a regulated market must declare trades in Company securities to the AMF and to the Company within three trading days of their completion, when the combined amount of these trades exceeds the sum of €20,000 for the current calendar year.

The AMF General Regulations also state² that the EDF Board of Directors must mention in its annual report to the Shareholders' Meeting trades that have been declared by executives and similar persons³ over the past fiscal year.

Except for the acquisition by Mrs. Laurence Parisot, on 12 September 2016, of 100 shares in the Company at a unit price of €11.48 for a total amount of €1,148, no trades in EDF securities were declared to the AMF or to the Company during the 2016 fiscal year by members of the Board of Directors and the Company's Executive Committee.

1. Delegated Regulation (EU) no. 2016/522 of 17 December 2015 as regards the indicators of market manipulation, the disclosure thresholds, the permission for trading during closed periods and types of notifiable managers' transactions; Delegated Regulation (EU) no. 2016/908 of 26 February 2016 with regard to accepted market practices; Delegated Regulation (EU) no. 2016/909 of 1 March 2016 with regard to notifications and lists of financial instruments to be submitted to competent authorities in accordance with Article 4 of MAR; Delegated Regulation (EU) no. 2016/1052 of 8 March 2016 with regard to the conditions applicable to buy-back programmes and stabilisation measures; Delegated Regulation (EU) no. 2016/957 of 9 March 2016 with regard to abusive practices or suspicious orders or transactions; Delegated Regulation (EU) no. 2016/958 of 9 March 2016 with regard to technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest; Delegated Regulation (EU) no. 2016/960 of 17 May 2016 with regard to market soundings; Implementing Regulation (EU) no. 2016/347 of 10 March 2016 regarding insider lists; Commission Implementing Regulation (EU) no. 2016/523 of 10 March 2016 with regard to managers' transactions; Commission Implementing Regulation (EU) no. 2016/378 of 11 March 2016 laying down implementing technical standards with regard to the timing, format and template of the submission of according to Article 4 of MAR; Implementing Regulation (EU) no. 2016/959 of 17 May 2016 relating to market soundings; Implementing Regulation (EU) no. 2016/1055 of 29 June 2016 with regard to the technical means for appropriate public disclosure of inside information and for delaying the public disclosure of inside information.

2. Article 223-26 of the AMF General Regulations.

3. At EDF, staff "similar to executives" are the members of the Company's Executive Committee.

4.6 Compensation and benefits

4.6.1 COMPENSATION OF CORPORATE OFFICERS

The compensation and benefits of all kinds paid in the 2016 fiscal year to corporate officers by the Company and the companies it controls are listed below. The tables below were drawn up in accordance with the format recommended by the AFEP-MEDEF Consolidated Code of Corporate Governance and the AMF's position-recommendation 2009-16, modified on 13 April 2015.

4.6.1.1 Total compensation of the Chairman & Chief Executive Officer

SUMMARY TABLE OF COMPENSATION AND OPTIONS AND SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER⁽¹⁾

(in €)	2016 fiscal year	2015 fiscal year
Jean-Bernard Lévy, Chairman & Chief Executive Officer		
Compensation due for the fiscal year	452,868	452,868
Valuation of multi-year variable compensation awarded during the fiscal year	none	none
Valuation of options awarded during the fiscal year ⁽²⁾	none	none
Valuation of bonus shares awarded during the fiscal year ⁽²⁾	none	none
TOTAL	452,868	452,868

(1) Table 1 of AMF position-recommendation no. 2009-16.

(2) As indicated in section 4.6.2, the Company has not implemented any stock options plans and the corporate officers receive no allocation of bonus shares.

SUMMARY TABLE OF THE COMPENSATION OF THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER⁽¹⁾

The table below details the compensation of all kinds owed and paid to Jean-Bernard Lévy, Chairman and Chief Executive Officer, for the 2015 and 2016 fiscal years.

(in €)	2016 fiscal year		2015 fiscal year	
	Amounts due for the fiscal year	Amounts paid during the fiscal year	Amounts due for the fiscal year	Amounts paid during the fiscal year
Jean-Bernard Lévy, Chairman and Chief Executive Officer				
Fixed compensation	450,000	450,000	450,000	497,368 ⁽²⁾
Variable compensation	none	none	0	0
Multi-year variable compensation	none	none	none	none
Exceptional compensation	none	none	none	none
Directors' fees	none	none	none	none
Benefits in kind ⁽³⁾	2,868	2,868	2,868	2,868
TOTAL	452,868	452,868	452,868	500,236

(1) Table 2 of AMF position-recommendation no. 2009-16.

(2) Includes compensation due for the 2014 fiscal year and paid in 2015.

(3) These benefits in kind consist of a company car.

4.6.1.1.1 Terms and conditions for the setting of compensation

In accordance with Article 3 of Decree no. 53-707 of 9 August 1953 and Article L. 225-47 of the French Commercial Code, the items comprising the compensation of the Chairman & Chief Executive Officer are set by the Company's Board of Directors on recommendation from the Appointments

and Remuneration Committee and approved by the Minister for the Economy after consultation of the relevant Ministers.

Decree no. 2012-915 of 26 July 2012 modified the Decree of 9 August 1953 by introducing a limit of €450,000 on compensation payable to corporate officers of state-owned companies to which this Decree is applicable.

4.6.1.1.2 Setting of the compensation of the Chairman and Chief Executive Officer

Compensation for the 2016 fiscal year

On recommendation from the Appointments and Remuneration Committee, the Board of Directors meeting on 15 February 2016 decided to set at €450,000 gross the fixed annual compensation of the Chairman and Chief Executive Officer for the 2016 fiscal year.

Compensation for the 2017 fiscal year

The Appointments and Remuneration Committee of 13 January 2017 examined the compensation policy for the Chairman and Chief Executive Officer and decided to recommend to the Board of Directors to maintain the current compensation principles and criteria for the Chairman and Chief Executive Officer's compensation and to set, for the 2017 fiscal year, his fixed annual compensation at €450,000 gross, corresponding to the ceiling provided for by Decree dated 9 August 1953.

On recommendation from the Committee, the Board of Directors meeting on 24 January 2017 decided to maintain the fixed annual compensation

of the Chairman and Chief Executive Officer for the 2017 fiscal year at €450,000 gross.

In accordance with Article L. 225-37-2 of the Commercial Code, the compensation policy for the Executive Director must be subject to a resolution submitted each year to the Annual General Meeting. This will apply from the next General Meeting convened on 18 May 2017.

4.6.1.1.3 Other items of compensation

In 2016, Mr. Jean-Bernard Lévy did not receive any directors' fees for his duties as Chairman of the Board of Directors and director of EDF. He also did not receive any directors' fees for the positions held at companies controlled by EDF, or any compensation of any kind whatsoever from the companies it controls.

The Company allocated no stock options to the Chairman and Chief Executive Officer in 2016 and no options were exercised during the fiscal year. Similarly, no bonus shares were awarded to the Chairman and Chief Executive Officer during the past fiscal year, and none became available.

Mr. Jean-Bernard Lévy did not receive any hiring bonus from EDF.

Employment contract, supplemental pension, severance payments and non-competition clause

Chairman and Chief Executive Officer ⁽¹⁾	Employment contract	Supplemental pension plan	Compensation or benefits due or liable to be due for termination or modification of duties	Non-competition clause compensation
Jean-Bernard Lévy, Chairman and Chief Executive Officer	no	no	yes	no

(1) Table 11 of AMF position-recommendation no. 2009-16.

On recommendation from the Appointments and Remuneration Committee, the Board of Directors meeting on 8 April 2015 decided to award to Mr. Jean-Bernard Lévy severance payments in accordance with the provisions of the French Commercial Code and the recommendations of the AFEP-MEDEF corporate governance code in case of termination of his term of office of Chairman and Chief Executive Officer of EDF. These payments are subject to the following terms and conditions:

- **payment due following:** definitive award of the payments by decision of the Board of Directors, only in the event of forced departure (dismissal except for gross negligence or wilful misconduct);
- **calculation method and limit:** initial amount of severance payment of €200,000 gross after one year of seniority from the date of initial appointment, *i.e.* 23 November 2014, then increased by €60,000 gross per additional quarter of seniority, without exceeding the limit of one year of compensation;

- **performance criteria:** the severance payments shall only be due in the event that 80% of budgeted Group EBITDA is achieved in at least two of the three last full fiscal years at the time of termination of their duties; in the event that their duties are terminated during the second year of the term of office, the Board shall assess the meeting of this criterion based on the last full fiscal year; in the event that their duties are terminated during the third year of the term of office, the meeting of the criterion shall be measured based on the last two full fiscal years.

This regulated commitment mentioned in Article L. 225-42-1 of the French Commercial Code was the subject of a special report by the auditors dated 8 April 2015 included in appendix C of the 2014 reference document.

4.6.1.2 Total compensation of directors

No exceptional compensation was paid to directors during the 2016 fiscal year in return for their duties.

The table, below, shows the gross amounts of directors' fees paid during the 2015 and 2016 fiscal years to the members of the Board of Directors.

Directors whose terms of office are ongoing on 31 December 2016	2016⁽¹⁾	2015⁽²⁾
Olivier Appert ⁽³⁾	39,556	15,642
<i>share paid to the French state budget</i>	30,889	14,192
Philippe Crouzet	50,167 ⁽³⁾	46,479
Bruno Lafont	45,889 ⁽⁴⁾	48,245
Bruno Léchevin	38,333	15,642
<i>share paid to the French state budget</i>	38,333	15,642
Marie-Christine Lepetit	49,944	16,819
<i>share paid to the French state budget</i>	49,944	16,819
Jean-Bernard Lévy	n.a.	n.a.
Colette Lewiner	87,500 ⁽⁵⁾	39,422
Christian Masset	37,722	15,054
<i>share paid to the French state budget</i>	37,722	15,054
Laurence Parisot	53,222 ⁽⁶⁾	16,231
Claire Pedini ⁽⁷⁾	2,722	n.a.
Michèle Rousseau ⁽⁸⁾	n.a.	n.a.
<i>share paid to the French state budget</i>	n.a.	n.a.
Martin Vial	22,333	n.a.
<i>share paid to the French state budget</i>	22,333	n.a.
TOTAL (IN EUROS)	427,389	213,534

n.a. = non applicable.

(1) For the second half of 2015 and the first half of 2016.

(2) For the second half of 2014 and the first half of 2015.

(3) Including €10,000 for participation on a workgroup (see section 4.2.2.8 "Activity of the Board of Directors in 2016").

(4) Including €10,000 for participation on a workgroup (see section 4.2.2.8 "Activity of the Board of Directors in 2016").

(5) Including €40,000 for chairing of a workgroup (see section 4.2.2.8 "Activity of the Board of Directors in 2016").

(6) Including €10,000 for participation on a workgroup (see section 4.2.2.8 "Activity of the Board of Directors in 2016").

(7) Director since 12 May 2016.

(8) Director since 30 September 2016.

Directors whose terms of office expired during the 2016 fiscal year	2016	2015
Gérard Magnin ⁽¹⁾	40,778	15,642
<i>share paid to the French state budget</i>	28,544	10,950
Philippe Varin ⁽²⁾	7,333	14,466
TOTAL (IN EUROS)	48,111	30,108

(1) Director whose term of office expired on July 28, 2016.

(2) Director whose term of office expired on May 12, 2016.

For the record, the total amount of directors' fees paid in 2015 to directors whose term of office had expired on 31 December 2015 was €67,413.

Budget and distribution of directors' fees

The directors representing the employees hold office without fees in accordance with Law no. 83-675 of 26 July 1983 concerning the democratisation of the public sector, and the Chairman of EDF's Board of Directors receives no directors' fees.

In accordance with Order no. 2014-948 of 20 August 2014, the directors' fees allocated to directors appointed by the Shareholders' Meeting on recommendation from the French state in accordance with Article 6 of the Order and who are French civil servants are paid to the French state budget. The same applies to directors' fees exceeding the limit set by the Minister for the Economy¹ payable to other directors appointed by the Shareholders' Meeting on recommendation from the French state and who are not French civil servants.

Regarding the Representative of the French State appointed in accordance with Article 4 of the Order of 20 August 2014, any compensation that they receive for the performance of their duties is paid to the French state budget.

After the issuing of an opinion by the Appointments and Remuneration Committee and approval by the Minister for the Economy and the Minister for Energy in accordance with Article 3 of Decree no. 53-707 of 9 August 1953, the Board of Directors submits for the approval of the Shareholders' Meeting the budget for the directors' fees to be allocated to directors based on the distribution approved by the Board of Directors.

The terms and conditions for the distribution of the annual budget for directors' fees applicable since the 2011 fiscal year were adopted by the Board of Directors on 22 June 2011, on recommendation from the Appointments and Remuneration Committee. The total budget is distributed between a fixed portion and a variable portion, each representing half of the budget, distributed as follows:

- the fixed portion is shared equally between the relevant directors; 50% of the fixed annual portion is paid during the fiscal year of award and the remaining 50% at the start of the following fiscal year;
- the distribution of the variable portion between the directors is set by applying a coefficient varying based on the type of meetings (Board or Committee) and based on the specific positions held by each director (Committee member or Chair): a coefficient of 2 for presence at a meeting

of the Board of Directors, a coefficient of 2 for presence of a Chair at a Committee meeting and, finally, a coefficient of 1 for presence of a director as a member at a Committee meeting. The variable portion is divided by the total of the coefficients for the fiscal year in order to set the unit value of the coefficient; the variable portion for a fiscal year is fully paid at the start of the following fiscal year.

The Shareholders' Meeting of 21 November 2014, on recommendation from the Board of Directors following the issuing of an opinion by the Appointments and Remuneration Committee, had set the annual budget for directors' fees allocated to the Board for 2015 and subsequent years at €440,000. The Shareholders' Meeting held on 12 May 2016, on recommendation from the Board of Directors approved the increase of the annual budget of directors' fees, to increase it to €510,000, for the 2016 fiscal year, in order to compensate the work carried out during the 2015 and 2016 fiscal years by the independent directors' workgroup on the project for the acquisition by EDF of exclusive control of the activities of AREVA NP (see section 4.2.2.8 "Activity of the Board of Directors in 2016"). The Board decided to allocate the sum of €40,000 to the Chair of the independent directors' workgroup and the sum of €10,000 to each member of the workgroup.

It will be proposed to the General Meeting convened on 18 May 2017 to set the annual budget for directors' fees allocated to the Board for 2017, at €500,000, in order to compensate notably the work carried out during 2016 and 2017 by the independent directors' workgroup on the project for the closure of the Fessenheim plant (see section 4.2.2.8 "Activity of the Board of Directors in 2016"). Subject to the approval of the General Meeting convened on 18 May 2017, the Board of Directors decided to allocate the sum of €30,000 to the Chair of the independent directors' workgroup and the sum of €7,500 euros to each member of the workgroup. The rules for the distribution of directors' fees described above adopted by the Board of Directors on 22 June 2011 remain otherwise unchanged.

4.6.2 STOCK OPTIONS – BONUS SHARES

The Company has not implemented any stock options plans and the corporate officers receive no allocation of bonus shares².

1. An order of 18 December 2014 introduced pursuant to Article 6-V of the Order of 20 August 2014 specifies the Company pays to the French state budget the compensation exceeding a limit of 30% of the compensation that should be received by these directors.

2. With the exception of any directors elected by the employees who may benefit from the systems implemented by the Company for the benefit of all its employees.

4.7 2016 Report by the Chairman of the EDF Board of Directors on corporate governance, internal control and risk management procedures

The Company's 2016 reference document includes all the items of the report by the Chairman of the Company's Board of Directors mentioned in Article L. 225-37 of the French Commercial Code. The references to the paragraphs of this reference document corresponding to the different parts of the report by the Chairman of the Board of Directors as approved by the Board of Directors at its meeting held on 13 February 2017 are found in section 8.5.4 "Concordance table with the report of the Chairman of the EDF Board of Directors on corporate governance, internal control and risk management procedures".

Pursuant to the provisions of Article L. 225-37 of the French Commercial Code, the report by the Chairman of the Board of Directors includes for the 2016 fiscal year information on the membership of the Board and the application of the principle of balanced representation of women and men on it, the conditions for the preparation and organization of the activities of the Board of Directors, any limits placed by the Board on the powers of the Chairman & Chief Executive Officer, as well as the internal control and risk management procedures implemented by the Company, particularly those relating to the preparation and processing of accounting and financial information. It details the specific procedures governing the participation of shareholders in Shareholders' Meetings and sets out the principles and rules adopted by the Board of Directors to determine the remuneration and benefits of any kind granted to the Company's directors and executive officers. This report also specifies that the Company refers voluntarily to the provisions of the AFEP-MEDEF Code. Finally, it mentions the publication of the information provided for in Article L. 225-100-3 of the French Commercial Code.

Information contained in this report are as of 31 December 2016, unless otherwise specified. Further information and updates are available in this reference document.

Information regarding RTE and Électricité de Strasbourg are available in the reports drafted by these two companies in accordance with Article L. 225-37 of the French Commercial Code.

WORK UNDERLYING THE PREPARATION OF THE REPORT

The report mentioned in Article L. 225-37 of the French Commercial Code was prepared by a workgroup supervised by the Audit Division and featuring representatives of the Legal Affairs Division, Group Risk Management Division, and Financial Division as well as the General Secretariat of the Board of Directors.

A range of contributors, such as the Group Ethics and Compliance Division, the Information Systems Division, the Sustainable Development Division as well as the Investors and Markets Division were also involved. It was the subject of a report drawn up by the Auditors. This report was successively reviewed by the Financial Information Committee, the Group General Secretary and was approved by the Board of Directors on 13 February 2017, in accordance with Article L. 225-37 of the French Commercial Code.

For the drafting of this report, EDF ensured consistency with the AMF's frame of reference relating to risk management and internal control, itself based on the changes observed to the main international frames of reference, particularly on the internal control models promoted by the Committee of Sponsoring Organizations of the Treadway Commission (COSO I and COSO II) and the ISO 31000 standard on general control environment, risk management, control activities, communication and coordination.

4.8 Report by the Auditors, drawn up in accordance with Article L. 225-235 of the French Commercial Code, on the report by the Chairman of the Board of Directors

This is a free translation into English of the statutory auditors' report issued in French prepared in accordance with Article L. 225-235 of French commercial code on the report prepared by the Chairman of the Board of Directors on the internal control and risk management procedures relating to the preparation and processing of accounting and financial information issued in French and is provided solely for the convenience of English speaking users.

This report should be read in conjunction and construed in accordance with French law and the relevant professional standards applicable in France.

Fiscal year ended 31 December 2016

To the shareholders,

In our capacity as Statutory Auditors of Électricité de France S.A. (The "Company"), and in accordance with Article L. 225-235 of the French Commercial Code (*Code de commerce*), we hereby report on the Report prepared by the Chairman of your Company in accordance with Article L. 225-37 of the French Commercial Code for the year ended 31 December 2016.

It is the Chairman's responsibility to prepare, and submit to the Board of Directors for approval, a report on the internal control and risk management procedures implemented by the Company and containing the other disclosures required by Article L. 225-37 of the French Commercial Code particularly in terms of the corporate governance measures.

It is our responsibility:

- to report to you on the information contained in the Chairman's Report in respect of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information; and
- to attest that this Report contains the other disclosures required by Article L. 225-37 of the French Commercial Code, it being specified that we are not responsible for verifying the fairness of these disclosures.

We conducted our work in accordance with professional standards applicable in France.

INFORMATION ON THE INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES RELATING TO THE PREPARATION AND PROCESSING OF ACCOUNTING AND FINANCIAL INFORMATION

The professional standards require that we perform the necessary procedures to assess the fairness of the information provided in the Chairman's Report in respect of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information. These procedures consisted mainly in:

- obtaining an understanding of the internal control and risk management procedures relating to the preparation and processing of the accounting and financial information on which the information presented in the Chairman's Report is based and existing documentation;
- obtaining an understanding of the work involved in the preparation of this information and the existing documentation;
- determining if any significant weaknesses in the internal control procedures relating to the preparation and processing of the accounting and financial information that we would have noted in the course of our engagement are properly disclosed in the Chairman's Report.

On the basis of our work, we have nothing to report on the information in respect of the Company's internal control and risk management procedures relating to the preparation and processing of accounting and financial information contained in the Report prepared by the Chairman of the Board in accordance with Article L. 225-37 of the French Commercial Code.

OTHER DISCLOSURES

We hereby attest that the Chairman's Report includes the other disclosures required by Article L. 225-37 of the French Commercial Code.

Paris - La Défense and Neuilly-sur-Seine, 13 February 2017

The Statutory Auditors

KPMG Audit

Department of KPMG SA

Jacques-François Lethu

Jean-Louis Caulier

Deloitte & Associés

Alain Pons

Anthony Maarek

5

The Group's performance in 2016 and financial outlook

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5.1 Operating and financial review

5.1.1 KEY FIGURES

Pursuant to European Regulation no. 1606/2002 of 19 July 2002 on the adoption of international accounting standards, the EDF group's consolidated financial statements for the year ended 31 December 2016 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2016. These international standards are IAS (International Accounting Standards),

IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The Group's accounting policies are presented in note 1 to the consolidated financial statements for the year ended 31 December 2016.

The figures presented in this document are taken from the EDF group's consolidated financial statements at 31 December 2016.

The Group's key figures for 2016 are shown in the following tables.

EXTRACT FROM THE CONSOLIDATED INCOME STATEMENT

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)	Organic growth (%)
Sales	71,203	75,006	(3,803)	-5.1	-3.2
Operating profit before depreciation and amortisation (EBITDA)	16,414	17,601	(1,187)	-6.7	-4.8
Operating profit (EBIT)	7,514	4,280	3,234	+75.6	+76.6
Income before taxes of consolidated companies	4,181	1,692	2,489	+147.1	+148.0
EDF net income	2,851	1,187	1,664	+140.2	+141.4
Net income excluding non-recurring items ⁽¹⁾	4,085	4,822	(737)	-15.3	-15.0

⁽¹⁾ Net income excluding non-recurring items is not defined by IFRS, and is not directly visible in the consolidated income statement. It corresponds to the net income excluding non-recurring items and the net change in fair value on energy and commodity derivatives, excluding trading activities, net of tax (see section 5.1.4.9 "Net income excluding non-recurring items").

FROM EDF NET INCOME TO NET INCOME EXCLUDING NON-RECURRING ITEMS

<i>(in millions of Euros)</i>	2016	2015
EDF net income	2,851	1,187
Decision by the European Commission concerning the General Network ⁽¹⁾	–	354
Other, including net changes in fair value on energy and commodity derivatives, excluding trading activities	233	86
Impairment	1,001	3,195
NET INCOME EXCLUDING NON-RECURRING ITEMS	4,085	4,822
Payments to bearers of perpetual subordinated bonds	(582)	(591)
NET INCOME EXCLUDING NON-RECURRING ITEMS ADJUSTED FOR PAYMENTS ON HYBRID BONDS	3,503	4,231

⁽¹⁾ European Commission decision on the tax treatment of provisions established between 1987 and 1996 for renewal of the General Network in France.

EXTRACT FROM THE CONSOLIDATED BALANCE SHEET

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Non-current assets	147,626	149,439
Inventories and trade receivables	37,397	36,973
Other assets	66,238	69,536
Cash and cash equivalents, other liquid assets, loans to RTE ⁽¹⁾ and joint ventures	25,159	22,993
Assets held for sale ⁽²⁾	5,220	–
TOTAL ASSETS	281,640	278,941
Equity (EDF share)	34,438	34,749
Equity (non-controlling interests)	6,924	5,491
Special concession liabilities	45,692	45,082
Provisions	74,966	75,327
Loans and other financial liabilities	61,230	60,388
Other liabilities	56,281	57,904
Liabilities related to assets classified as held for sale ⁽³⁾	2,109	–
TOTAL EQUITY AND LIABILITIES	281,640	278,941

(1) RTE is a subsidiary of EDF that is independent under the French Energy Code.

(2) Including €104 million of financial assets impacting net indebtedness (see below).

(3) Including €1,458 million of financial debts impacting net indebtedness (see below).

GROUP CASH FLOW

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Group cash flow ⁽¹⁾	(1,565)	(2,064)	+499	+24.2

(1) Group cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not comparable with indicators of the same name reported by other companies. It is equivalent to the operating cash flow after net change in working capital, net investments, allocations and withdrawals from dedicated assets, and dividends.

DETAILS OF NET INDEBTEDNESS

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015	Variation	Variation (%)
Loans and other financial liabilities	65,195	64,183	1,012	+1.6
Derivatives used to hedge liabilities	(3,965)	(3,795)	(170)	+4.5
Financial liabilities reclassified as liabilities related to assets held for sale ⁽¹⁾	1,458	–	1,458	+100.0
Cash and cash equivalents	(2,893)	(4,182)	1,289	-30.8
Available-for-sale financial assets – Liquid assets	(22,266)	(18,141)	(4,125)	+22.7
Loan to RTE	–	(670)	670	-100.0
Financial assets reclassified as assets held for sale ⁽¹⁾	(104)	–	(104)	+100.0
NET INDEBTEDNESS⁽²⁾	37,425	37,395	30	+0.1

(1) Net indebtedness of assets held for sale in 2016 principally concerns C25 (the holding company for RTE) and Polish companies.

(2) Net indebtedness is not defined in the accounting standards and is not directly visible in the Group's consolidated balance sheet. It comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or securities with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy.

5.1.2 ECONOMIC ENVIRONNEMENT

5.1.2.1 Trends in market prices for electricity and the principal energy sources

In an interconnected European market, analysis of market prices in France and the rest of Europe provides vital context.

5.1.2.1.1 Spot electricity prices in Europe¹

	France	United Kingdom	Italy	Germany	Belgium
Average baseload price for 2016 (€/MWh)	36.7	49.1	42.8	29.0	36.6
Variation in average baseload prices, 2016/2015	-4.5%	-11.8%	-18.2%	-8.4%	-18.0%
Average peakload price for 2016 (€/MWh)	45.7	57.4	48.0	35.2	46.7
Variation in average peakload prices, 2016/2015	-2.0%	-7.0%	-18.1%	-9.8%	-13.4%

The comments below concern baseload prices.

In **France**, spot electricity prices stood at an average €36.7/MWh in 2016, €1.7/MWh lower than in 2015. This decrease was mainly driven by the situation in the first quarter of the year, and to a lesser degree the second and third quarters. It resulted from first-quarter temperatures that were an average 0.7°C lower year-on-year, and falling fuel prices in the early part of the year. However, the annual average spot price was pushed upwards in the final quarter of 2016, when spot prices were €19.2/MWh higher than in the same period of 2015.

Total consumption for the year was up slightly by 1.5%² compared to 2015. A key contributing factor was the 6.5% year-on-year rise in the final quarter of 2016, which registered temperatures slightly below normal for the season and 2.2°C below final-quarter 2015 temperatures.

The year 2016 was also marked by the continued outages of several nuclear reactors in the second half of the year, in order to carry out ASN-requested tests of the carbon content of steam generator heads. Greater use was made of hydropower and fossil-fired thermal plants, especially gas-fired plants. Hydropower and solar power output was higher than in 2015, while wind power output was relatively stable. The balance of cross-border exchanges was down, but EDF remained a net exporter.

In the **United Kingdom**, spot electricity prices decreased by 11.8% compared to 2015 to an average €49.1/MWh for 2016. However, peaks were observed in spot prices between September and November, rising as high as €199/MWh on 19 September. These peaks were caused by high demand

Spot electricity prices in Europe were generally lower in 2016 than 2015. This was essentially due to a decline in fuel prices, especially for gas and CO₂, and a particularly mild winter in 2015/2016 even though 2016 was colder overall than the previous year. The end of 2016 saw rises in spot prices, notably in response to shutdowns of several French nuclear reactors in order to carry out further tests at the request of the French Nuclear Safety Authority (ASN), and an upturn in fuel prices.

associated with lower temperatures at a time when wind power output was exceptionally low, plant availability was poor and imports more limited.

In **Italy**, average spot prices for 2016 were down by 18% from the previous year to €42.8/MWh.

In **Germany**, spot prices stood at an average €29.0/MWh, €2.6/MWh lower than in 2015, the lowest average since 2005 and the lowest registered in western Europe. Germany has Europe's largest wind power and photovoltaic solar power fleet, with close to 88GW of installed power, and experienced several episodes of negative prices under the combined effect of exceptionally low demand and high unavoidable renewable power output. There was also a peak in German wind power output at almost 37GW on 27 December, and a peak in photovoltaic solar power output at over 26GW in May. Nevertheless in mid-December, German spot prices were at a 3-year high following greater nuclear plant unavailability. As the tax on nuclear fuel was due to end from 1 January 2017, operators decided to wait for the new year to reload their nuclear reactors with fuel.

In **Belgium**, spot prices were down by €8.1/MWh compared to 2015, registering an average price of €36.6/MWh. Belgian spot prices generally followed the same downward pattern as French spot prices, and this trend was reinforced by the return to service of the Belgian reactors Doel 1, Doel 2 and Tihange 3 after a long period of unavailability in 2015. In the later part of the year, the unavailability of the Tihange 1 nuclear plant from September put upward pressure on spot prices.

1. **France and Germany:** average previous day EPEXSPOT price for same-day delivery;
Belgium: average previous day Belpex price for same-day delivery;
United Kingdom: average previous day EDF Trading OTC price for same-day delivery;
Italy: average previous day GME price for same-day delivery.

2. Source: RTE.

5.1.2.1.2 Forward electricity prices in Europe¹

	France	United Kingdom	Italy	Germany	Belgium
Average forward baseload price under the 2017 annual contract for 2016 (€/MWh)	33.3	47.9	41.2	26.6	33.4
Variation in average forward baseload price under the annual contracts, 2016/2015	-12.7%	-18.5%	-12.7%	-14.2%	-23.0%
Forward baseload price under the 2017 annual contract at 28 December 2016 (€/MWh)	40.3	55.7	46.9	34.3	39.6
Average forward peakload price under the 2017 annual contract for 2016 (€/MWh)	44.6	55.0	47.1	33.5	43.6
Variation in average forward peakload price under the annual contracts, 2016/2015	-5.2%	-17.3%	-10.7%	-14.3%	-16.1%
Forward peakload price under the 2017 annual contract at 28 December 2016 (€/MWh)	51.0	62.6	52.3	42.1	50.6

Average annual contract prices for baseload and peakload electricity supplies in Europe were lower than in 2015, mainly due to the decrease in fuel prices, especially for gas and CO₂. After a dip in the first quarter, prices recovered from the second quarter and saw some particularly large fluctuations in the autumn.

In **France**, the average annual contract baseload price was €33.3/MWh, down by 12.7% from 2015, primarily as a result of the lower gas and CO₂ prices. However, the 2017 annual contract baseload price ended the year 2016 at €40.3/MWh, a rise of €7.2/MWh from the start of the year. This price increase, which was essentially concentrated in the fourth quarter, is explained by initially rising coal and gas prices, and uncertainties over the nuclear fleet's availability in the first quarter of 2017 following additional steam generator inspections requested by the ASN, for which the reactors concerned must be taken offline. In early December, once the ASN had approved to restart 8 of the 12 nuclear reactors concerned by carbon segregation issues, the 2017 annual contract price lost almost €6/MWh as the price for Q1-2017 fell by nearly €12/MWh. The forward price then rose again with the increasing coal and CO₂ prices.

In the **United Kingdom**, the April Ahead contract baseload price for 1 April Y+1 to 31 March Y+2 dropped by 18.5% from its 2015 level in

line with gas price trends. Prices nonetheless increased over the year 2016 as a whole by 15%, following the upward movement in British gas prices, although for euro-listed prices this was offset by the decline in the pound sterling that began on 23 June after the Brexit referendum.

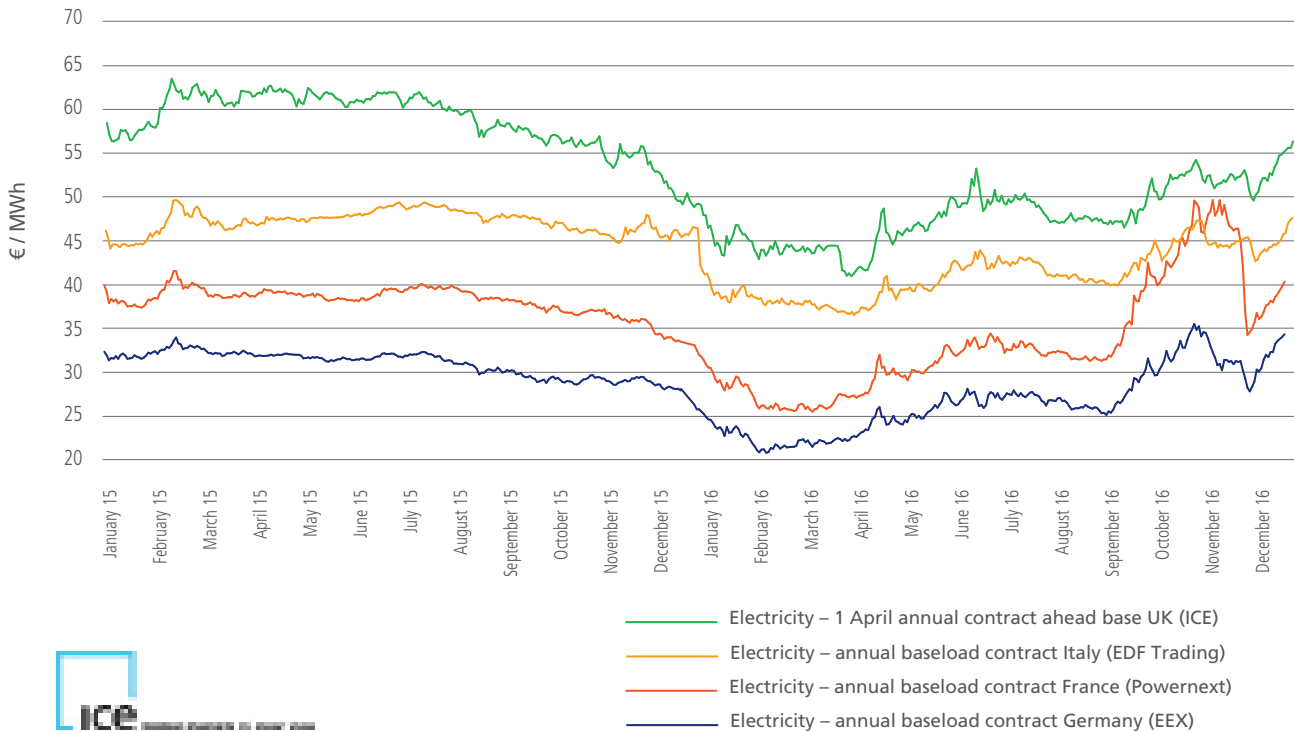
In **Italy**, the annual contract baseload price also decreased significantly, and was €6/MWh lower on average than in 2015. This downturn is explained by the fall in gas prices, since electricity generation in Italy is highly dependent on gas-fired power plants, and the progression of installed renewable energies.

In **Germany**, the annual contract baseload price was down by an average 14.2% compared to 2015. This decrease is attributable to falling fuel prices, although the Cal 2017 contract price gained €8/MWh between the start and end of the year, rising from €26.3/MWh to €34.3/MWh. German prices generally followed the same pattern as French prices, except in the final quarter. They were also more influenced by the significant increase in coal prices over the year, since coal-fired plants are a very important factor in Germany's energy mix.

In **Belgium**, the annual contract baseload price registered a 23% decrease from 2015 and stood at an average €33.4/MWh for 2016. It followed the same trends as the French contract price overall.

1. **France and Germany:** average year-ahead EEX price;
Belgium and Italy: average year-ahead EDF Trading price;
United Kingdom: average ICE annual contract prices, April 2015 then April 2016 (in the UK, annual contract deliveries take place from 1 April to 31 March).

PRINCIPAL FORWARD ELECTRICITY PRICES IN EUROPE (BASELOAD)



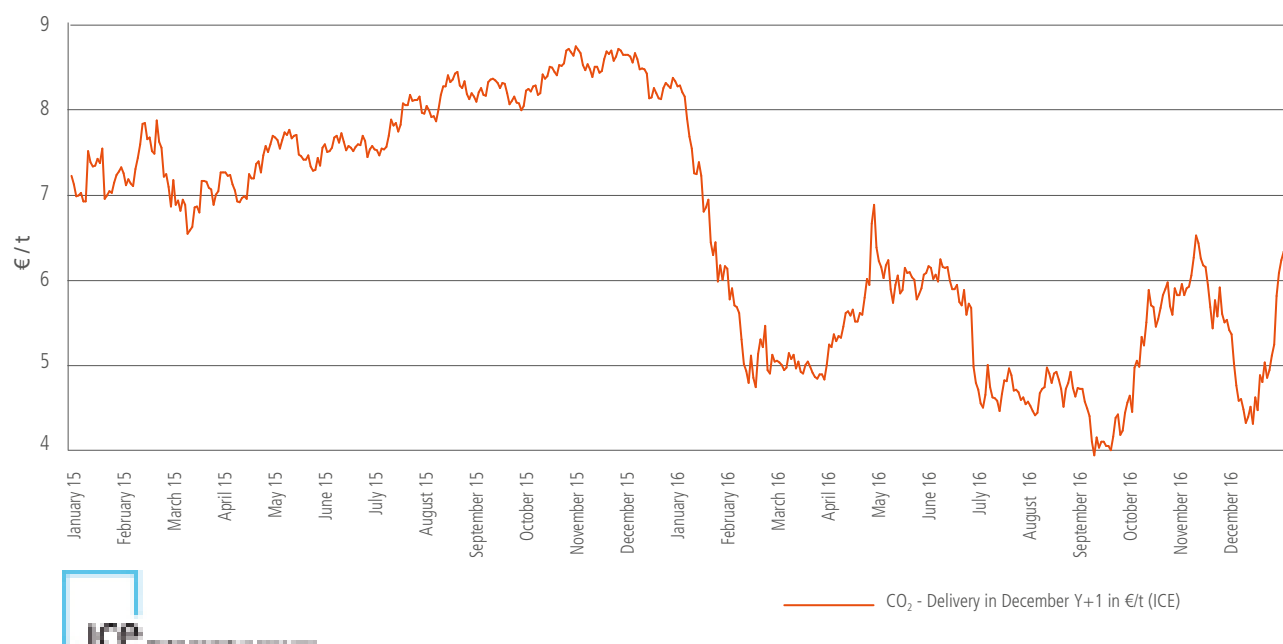
5.1.2.1.3 CO₂ emission rights prices¹

The price of CO₂ emission certificates for delivery in December 2017 ended the year at €6.6/t, down by €1.6/t from the start of the year. This decline masks contrasting developments during the year. The price dropped sharply at the beginning of 2016 year following a fall in demand for quotas due to downward revisions of industrial prospects in Europe, and lower forecast use of coal-fired plants. This downturn neutralised the effect of the price rise that had followed the European Parliament's adoption of the market stability reserve in July 2015. There was also a reversal in the merit order in the UK between coal-fired and gas-fired plants. Since gas-fired plants are more economic to run and produce around less than half as much

CO₂ per MWh as coal-fired plants, there was a substantial decrease in forecast demand for CO₂ emission quotas. Prices then rose along with the prospects of the introduction of a carbon price floor in France, but this rise was halted by the result of the "Brexit" referendum which means that France will lose its chief ally – the UK – in the battle against greenhouse gas emissions. In the autumn, CO₂ prices then increased as French nuclear plants remained offline for the tests requested by the ASN, resulting in greater use of thermal power plants, especially plants fired by coal, gas and German lignite. Finally, a further decline in prices was observed in November as the COP22 in Marrakech failed to take practical steps for the implementation of an anti-greenhouse gas emission policy.

1. Average ICE prices for the annual contract, Phase III (2013-2020).

CO₂ EMISSION RIGHTS PRICES



5.1.2.1.4 Fossil fuel prices¹

	Coal (US\$/t)	Oil (US\$/bbl)	Natural gas (€/MWhg)
Average price for 2016	53.7	45.1	15.5
Average price variation, 2016/2015	-1.7%	-15.7%	-24%
Highest price in 2016	77.6	56.8	18.9
Lowest price in 2016	36.5	27.9	12.9
Closing price, 2015	44.0	37.3	15.8
Closing price, 2016	70.3	56.8	18.9

Oil prices ended the year 2016 at US\$56.8/bbl, up by US\$19.5/bbl from the start of the year. It was a year of substantial price volatility as the market responded to geopolitical events and meetings between OPEC members and other oil-producing countries about concerted control of supply in view of depressed demand. There was a strong market slump in January due to fears concerning the Chinese economy and the prospect of a strong recovery for Iranian exports following Iran's nuclear deal with western powers: oil prices fell to their lowest point of the year on 20 January, at US\$27.9/bbl. A long period of upward price movements then followed until summer, due to supply-side tensions. For example, forest fires in Canada significantly affected power generation in Alberta, there were unprecedented oil industry strikes in Kuwait, one of the world's largest producers, and several American shale oil wells were closed because they were no longer profitable at such price levels. The first attempts at a concerted reduction of oil supplies took place, notably with a meeting in Doha in April, but Iran was neither interested nor involved. From July onwards oil prices retreated once more as demand from China remained sluggish and ultimately American oil well closures were not as extensive as expected. There was an upturn between late November

and early December when an agreement to cut oil production was reached in Vienna between the main OPEC countries and Russia. This agreement concerns the main oil-producing countries apart from the United States, and limits supply in response to moderate demand levels. It also accommodates Iran, allowing it to return to its 2005 production levels and reclaim its place as a key exporter on the world oil market.

Forward prices for coal deliveries in Europe in 2017 ended the year at US\$70.3/t, up by US\$26.3/t from the start of the year. The rise was practically continuous throughout the year. Prices rose faster in summer and autumn, reaching a peak on 7 November at US\$77.6/t before dropping back slightly. The major factor of 2016 was China's move to cut production by closing down unprofitable mines and limiting the number of days worked by miners. The objective is to reduce local Chinese coal production by 1 billion tonnes per year, a volume that should be compared to the 200 million tonnes imported by Europe each year. Another factor was strong demand from Asian countries such as India, Vietnam and South Korea, which put additional strong pressure on prices. The rouble's appreciation against the dollar also contributed to an increase in Russia's dollar-denominated coal production

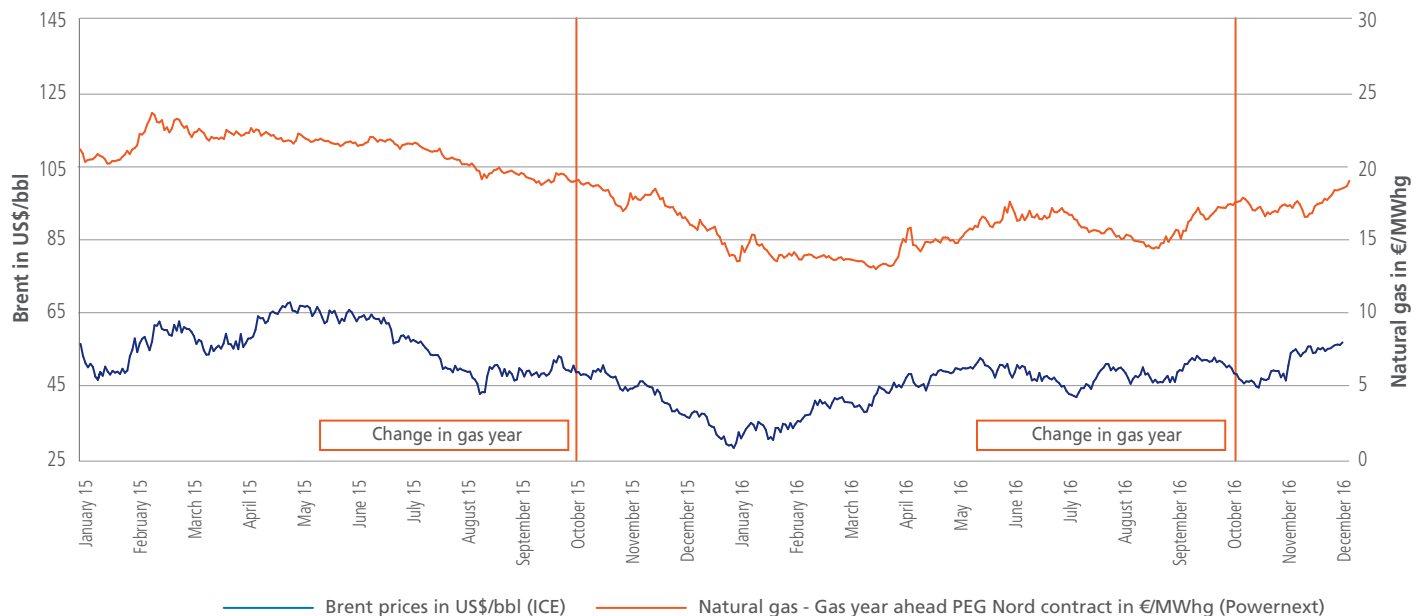
1. **Coal:** average ICE prices for delivery in Europe (CIF ARA) for the next calendar year (US\$/t);
Oil: Brent first reference crude oil barrel, IPE index (front month) (US\$/barrel);
Natural gas: average ICE OTC prices, for delivery starting from October of the following year in France (PEG Nord) (€/MWhg).

costs and therefore in market prices. The prospect of more extensive use of thermal power generation, especially coal-fired plants, to compensate for lower nuclear plant availability in France also accentuated the price rise in the autumn. This was followed by a downturn in November when the Chinese supply limitation policy was relaxed and more than eight hundred mines were authorised to produce more than their quotas, and also due to expectations that certain Australian mines would be reopened in view of high market prices. Prices then started a new upward movement right at the end of the year, once again exceeding US\$70/t as a result of strikes in Colombia, a major exporter to Europe, and difficult weather conditions in Russia that prevented some exports by rail and sea. The rise in oil prices, which have a strong influence on coal production prices, also intensified this trend.

The annual gas contract for the French PEG Nord hub traded at an average €15.5/MWh in 2016, down by €4.9/MWh (-24%) compared to 2015. However, gas prices still ended the year on an upward note. The decline

over the year is explained partly by a fall in oil prices in early 2016 which pulled gas prices down in their wake via indexing of long-term contract, and partly by good gas supply levels on the European platform. Comfortable gas stocks at European level mitigated the upward price pressure associated with the Rough gas storage facility in the United Kingdom and restrictions on production by the Groningen gas field in the Netherlands. Discussions took place during the year regarding a lower cap on production in order to limit seismic risks from this field, and ultimately the Dutch government decided to reduce the authorised maximum to 24bcm¹, whereas in 2014 the cap was still 42.5bcm. In the United Kingdom, the operator of the Rough gas storage site, which accounts for two thirds of the country's storage capacity, announced in July that filling could only resume in winter 2017, and that drawings from some of its wells would be restricted. This announcement pushed forward prices up because the United Kingdom would need to use interconnections to meet its demand.

NATURAL GAS AND OIL PRICES



5.1.2.2 Electricity² and gas³ consumption

Overall electricity consumption in France for 2016 was 1.5% higher than in 2015. Year-on-year, electricity consumption fell in January and February by around 4.5%, mainly as a result of mild weather, then rose in March, April and May due to cooler temperatures. Use of air conditioning in June and July was down compared to the same months of 2015 (-1.3% and -3.4% respectively), contributing to the decrease in electricity consumption. Although September temperatures were below normal in 2015 and above normal in 2016, the monthly consumption for September was practically stable, as electricity was used for air conditioning instead of heating.

Consumption late in the year was up by 6.5% as November and December were colder than the previous year.

In the United Kingdom, estimated electricity consumption was down by 0.8% compared to 2015, principally as a result of lower consumption and milder weather: since 2016 was in general not as cold as 2015, less electricity was consumed for heating. In Italy, electricity consumption was down by -2.1% compared to 2015 as a result of the unfavourable weather conditions of 2016.

Estimated natural gas consumption in France rose by 9.2% in 2016 from 2015. From March onwards, monthly demand was higher year on-year in every month, with a more accentuated increase in November and December. The average temperature for the year was 12.5°C, which was 0.5°C lower than in 2015, causing an overall rise in consumption. Greater use of gas-fired power plants was another, although more minor, contributing factor to the rise in demand.

1. billion cubic metres.

2. Sources: France: unadjusted data and data adjusted for weather effects provided by RTE.

United Kingdom: Department of Energy and Climate Change for the first three quarters, local subsidiary estimation for the final quarter.

Italy: unadjusted data and data provided by Terna, the Italian national grid operator and adjusted by Edison.

3. Sources: France: unadjusted data from Smart GRTgaz.

United Kingdom: Department of Energy and Climate Change data for the first three quarters, local subsidiary estimation for the final quarter.

Italy: Ministry for Economic Development (MSE), Snam Rete Gas data adjusted by Edison on the basis of 1bcm = 10.76TWh.

Estimated natural gas consumption in the **United Kingdom** was up by 2.6% from 2015, principally driven by higher electricity generation by gas-fired plants following coal-fired plant closures in 2016. In **Italy**, domestic demand for natural gas increased by 5.2% as a result of higher gas-fired generation output given that hydropower and coal-fired plants had reduced their production levels.

In early March 2015, new, more competitive fixed-tariff products were introduced on the B2C segment. The "Blue Price Promise June 2016" guaranteed a fixed price of £965 per year up to and including June 2016, and the "Blue Price Promise February 2017" guaranteed a fixed price of £999 per year up to and including June 2017.

5.1.2.3 Electricity and natural gas sales tariffs

For details of recent developments concerning tariffs in **France**, see section 5.1.3.13.1.5 "Regulated Electricity Sales Tariffs in France".

In the **United Kingdom**, EDF Energy reduced its gas tariffs by 5% on 24 March 2016 due to falling gas prices on the wholesale markets. This reduction is consistent with the gas tariff cuts applied by the five other major energy suppliers in the United Kingdom between February and March 2016.

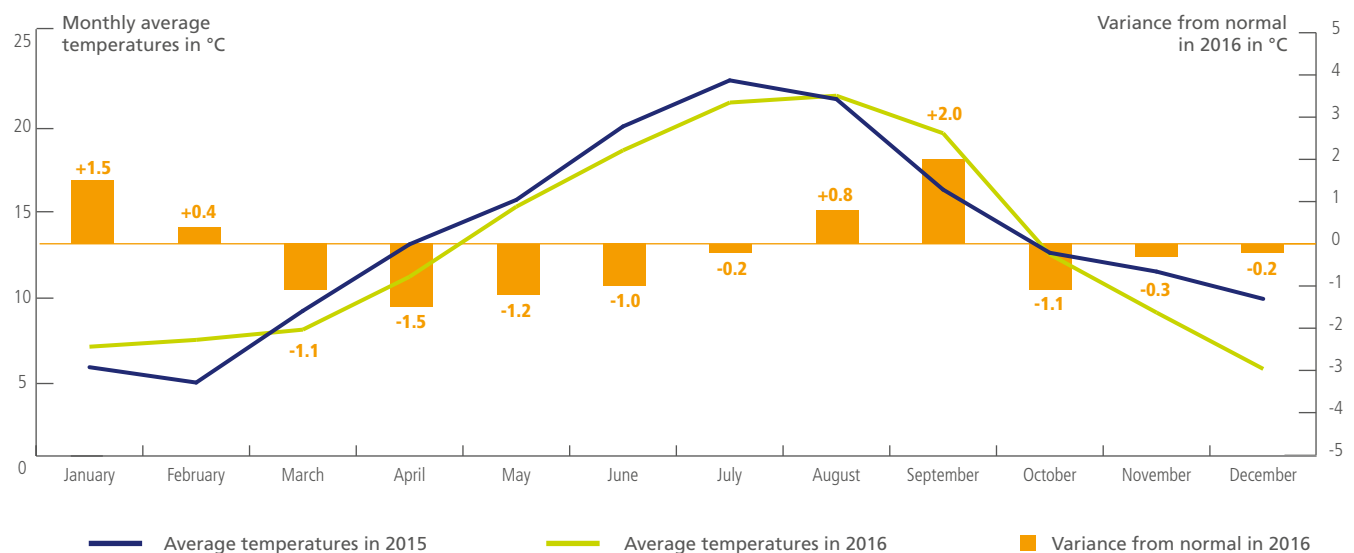
On 16 December 2016 EDF Energy announced tariff changes for 2017: a 5.2% reduction in gas tariffs from 6 January 2017, a 12.9% reduction in gas tariffs for prepayment customers from 6 January 2017, and an increase in electricity tariffs effective from 1 March 2017.

5.1.2.4 Weather conditions: temperatures and rainfall

2016 was a colder year than 2015, with average temperatures for France that were -0.2°C below normal.

January 2016, and to a lesser degree February 2016, registered relatively mild temperatures for the season. However, cool weather often dominated in spring 2016: March, April, May and June temperatures remained between 1.0°C and 1.5°C below normal levels. There was a late summer heatwave and a generally warm month of September (an average 2°C above normal), followed by contrasting cool temperatures in October (1.1°C below normal). The year finally ended on fairly close-to-normal temperatures.

TEMPERATURES ^{(1) (2)} IN FRANCE IN 2016 AND 2015

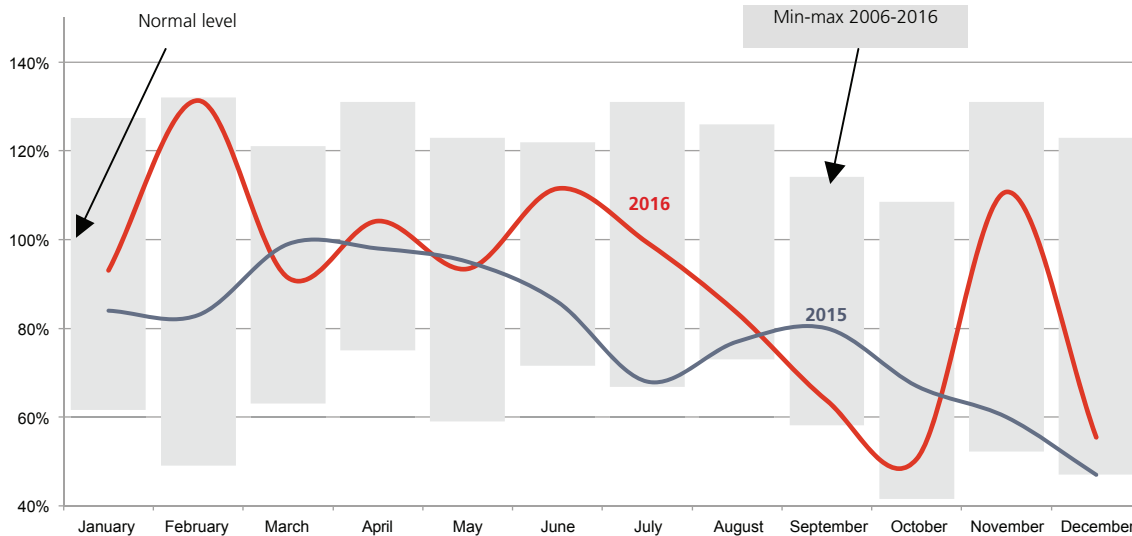


(1) Average temperatures recorded in 32 cities weighted by electricity consumption.

(2) Source: Miréor (data from Météo-France).

2016 rainfall levels were close to normal in the western half of Europe, although some areas were short of rain (south of France, north Italy) and eastern Europe (particularly Austria, Hungary and Slovakia) had surplus rainfall. Air temperatures were higher than normal, especially in Central Europe and countries close to Russia.

WATER FLOW COEFFICIENTS IN FRANCE IN 2016 AND 2015 ⁽¹⁾



(1) Weekly monitoring by EDF's OSGE energy observatory of French reservoir levels (Miréor project) as far as the coast.

In France, except in the southern Alps and the eastern Pyrenees which registered shortfalls in precipitation, there was surplus precipitation everywhere in the first half of 2016, making up for the significant shortfall in water levels observed in late 2015. This led to excess snowfall on the northern Alps and the French Rhine valley. The second half of the year saw a general shortfall in precipitation, except in November.

As a consequence of these unusual weather conditions, French hydropower capacity was often above normal in the first half of 2016, but then fell below normal in the second half of the year (apart from November), with seriously low flows in September, October and December.

5.1.3 SIGNIFICANT EVENTS OF 2016¹

5.1.3.1 Board of Directors' meeting held on 13 February 2017

During its meeting held on 13 February 2017, the Board of Directors of EDF decided to carry out a capital increase with preferential subscription rights to existing shareholders for a total amount, including issue premium, of approximately €4 billion, as announced on 22 April 2016.

The French State, EDF's largest shareholder, has committed to subscribe for new shares in an amount of €3 billion out of the total amount of approximately €4 billion.

5.1.3.2 Extension to 50 years of the operating lifetimes of the 900MW PWR series in France²

The Group considers that all the technical, economic and governance conditions necessary to bring the useful lives of its 900MW PWR power plants in France into line with its industrial strategy are fulfilled in 2016.

In view of studies and work already completed, particularly concerning replacement of components and controlled ageing of equipment, the Group has sufficient assurance of the plants' technical capacity to operate for at least 50 years, and this is also confirmed by the international benchmark.

The Group is also making progress with the Nuclear Safety Authority (*Autorité de sûreté nucléaire* (ASN)) on the question of the content of the fourth 10-year inspections of this series as part of the *Grand carénage* overhaul programme. Although some points remain to be finalised, the components of these inspections are currently in a phase of convergence with the ASN. This was reflected in the response to the Re-examination Orientation File sent by the ASN to EDF in April 2016, in which the ASN stated its agreement with the company's chosen themes and commitments for these inspections. This marked an important milestone in the process, triggering secure industrial preparations for the 10-year inspections pending the ASN's generic opinion, which should be issued a few months before the first of the inspections begins.

Once its fourth 10-year inspections are completed, the 900MW PWR series will have reached a level of safety that is both as close as possible to EPR safety level and one of the highest worldwide.

Extending the nuclear reactors' operating lifetimes beyond 40 years also offers high profitability even in a long-term price downturn scenario, since

1. A full list of press releases is available from the EDF website: www.edf.fr

2. Excluding Fessenheim.

the production cost of nuclear power remains competitive in relation to other types of power generation.

Furthermore, the principle of operating for more than 40 years is included in France's multi-year energy plan (*programmation pluriannuelle de l'énergie* (PPE)) adopted by Decree 2016-1442 of 27 October 2016 as a necessity for secure power supplies. Extending the useful lives of the 900MW series is compatible with the objectives of the PPE (particularly development of renewable energies, and control of greenhouse gas emissions).

In view of all these factors, the Group considers that the best estimate for the useful life of the 900MW power plants is currently 50 years. This accounting estimate does not affect the ASN's decisions to authorise continued operation, which will be given individually for each unit after each 10-year inspection, which is currently the case as required by law.

The Group therefore changed this accounting estimate at 1 January 2016 for all its power plants in the 900MW series in France, except for Fessenheim.

Details of the accounting impacts of this change of estimate are provided in note 3.1 to the 2016 consolidated financial statements, "Extension to 50 years of the useful lives of the 900MW PWR series in France".

5.1.3.3 Information on EDF's nuclear fleet

On 7 October 2016 EDF submitted a technical report to the French Nuclear Safety Authority (ASN), providing evidence of the fully safe operation of all the steam generators concerned by the carbon segregation issue.

Earlier, as stated in the Group's press release of 21 September 2016, EDF had announced continued checks to reinforce the demonstration that the steam generators of the 18 nuclear reactors concerned by the carbon segregation issue were fit for fully safe operation. It therefore announced a revised forecast of 380-390TWh for 2016 nuclear power generation.

On 21 October 2016, the Group informed the electricity markets of the scheduled outage dates for 5 reactors in operation at that date which were to undergo inspections following the request made by the ASN on 18 October (Tricastin 2 and 4, Fessenheim 1, Gravelines 4 and Civaux 1). 6 reactors had already been authorised to restart operations and were operating normally, and 7 were shut down while inspections were completed or in process.

On 3 November 2016, in view of discussions with the ASN, EDF informed the electricity markets that the restart of 5 reactors – Bugey 4, Gravelines 2, and Tricastin 1, 3 and 4 – was to be deferred to late December. Consequently, the Group revised its 2016 nuclear output target from 380-390TWh to 378-385TWh.

The ASN agreed in principle on 5 December to the restart of the 900MW nuclear reactors concerned by this carbon segregation issue, subject to verifications for each individual reactor. All the reactors concerned had resumed operation by the end of January 2017 once their specific case had been examined by the ASN.

In view of the information in its possession and safety issues for the electric network, EDF wrote to the ASN in early January asking to postpone the two inspections on the last two reactors concerned (Civaux 1 and Tricastin 2). The ASN authorised this postponement in decisions dated 12 January for Tricastin 2 and 17 January for Civaux 1.

On 17 January 2017, the ASN also approved the generic data provided for 1,450MW series nuclear reactors concerned by this carbon segregation issue. This approval means that it should be possible to reconnect the Civaux 1 reactor to the network at the beginning of February.

The Tricastin 2 reactor was reconnected to the network on 10 February 2017.

EDF is in regular contact with Réseau de Transport d'Électricité (RTE), which is responsible for ensuring a supply-demand balance and secure supplies as regards electricity.

5.1.3.4 Information on the technical and financial feasibility of dismantling EDF's nuclear power plants in France

On 1 February 2016 the fact-finding commission of the French National Assembly's sustainable development and planning Committee presented a report on the technical and financial feasibility of dismantling basic nuclear installations. The report relates to all nuclear operators, including EDF.

In view of the information in this report, EDF would like to bring forward the following details:

EDF has full responsibility for the technical and financial aspects of dismantling its nuclear plants.

The Group is currently decommissioning nine reactors.

- Chooz A (Ardennes) – a pressurized water reactor, the most representative of the nuclear power plants currently operating in France.

Decommissioning began in 2007 and work is due to be completed in 2022. All of the electromechanical installations have been decommissioned and EDF is currently working on the final stage, dismantling the reactor vessel. Work is continuing on schedule and on budget.

The experience gained from dismantling the Chooz A plant will fully benefit the nuclear plants currently in operation, which all use pressurized water reactor (PWR) technology.

- The other 8 nuclear reactors currently being dismantled use three different types of technology (UNGG, fast neutron and heavy water).

Significant work has been done on all of these sites. Dismantling these installations is a complex process and the work involved is consolidating EDF's expertise in decommissioning. Compared to other similar installations that have been dismantled around the world, the EDF group's sites are among the most advanced.

EDF confirms its objective of dismantling its nuclear installations as quickly as possible. To achieve this, the Group is drawing on specific skills that it is committed to developing in the long term, both internally and with its main service provider partners.

With respect to the funding of these operations, French legislation (the Law of 28 June 2006 on sustainable management of radioactive material and waste and its implementing provisions) has created a secure mechanism with strict requirements imposed on nuclear operators:

- the Law requires that dedicated financial assets must be allocated to funding the costs relating to dismantling nuclear installations and the costs of long-term radioactive waste management;
- these assets must be identified and managed separately from the company's other assets and financial investments, in order to ensure that they are available when needed;
- these assets and the total amounts set aside are subject to strict, regular monitoring and checks by the Board of Directors and the French State.

5.1.3.5 Strategic developments

5.1.3.5.1 Hinkley Point C: signature of the final agreements

On 29 September 2016, contracts for the Hinkley Point C power station were signed by EDF, CGN and the British government.

The event marks the end of the project's development phase after several years of preparation and planning.

The agreements cover three aspects:

- construction and operation of two EPRs at Hinkley Point under the leadership of EDF (66.5%), with CGN's share at 33.5%. EDF will consider bringing other investors into the project in due course but will not reduce its initial stake to below 50%;
- development of two EPRs at the Sizewell site, under the leadership of EDF (80%), in preparation for a possible final investment decision. CGN will take a 20% share;
- adaptation and certification in the United Kingdom of the HPR 1000 technology (a third-generation Chinese 1,000MW reactor), and its development on the Bradwell site, under the leadership of CGN (66.5%), in preparation for a possible final investment decision. The EDF group will take a 33.5% share.

For further details see section 1.4.5.1.2.5 "Nuclear New Build business" and section 2.1.3 "Specific risks related to the Group's nuclear activities" and note 3.2 to the 2016 consolidated financial statements, "Hinkley Point C: signature of the final agreements".

5.1.3.5.2 EDF and AREVA sign binding agreements for the sale of AREVA NP's activities

Following the memorandum of understanding signed on 28 July 2016, on 15 November AREVA and EDF signed the contract setting the terms of sale for an interest conferring exclusive control by EDF of "NEW NP", a 100% subsidiary of AREVA NP, that will combine the AREVA group's activities relating to nuclear reactor and equipment design and manufacturing, fuel assemblies, and installed base services.

The contracts for the Olkiluoto 3 EPR project and the resources required to complete the project will be retained by AREVA NP, which is part of the AREVA SA group. The same applies to certain contracts relating to components forged in Le Creusot plant, depending on their maturities and the assessment of the associated risks that is currently in process as part of the ongoing audits.

AREVA SA remains responsible in the usual way for the contractual obligations concerning any defects brought to light in quality control for equipment manufactured at Le Creusot, and, if relevant at the Saint Marcel and Jeumont plants. EDF is therefore fully protected from the risks associated with any defects noted that are classified as serious.

The sale price for 100% of the equity value of NEW NP, without transfer of financial debt at the completion date, is confirmed at €2.5 billion excluding potential price supplements and adjustments. This price corresponds to a multiple of 8x the forecast EBITDA¹ for 2017.

The information and consultation process with employee representative bodies has been finalised, and completion of the sale, expected during the second half of 2017, remains conditional on:

- favourable ASN conclusions regarding the outcome of the tests on the Flamanville 3 reactor's primary circuit;
- completion with satisfactory conclusions of the quality audits at Le Creusot, Saint-Marcel and Jeumont plants;
- clearance by the relevant merger control authorities.

Discussions have begun with strategic investors that have expressed an interest in becoming shareholders in NEW NP alongside EDF. The stake acquired by EDF, which can be up to 75% under the terms of the contract signed, would thus be smaller but would still ensure EDF has exclusive control, with minority partners holding at least 25%.

For further details see section 1.4.1.2 "New Nuclear projects" and note 3.4 to the 2016 consolidated financial statements "EDF and AREVA sign binding agreements for the acquisition of AREVA NP's activities".

5.1.3.6 Result of the scrip dividend option for the interim dividend for 2016

On 30 September 2016, EDF's Board of Directors decided to distribute an interim dividend of €0.50 per share in respect of 2016, offering the choice of receiving this dividend in cash, or in the form of new shares (scrip option) on the terms set in the fourth resolution adopted at the General Shareholders' Meeting of 12 May 2016.

The option period ran from 5 October to 21 October 2016 inclusive. By the end of this period, the scrip option had been chosen for 91.79% of interim dividend rights for 2016.

This operation resulted in the issuance of 95,885,292 new shares (representing a capital increase of 4.76% based on the Company's existing share capital – see section 7.3.8 "Ownership of the company's capital and voting rights"). The issue price for the new shares issued in payment of this interim dividend was set at €9.62 on 30 September 2016.

The new shares were settled, delivered and admitted for trading on Euronext Paris on 31 October 2016. These shares carry rights immediately and are treated identically to shares already admitted for trading.

The amount of the cash dividend payable to shareholders who did not choose the scrip option for the interim dividend for 2016 was €82.55 million, and it was paid out on 31 October 2016. The balance in cash to be paid to shareholders who opted for the scrip dividend amounts to around €0.59 million.

5.1.3.7 Liberalisation of hydropower concessions in France

The European Commission (EC) Directorate-General for Competition has begun proceedings against the French state concerning hydropower concessions in France, on the grounds of Article 106, Chapter 1 of the Treaty on the Functioning of the EU (TFEU), read in conjunction with Article 102 of the same treaty.

The European Commission therefore sent a formal notice to the French State on 22 October 2015, stating that it considered the fact that most hydropower concessions in France are attributed to and reserved for EDF as a violation of the above articles, since these measures reinforce EDF's dominant position on the French retail electricity markets.

1. Normalised pro forma EBITDA for the acquired activities, excluding major projects.

The State replied to this notice, which marked the beginning of an adversarial exchange of positions between the State and the EC, without prejudice to the final outcome. As the principal interested party, EDF received a copy of this notice. It sent the EC its observations in response to the notice on 4 January 2016, firmly contesting the EC's analysis and the grounds on which it is based.

During 2016, EDF was involved in certain exchanges between the French State and the EC, particularly to provide technical details on the operation of the French market, and thus advance towards an agreement. These exchanges should continue in 2017 until the EC closes the file.

5.1.3.8 Group disposal plan

5.1.3.8.1 EDF, Caisse des Dépôts and CNP Assurances: signature of a binding agreement for a long-term partnership with RTE

On 14 December 2016, EDF entered into a binding agreement with Caisse des Dépôts and CNP Assurances setting the terms and conditions for the acquisition by Caisse des Dépôts and CNP Assurances of a 49.9% indirect stake in RTE¹, and the modalities of a long-term partnership to promote the development of RTE. This partnership between major public players in infrastructure financing in France will strengthen RTE's public service remit.

The final agreed value is €8,200 million for 100% of RTE's equity. EDF may benefit from a price supplement of up to €100 million.

The plan is for Caisse des Dépôts and CNP Assurances to become core shareholders of RTE alongside EDF, through the creation of a joint venture between EDF (50.1%) and Caisse des Dépôts and CNP Assurances (49.9%).

This transaction will give RTE a new governance providing long-term support for RTE's investment strategy to optimise electricity transmission infrastructures and boost the energy transition. By strengthening RTE's public footing and long-term economic and social model, this transaction will also enable RTE to retain its current regulatory status as the independent transmission system operator, in accordance with the applicable regulations.

This agreement is part of the response to the call made to the CEOs of RTE and EDF in a joint statement of 22 April 2016 by the Minister of Finance and Public Accounts and the Minister for the Economy, Industry and Digital Affairs, to define a plan for opening up the capital that could be implemented by the end of 2016.

Following publication of Decree 2016-1781 of 19 December 2016, on 23 December 2016 EDF transferred all of the shares in RTE to C25, which is partly financing this operation through external debt. EDF will then sell 49.9% of the equity capital of C25 to Caisse des Dépôts and CNP Assurances. Finalisation of this second step is expected in the first half of 2017, once the relevant merger control authorities have given their approval.

The balance of EDF's stake in C25 (50.1%) will remain allocated to the portfolio of dedicated assets intended to cover expenses related to the back-end of the nuclear cycle.

5.1.3.8.2 EDF TRADING and JERA: future sale of the coal trading business

On 21 December 2016, EDF Trading signed binding agreements with JERA Trading Singapore, a subsidiary of the JERA group, for the future sale by the end of the first half of 2017 of EDF Trading's coal trading and freight business.

The agreement also provides for the acquisition of a minority interest (33%) in JERA Trading Singapore, which in parallel will purchase 100% of the shares of EDF Trading Australia (owner of 7.5% of the Narrabi coalmine in Australia) and all the capital of Amstuw BV (operator of the Rietlanden coal terminal in the Netherlands).

5.1.3.8.3 EDF: future sale of EDF Polska's assets

Following an open competitive process, on 26 October 2016 EDF announced that it was beginning exclusive negotiations with IFM Investors, which made a binding offer to the Group for its Polish cogeneration activities (heat and electricity). A separate sale process for the coal-fired Rybnik power plant (1.8GW capacity) was already in exclusive negotiations between the EDF group and EPH.

To finalise these two operations, it was necessary to split EDF Polska into two stand-alone entities, one holding the cogeneration assets and the other Rybnik. The Polish government informed the EDF group on 12 December 2016 that it had decided not to authorise this split. EDF is currently examining the grounds for this refusal, and reserves all rights.

On 27 January 2017, a memorandum of understanding was signed by EDF and a consortium of Polish utilities comprising PGE, Enea, Energa and PGNiG, establishing the framework for discussions concerning the sale of EDF Polska.

5.1.3.8.4 EDF and ENKSZ complete the sale of 100% of EDF Démász Zrt

On 31 January 2017, EDF and ENKSZ ("Első Nemzeti Közműszolgáltató Zrt") completed the sale of EDF's entire stake in its Hungarian subsidiary EDF Démász Zrt. This announcement follows approval of the operation by the Hungarian energy sector regulator and the French Ministry for the Economy.

The transaction values EDF's 100% stake in EDF Démász Zrt at approximately €400 million, and is a new step forward in the execution of EDF's disposal plan for the period 2015-2020.

EDF signed a final agreement in preparation for this sale on 5 December 2016.

5.1.3.8.5 Acquisition of a portfolio of some 130 office and business assets by Tikehau IM from EDF group property investment company Sofilo

Tikehau Investment Management (IM) acquired a portfolio of some 130 office property and business assets from Sofilo, the EDF group's property investment company. This portfolio comprises assets located in the Paris region and other regions of France, covering floor space of approximately 300,000 square metres.

The acquisition was undertaken by the Tikehau Real Estate II property fund (OPCI), which is managed by Tikehau IM, in the form of a sale combined with an operating lease contract. Catella Asset Management, which assisted Tikehau IM throughout the acquisition phase, will act as asset manager.

1. 29.9% for Caisse des Dépôts and 20% for CNP Assurances.

5.1.3.9 New investments and partnerships

5.1.3.9.1 New investments and partnerships concerning EDF

5.1.3.9.1.1 Finalisation of the acquisition by EDF of Studsvik's waste management activities in Sweden and the United Kingdom

On 28 July 2016, EDF finalised the acquisition of Studsvik's assets and facilities for waste processing by metal recycling, incineration and pyrolysis situated at the Nyköping site in Sweden, as well as the Workington Metal Recycling Facility (MRF) in the UK.

This transaction was completed as part of the agreement on nuclear plant decommissioning and radioactive waste management activities announced on 20 April 2016 by EDF and Studsvik.

It follows fulfilment of the conditions precedent, in particular obtaining clearance by the competent authorities and the permits required for the waste treatment activities in question.

The finalisation of the acquisition of Studsvik's radioactive waste treatment activity significantly increases EDF's industrial processing capacities and marks a major milestone in the Group's development in radioactive waste management and nuclear plant decommissioning.

5.1.3.9.1.2 Completion of acquisition of Aéroports de la Côte d'Azur

On 9 November 2016, once the regulatory authorisations had been received, Atlantia and EDF Invest finalised their acquisition of a majority stake in Aéroports de la Côte d'Azur (ACA), the company that manages the airports of Nice-Côte d'Azur, Cannes-Mandelieu and Saint-Tropez, and the Sky Valet international business aviation service network.

This investment has been allocated to EDF Invest's Infrastructures pocket, alongside other investments including C25 (the company that directly holds 100% of RTE shares), TIGF, Porterbrook, MRG and Géosel.

5.1.3.9.1.3 Extension of a partnership agreement with China Datang Corporation

As part of its strategic partnerships, EDF and China Datang Power Corporation (CDT) announced on 26 May 2016 that they had entered into a new partnership agreement, renewing the original partnership signed in 2013. The potential areas identified for cooperation concern skill-sharing in the fields of development strategy, training, supply and service opportunities, and opportunities for joint investments in electricity generation projects in China and other countries. A specific agreement will be required for each area before the cooperation begins.

5.1.3.9.1.4 Memorandum of understanding between Mitsubishi Heavy Industries and EDF for collaboration in nuclear energy

On 28 June 2016, Mitsubishi Heavy Industries (MHI) and EDF signed a memorandum of understanding to strengthen the links between the French and Japanese nuclear industries. Acknowledging the strategic benefit of combining the forces of EDF and MHI in certain fields of civil nuclear energy,

EDF and MHI have more specifically agreed to enhance their strategic cooperation in the following areas:

- updating the cooperation framework for the ATMEA joint venture, including EDF's involvement in commercial operations in support of ATMEA;
- mutual support for smooth execution of the ATMEA 1 projects, particularly in Turkey and Vietnam;
- the potential participation of MHI as a strategic partner in reorganisation of the French nuclear landscape, through the acquisition of a minority investment in AREVA NP;
- other potential collaborations leveraging the companies' respective technologies and special expertise in the global market.

5.1.3.9.2 New investments and partnerships concerning Group subsidiaries

5.1.3.9.2.1 EDF Énergies Nouvelles

EDF Énergies Nouvelles continued its expansion in onshore wind power during 2016, moving into new key geographic areas, offshore wind power, and photovoltaic solar power, which is its second area of development. The principal operations undertaken by EDF Énergies Nouvelles in 2016 are described in section 1.4.1.4.3 "EDF Énergies Nouvelles".

5.1.3.9.2.2 Dalkia

Dalkia's main operations of 2016 are described in section 1.4.6.1.1 "Dalkia".

5.1.3.9.2.3 Edison

Edison's main operations of 2016 are described in section 1.4.5.2.3 "Edison's activities".

5.1.3.10 Investment projects

5.1.3.10.1 France

5.1.3.10.1.1 Flamanville EPR: 1st milestone reached with finalisation of the primary circuit mechanical erection and continuation of the vessel testing programme

The mechanical erection of the Flamanville EPR's main primary circuit¹ has been completed, and the large components (four steam generators, reactor vessel, pressuriser and reactor coolant pumps) have been installed and assembled.

This stage marks the achievement of the first key milestone set by the EDF group for the first quarter of 2016, in line with the site schedule as updated in summer 2015.

For more details, see section 1.4.1.2.2 "Update on the Flamanville EPR project".

1. The primary circuit is a closed loop circuit containing pressurised water. This water heats up in the reactor vessel when in contact with the fuel assemblies. The acquired heat is transferred to the secondary cooling circuit in the steam generators to produce the steam that will drive the turbo generator.

5.1.3.10.1.2 Programme of investment in existing nuclear facilities in France

On 22 January 2015, EDF's Board of Directors approved the principle of the *Grand carénage* major industrial overhaul programme, which is detailed in section 1.4.1.1.2 "Operation and technical performance of the nuclear fleet".

5.1.3.10.1.3 Inauguration of the natural gas combined cycle plant at Bouchain

On 17 June 2016, EDF and General Electric (GE) inaugurated the first ever natural gas combined-cycle plant equipped with GE's 9HA turbine in Bouchain in the north of France, in the presence of Jean-Bernard Lévy, CEO of EDF, and Steve Bolze, President and CEO of GE Power (see also section 1.4.1.3.2 "Issues relating to thermal generation").

5.1.3.10.2 Other international

Jiangxi Datang International Fuzhou Power Generation Company Ltd. (Fuzhou)

On 27 April 2016 the second generation unit at the Fuzhou ultra-supercritical coal-fired power plant in China came online, three months ahead of schedule. The second unit thus started operations four months after the first unit which came online on 29 December 2015. The Fuzhou plant (2x1,000MW), in which the EDF group owns a 49% stake, is now fully operational.

5.1.3.10.3 Other activities

5.1.3.10.3.1 EDF Énergies Nouvelles

The principal wind farms and photovoltaic power plants commissioned by EDF Énergies Nouvelles are described in section 1.4.1.4.3 "EDF Énergies Nouvelles".

5.1.3.10.3.2 Dunkerque LNG: start of commercial operations by the Dunkirk regasification terminal

On 1 January 2017, commercial operations started up at the Dunkirk regasification terminal.

The Dunkirk terminal is used to import, store and regasify liquefied natural gas (LNG) before delivery via the transmission systems to the point of consumption.

The Dunkirk regasification terminal is the second largest in mainland Europe and the only one in Europe to be directly connected to two consumption markets, France and Belgium. Its annual regasification capacity of 13 billion cubic metres accounts for more than 20% of French and Belgian natural gas consumption.

5.1.3.10.3.3 Électricité de Strasbourg: inauguration of the Rittershoffen deep geothermal facility

On 7 June 2016, the deep geothermal facility in Rittershoffen, north of Strasbourg, France, was opened by the French Minister for the Environment, Energy, and the Sea. This project is the world's first to use a geothermal resource for an existing industrial process. It will provide steam from 170°C water captured 2,500 metres underground for a factory belonging to the agri-food group Roquette, located 15km away.

Électricité de Strasbourg, a subsidiary of the EDF group that has been very active in deep geothermal facilities for several years, was in charge of this project (handling geophysical studies, design of drilling and surface technical equipment, oversight of work, commissioning and operation).

With delivered thermal power of 24MW, which is enough to heat around 27,000 homes, this new facility will cut CO₂ emissions for the factory using it by 39,000 tonnes a year, equivalent to the annual emissions of 25,000 cars.

5.1.3.11 Green bonds

The Group successfully issued its first green bond in Euros in November 2013, raising €1.4 billion to finance EDF Énergies Nouvelles' renewable energy projects. The total €1.4 billion had been allocated by 30 June 2015.

In October 2015, EDF undertook its second US dollar green bond issue, with a maturity of 10 years, a total amount of US\$1.25 billion and an annual fixed coupon of 3.625%. By 31 December 2016, US\$1.22 billion had been allocated to construction of six wind farms.

The funds raised by these first two green bond issues have financed a total of 18 renewable energy projects (15 wind power projects, 2 photovoltaic solar power projects, and 1 biomethane project), located in France and North America and developed by EDF Énergies Nouvelles. These projects represent total capacity of some 2.6GW.

In October 2016, EDF issued a new green bond totalling €1.75 billion, with maturity of 10 years and a fixed coupon of 1%.

In January 2017 the Group issued two "Samurai" green bonds totalling ¥26 billion, the equivalent of approximately €212 million. These recent issues will enable the Group to pursue the investments by EDF Énergies Nouvelles for development of renewable energies, and investments to modernise and develop existing hydropower facilities in France.

5.1.3.12 Innovation

Mon Soleil & Moi

On 2 June 2016 EDF Énergies Nouvelles announced that its subsidiary EDF ENR was introducing a new self-consumption offering called "Mon Soleil & Moi".

"Mon Soleil & Moi" is now EDF ENR's sole offering for residential customers. Consumers are able to use the energy generated by their own solar panels, with the option of storing some of it for later use. A simple set of tools enables customers to maximise their self-consumption rate, with the size of the installation geared to their actual needs. They are able to monitor their energy consumption online using their tablet or smartphone. This means they can keep track of their energy expenditure and, if required, use the excess electricity stored by their battery.

Energy storage and decentralised energy generation are key priorities for EDF, which is making substantial investments to meet the needs of consumers and network operators alike. For example, EDF has launched the first 100%-solar microgrids project in the Cirque de Mafate on Reunion Island, helping to make remote villages self-sufficient in energy. EDF's R&D centres are also working on new battery technologies (zinc air, lithium air, etc.). EDF Énergies Nouvelles has commissioned a solar power plant featuring storage that has an electrical equipment control system to smooth electricity generation and help maintain network stability in French Guyana. In the United States, it has also installed an energy storage system using a combination of batteries and IT control software to regulate surges in frequency remotely across the electricity grid. The goal is to plan ahead for and support disruptive technologies in the energy and electricity industry.

Sowee

On 13 October 2016, EDF launched a new subsidiary named "Sowee". Designed as a start-up, Sowee has developed the first connected device (station) for use by customers to manage their home comfort and energy use while also controlling costs.

Sowee is an object and application specially designed to manage energy consumption, optimise comfort, and control everyday connected objects remotely. Combined with the Sowee natural gas range, the connected station can be used, for example, to monitor heating costs down to the nearest degree or euro.

The connected station and its application optimise temperatures according to a predefined budget. It thus promotes budget planning for gas heating, alerting customers if costs exceed the budget, and proposing temperature adjustments to come back on budget.

5.1.3.13 Regulatory environment

5.1.3.13.1 France

5.1.3.13.1.1 European Commission approval of the revised French capacity mechanism

On 8 November 2016, the European Commission¹ concluded that the capacity market proposed by France was compatible with internal market rules on State aid. This decision marked the end of an in-depth investigation opened one year earlier against France, and the mechanism was able to take effect as of 1 January 2017. The decision of 8 November 2016 lays down the methods for sales of capacity guarantees related to the ARENH system (see section 5.1.3.13.1.2 "ARENH").

The Commission's decision results from commitments made by the French authorities to modify the mechanism, mainly along three dimensions:

- to facilitate the entry of new market players by allowing new capacities to obtain certificates with a seven-year duration, subject to certain conditions;
- to include capacity providers from neighbouring EU Member States, subject to the capacity available for interconnections at peak times;
- to increase the mechanism's transparency and introduce measures to prevent possible market manipulation.

Amendment of the mechanism rules in November 2016 made it possible to apply the third of these measures.

For the first two, further amendments are needed that will take effect from 2019. Capacity market participants will be consulted on changes to the rules during 2017.

The first auction of French capacities was held on the European Power Exchange EPEX SPOT on 15 December 2016. A total volume of 22.6GW was traded between obligated capacity purchasers and operators selling capacity. The equilibrium price determined was €10/kWh. This price is also the "market reference price" of capacity for 2017.

The capacity price will be passed on to customers through their contracts with EDF as supplier, or with other suppliers.

A further auction will take place in 2017 for 2017 and subsequent years.

5.1.3.13.1.2 ARENH

The slump in wholesale market prices made the wholesale market an attractive source of energy supplies over most of the year. No applications for the ARENH (regulated access to historical nuclear electricity) scheme were made at the end of 2015 for supplies in the first half of 2016, or in mid-2016 for supplies during the second half of 2016.

However, a very large number of ARENH applications were made by alternative suppliers in November/December 2016 (a firm total of 40.8TWh for first-half 2017). Given the extremely rapid upturn in forward prices for 2017 (particularly for the first quarter, driving a general rise for the whole year) in the weeks leading up to the November/December 2016 round of bids for ARENH supplies, the application bids were higher than the ARENH price of €42/MWh, which also includes the value of capacity guarantees.

The decisions of 8 and 14 November 2016 modified the ARENH framework agreement. The main changes were the addition of provisions concerning implementation of the capacity mechanism and the rules for early termination by suppliers. The revised framework agreement restricts the possibility of unilateral termination such that it is only applicable if the ARENH price is modified by more than 2%, there is a substantial modification to the framework agreement, or changes in ARENH regulations have a substantial, unfavourable effect on the balance of supply conditions for the buyer.

5.1.3.13.1.3 Compensation for Public Energy Service Charges

The financing and compensation mechanism for public energy service charges exists to compensate operators who are assigned certain public service charges relating to gas and electricity. EDF is the main operator concerned².

Charges covered by the mechanism

The current system results from a reform by France's amended Finance Law for 2015, published in the *Journal officiel* on 30 December 2015. It is overseen by the French government, which funds it through the national budget with input from the CRE, which calculates and proposes the amounts of charges to be compensated for each operator. Public energy service charges are therefore included in the State budget through two items:

- a special "Energy Transition" budget item, mainly covering the expenses borne by obligated operators, such as the additional costs associated with contracts obliging suppliers to purchase renewable energies and biogas, the differences between forecast and actual expenses, the annual contribution to repayment of the accumulated shortfall due to EDF, and reimbursement of surplus amounts of TICFE (renamed CSPE) to industrial operators who were exempt prior to 2016;
- a "Public Energy Service" item in the general budget to cover solidarity charges, purchase obligations excluding renewable energies, and the cost of applying the standard national tariffs to zones that are not connected to France's mainland network.

Funding for the CSPE mechanism

Funding for this system comes from four taxes on energy consumption (the TIFCE for electricity, the TICC for coal and similar sources, the TICGN for natural gas and the TICPE for fuel oils), in varying proportions.

For 2016, the special "Energy Transition" budget item was funded by the TICFE and 2.16% of the income generated by the TICGN. Income from the other taxes went into the general budget without being allocated to any particular expense item.

1. Please refer to the European Commission's press release: http://europa.eu/rapid/press-release_IP-16-3620_en.htm

2. Local distribution companies and Électricité de Mayotte also make small contributions to the system.

From 1 January 2017, the special "Energy Transition" budget item is funded by income from taxes on carbon energies, mainly the TICPE, supplemented by the TICC. Income from the other taxes, including the TICFE, contributes to the general budget.

The level of the TICFE (renamed CSPE) remained stable in 2016, with the full rate at €22.5/MWh, and reduced rates for electro-intensive users of between €0.5/MWh and €7.5/MWh, depending on a criterion of kWh per euro of value added and electro-intensiveness. These rates have not been changed by the French Finance Law for 2017.

Compensation for charges borne by EDF in 2016

The amount of expenses to be covered by compensation for EDF for 2016 is €6,365 million, 1% more than in 2015. The main explanation for this slight rise is the increase in the cost of purchase obligations, principally due to growth in the volume of renewable energies as the renewable energy fleet expands in France, partly offset by lower surplus costs for generation in non-interconnected zones. The amounts received during 2016 totalled €6,357 million, up by 4% from 2015.

Reimbursement of the pre-reform shortfall

The French government issued a decision on 2 December 2016 setting the final amount of the receivable due to EDF at 31 December 2015 for the past accumulated shortfall in compensation (€5,780 million in principal excluding interest accrued in 2015). A repayment schedule was also laid down in the decision such that the receivable will be repaid by 2020.

On 22 December 2016 EDF assigned a portion (26.40%) of the CSPE receivable on the French government, corresponding to the accumulated shortfall in compensation for public energy services at 31 December 2015. This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. The assignment operation generated income of €1,538 million.

Following this operation, from 2017 EDF will receive 73.6% (corresponding to the unassigned portion of the receivable) of reimbursements of this receivable and associated interest paid by the State.

5.1.3.13.1.4 TURPE network access tariffs

TURPE 4 indexing

On 2 June 2016 France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE) published its decision for changes from 1 August 2016 in the TURPE distribution tariff, raising it by 1.11%, rounded down to 1.1%. This rise reflected stable inflation (0.03%) and 1.08% for the clearance of the income and expenses adjustment account (CRCP)¹.

TURPE transmission tariffs increased by 1.37%, rounded up to 1.4%, from 1 August 2016, again corresponding to stable inflation (0.03%), -0.81% for the clearance of the CRCP, and 2.15% for the interruptibility service.

TURPE 5

On 17 November 2016, the CRE published its decisions for the TURPE Transmission and TURPE Distribution tariffs for the period 2017-2020, to take effect from 1 August 2017.

The TURPE 5 Transmission tariff is due to increase by 6.76% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 sets the weighted average cost of capital (WACC) at 6.125% for the return on RTE's asset base, compared to 7.25% in TURPE 4.

The TURPE 5 Distribution tariff is due to increase by 2.71% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to

2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 continues to use the previous method for calculating cost of capital, but adjusts the margin on assets to 2.6% (2.5% for TURPE 4) and the return on regulated equity to 4.1% (6.1% for TURPE 4).

The *Journal officiel* of 28 January 2017 contained the three CRE decisions concerning the TURPE 5: the two above decisions on the TURPE 5 Transmission and Distribution tariffs, and the decision of 19 January 2017 issued in response to a request for a further decision. This request came from the Minister for the Environment, Energy and the Sea who is in charge of international relations on climate matters, and in the resulting decision the CRE upheld its initial decision concerning the TURPE 5 Distribution tariff.

On 3 February 2017 EDF filed an application before the Council of State for cancellation of the CRE's decision regarding the TURPE 5 Distribution tariff.

Decisions by the Council of State

On 13 May 2016 France's Council of State rejected the application by energy company Direct Énergie for cancellation, on the grounds that the CRE had exceeded its powers, of the CRE's decision of 12 December 2013 setting the tariffs for use of the very high voltage and low voltage public electricity distribution network (the TURPE 4 Distribution tariffs).

Also, on 13 July 2016 the Council of State cancelled the CRE's decision of 10 December 2014 rejecting Engie's application for withdrawal of the decision of 26 July 2012 on management of customers under a single contract, which introduced an asymmetrical regulation system. The Council of State considered that remuneration paid to suppliers for customer management tasks executed on behalf of the electricity or gas distribution network operators cannot legally be transitional and limited to certain suppliers.

In its decision of 17 November 2016, the CRE states that remuneration is payable to suppliers for customer management under a single contract by distribution network operators, but does not set out the calculation methods. These methods will be decided by the CRE in the second quarter of 2017, following a public consultation, as announced in the CRE's decision of 19 January 2017. This remuneration will be included in the expenses covered by the TURPE tariff.

5.1.3.13.1.5 Regulated Electricity Sales Tariffs in France

"Blue" tariffs

In application of the NOME Law on organisation of the French electricity market, on 7 December 2015 responsibility for proposing tariff scales was transferred to France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE).

On 13 July 2016 the CRE proposed an average 0.5% reduction in the blue tariff for residential customers and an average 1.5% reduction in the blue tariff for non-residential customers. The Ministers concerned accepted this proposal and the decision on these new tariff scales was published in the *Journal officiel* of 29 July 2016, to take effect from 1 August 2016. The CRE's proposal also gave details of the methodologies and options chosen to calculate regulated sales tariffs, using the "stacking" method in accordance with the Decree of 28 October 2014 and the NOME Law.

"Yellow" and "green" tariffs

31 December 2015 saw the end of the "yellow" and "green" regulated tariffs. By 1 January 2016 around three quarters of the sites concerned had signed a market-rate contract with their chosen supplier. The remaining quarter who had not yet signed up with a supplier continued to receive electricity from their former supplier, under a transitional contract that was due to end on 30 June 2016.

1. A mechanism to measure and offset differences between the actual figures and the forecasts on which tariffs are based.

During the first half of 2016 the CRE organised calls for tenders from suppliers to allocate the sites that had not chosen a supplier at 30 June 2016 (approximately 20,000 sites at the beginning of June 2016). Suppliers bid for combinations of a contract and an electricity price set by the CRE, proposing an amount per megawatt sold that would be passed on to the State. No supplier could be awarded more than 15% of contract combinations.

EDF, like several other suppliers, was awarded 15% of these contracts and has supplied the sites concerned since 1 July 2016 on the basis of the contract and the prices set by the CRE, while continuing to offer its own contracts.

In November 2016, the CRE organised a second call for tenders to allocate the sites still on transitional contracts due to lack of bids, sites that were left out of the combinations in the first call for tenders, and sites that had not switched to the scope of the allocated supplier (around 2,700 sites). No bids were made, and these sites remain on transitional contracts.

Cancellation of 2014-2015 regulated sales tariffs by the Council of State

Several petitions for cancellation and repeal of the decisions of 28 July 2014 and 30 October 2014 and the Decree of 28 October 2014 were brought before the Council of State by the Anode (French association of energy retail operators).

After a public reading of the reporting officer's (*Rapporteur*) conclusions on 13 May 2016 the Council of State issued its decisions on 19 May and 15 June 2016, in which:

- it dismissed the substance of the appeal against the Decree of 28 October 2014, thereby validating the "stacking" method for constructing regulated sales tariffs;
- it overturned the decision of 28 July 2014 that cancelled the 5% increase in "blue" tariffs from 1 August 2014 planned in a previous decision of 26 July 2013, for reasons of unsound legal grounds;
- it cancelled the decision of 30 October 2014 due to the insufficient level of "blue" residential and "green" tariffs which had been set without including the total tariff regularisation adjustment existing at that date.

The rectified tariffs for 2014-2015 were published in the *Journal officiel* on 2 October 2016.

Based on this rectification, additional sales revenues of €1,030 million (of which €1,018 million relate to EDF) were recognised in the Group's consolidated income statement in 2016. Including the various costs associated with the rectification, the impact on Group operating profit before depreciation and amortisation for 2016 amounts to €872 million.

5.1.3.13.1.6 Cigéo storage project

Description of the Cigéo project

The Cigéo project (standing for *Centre industriel de stockage géologique* or Industrial geological storage centre) is described in section 1.4.1.1.4 "The nuclear fuel cycle and related issues".

Decision concerning the cost of the Cigéo storage project

On 15 January 2016 the Ministry for the Environment, Energy and the Sea issued a decision setting the cost associated with implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation was required by Article L. 542-12 of France's Energy Code.

The cost stated in the decision constitutes an objective to be met by ANDRA, in compliance with safety standards set by the ASN, working in close liaison with operators of nuclear installations. As indicated in note 29.1.2

to the 2014 consolidated financial statements, publication of this decision led to an adjustment of the provision in the Group's accounts.

The cost of the Cigéo project has replaced the estimated benchmark cost of €20.8 billion used by the EDF group for its consolidated financial statements at 31 December 2014 and 30 June 2015.

In the financial statements at 31 December 2015, the new cost figure resulted in an €820 million increase in the provisions for long-term radioactive waste management established to cover future expenses relating to the Cigéo deep storage project.

In application of this decision, the cost of the Cigéo project will be regularly updated, at least at each key milestone of the project's development (authorisation to create the facility, commissioning, end of the "pilot industrial phase", safety reviews) in accordance with the opinion of the ASN.

Allocation of costs between operators and EDF's share for calculation of the provision

The studies conducted on the waste storage project cover the activities of Research and Development (R&D), project management and contract ownership for development and construction of the storage centre for long-lived medium and high-level waste. EDF provided 78% of the funding for ANDRA's long-lived medium and high-level waste studies until 2006 under the agreement of 6 June 2000 between ANDRA and waste producers. Since 2006, the same percentage has been used as a provisional interim measure to calculate EDF's share of study expenses.

Valuation of long-term waste management charges also requires determination of EDF's contribution to funding for investment and operation of the storage centre. The method for allocating this funding between the three contributors to the storage centre (AREVA, the CEA and EDF) has not yet been finalised. In the meantime, EDF has applied the volume-based shares of the waste concerned to the specific related costs, and as an interim measure, applies the past joint share to expenses that have not been allocated more precisely:

- specific investments for long-lived medium-level waste: 50.2%;
- specific investments for vitrified long-lived high-level waste: 30%;
- specific investments for long-lived high-level waste: 97.4%;
- expenses during the operating phase (operation excluding studies, investments, renovation, insurance): application of EDF's share year by year taken from the PIGD VE (*Programme Industriel de Gestion des Déchets VE*, signed by ANDRA, the CEA, AREVA NC and EDF in November 2016) for the relevant category of waste;
- other investments: 78%;
- R&D, project management, contract ownership: 78%.

5.1.3.13.2 United Kingdom

Electricity market reform

The three most significant elements of EMR are the carbon price floor, introduced under the Finance Act 2011, and the Capacity Market and Contracts for Difference (CfD), introduced under the Energy Act 2013.

The Carbon Price Floor, which sets the price that fossil-fired generators pay for their carbon emissions, is an important driver of the profitability of low carbon generation such as EDF Energy's nuclear and renewable plants. The "carbon price support rate" that underpins the carbon price floor was capped in the Budget 2014 on 19 March 2014 at £18/tonne of CO₂ for the four years 2016/2017 to 2019/2020; in the Budget 2016 on 16 March 2016, the £18/tonne cap was extended, uprated with inflation, to 2020/2021.

The Capacity Market is intended to ensure security of electricity supply. Annual auctions are held to procure capacity four years ahead of delivery with a subsequent auction one year ahead of delivery. Delivery years run from 1 October – 30 September. Three four-year-ahead auctions have been held; the most recent auction was held in December 2016, procuring 52.4GW of derated capacity for 2020/2021 at £22.50/kW/year. All of EDF Energy's nuclear and gas-fired generating units have secured agreements in the four-year-ahead auctions for the three years 2018/2019, 2019/2020 and 2020/2021. The four coal-fired units at Cottam and three of the four coal-fired units (Units 1, 2 and 4) at West Burton A were awarded three-year capacity agreements in the December 2014 auction but these were reduced in July 2016 to one-year agreements for 2018/2019 only. None of the coal-fired units hold capacity agreements for 2019/2020 but Units 1, 2 and 4 at West Burton A won agreements in the December 2016 auction for 2020/2021. Units not already holding capacity agreements for the relevant year will be eligible to take part in year-ahead auctions. An additional year-ahead auction for capacity for 2017/2018 will be held in January 2017, bringing the full start of the Capacity Market forward to October 2017; all of EDF Energy's nuclear, gas and coal-fired capacity has qualified to participate.

Contracts for Difference are expected to support investment in new low carbon generation including the Hinkley Point C project (see note 3.2 to the 2016 Consolidated financial statements, "Hinkley Point C: signature of the final agreements"). EDF Energy has subsequently acquired Dorenell Wind Farm, a 177MW onshore windfarm development, which was awarded a CfD with a strike price of £82.50/MWh (in 2012 prices) in the first CfD Allocation Round (auction) in February 2015. The Government has said that it will hold up to three further CfD auctions by 2020 and has announced details of the first of these auctions to be held in mid-2017 to support further development of offshore wind, conditional on the achievement of cost reductions.

Competition and Markets Authority (CMA)

On 24 June 2016, the British Competition and Markets Authority (CMA) concluded its two-year investigation into the energy market in Great Britain by publishing its Final Report. The investigation focused on the "supply and acquisition of gas and electricity" and examined both retail and wholesale prices.

The CMA confirmed in its report that several aspects of the British gas and electricity markets are working well for customers. For example, it found that wholesale electricity prices are cost-reflective and that there is no evidence that generators are able to exploit market power, or that they have made excess profits over the period reviewed. In addition, the CMA concluded that the common ownership of generation and supply businesses (i.e. vertical integration) does not have a detrimental impact on competition, and that some of the resulting efficiencies may be passed on to customers.

However, the CMA identified issues in three main areas:

- a) a lack of customer engagement in the retail energy market;
- b) a combination of regulations and technical constraints that restrict competition;
- c) the broader regulatory framework which hinders the timely development of policies and regulations that would be in the interests of customers.

The CMA will introduce over 30 remedies to address these concerns. These will be brought in by a number of different methods i.e. making its own

orders, accepting undertakings from parties, or by making recommendations to the Government and Ofgem, the British regulator.

Notable remedies proposed include a transitional price cap (from 2017 to end 2020) for domestic customers with prepayment meters; an Ofgem-controlled database which will allow rival suppliers to contact domestic and microbusiness customers who have been on their supplier's 'default' tariff for three or more years, to offer them better deals; and the introduction of a locational pricing system for transmission losses.

The CMA published a timetable indicating that implementation of these measures should be completed by 23 December 2016 at the latest. EDF Energy believes that the industry now has an opportunity to implement these demanding and fair remedies without delay, and intends to work with the CMA, policy-makers and consumer groups to help make the market work as effectively as possible for customers.

5.1.3.13.3 Belgium

Nuclear power plants

On 1 December 2015 the Belgian Minister of Energy announced an agreement with Electrabel (of the Engie group) concerning a transition period in 2015 and 2016. During this period the specific regimes introduced in connection with the extension of operations by the Tihange 1, Doel 1 and Doel 2 nuclear reactors were to be phased in, with the nuclear operator's contribution remaining at a fixed amount (€200 million for 2015 and €130 million for 2016) for the other reactors, Tihange 2, Tihange 3, Doel 3 and Doel 4, in which EDF Luminus holds a 10.2% share. After this transition period, substantial changes will be made to the nuclear operator's contribution system.

From 2017 until the planned end of the nuclear plants' operating lifetime, which will be between 2022 and 2025, the nuclear operator's contribution will be a variable percentage (top rate 38%) of the margin generated by nuclear activities, with a guaranteed minimum for the State for each three-year period. For the period 2017-2019, this minimum amount has already been set at €150 million. For subsequent periods, it will be determined based on a calculation by the sector's regulator.

The legislation necessary to apply this system was adopted by the Chamber on Thursday 22 December 2016 and was transposed into law on 29 December 2016. The EDF group has consequently terminated the disputes that were ongoing with the Belgian government concerning taxation of nuclear activities.

Thermal power plants

The economic environment was particularly unfavourable in Belgium, and in compliance with national law that required the authorities to be notified by 31 July 2016 of any possible permanent plant shutdown, EDF Luminus' Board of Directors validated a management proposal at its meeting of 24 June 2016 that such notification should be given for the following power plants: Seraing, Ham, Izegem and Angleur TG3.

The fall in demand for electricity, the rise of renewable energies, and lower carbon prices are driving more extensive use of coal-fired plants in Europe, and ultimately certain EDF Luminus gas-fired plants have seen very little operation over the last few years.

The actual shutdown would not occur until 31 October 2017. In the meantime EDF Luminus will closely monitor the outcome of current discussions on remuneration systems for thermal plant capacities. The four plants concerned have combined installed power of 609MW, out of a total 1,215MW of thermal power, and occupy a workforce of around forty people.

In the event of permanent closure, in view of the social impact EDF Luminus will work together with the unions to consider all possible outplacements.

On 13 January 2017 the Minister of Energy announced the renewal of the strategic reserve for electricity, increasing the volume to between 750MW and 900MW, in order to guarantee secure power supplies for Belgium. This reserve will be allocated for three years from 1 November 2017, to the generation plants that had notified their shutdown in accordance with the law. Demand-side management offerings will also be eligible.

5.1.3.14 Other significant events

5.1.3.14.1 ERDF: change of name

On 1 June 2016, the name of the company that manages the French distribution network was changed from ERDF to Enedis¹. This new name reflects the Company's strong commitment to the energy transition in the wake of COP21. It will also raise the profile of the network operator and clarify its purpose, as the CRE recommended.

5.1.3.14.2 Belgium

Nuclear plants

On 17 November 2015, the Federal Nuclear Control Agency (AFCN) authorised resumption of operations by Doel 3 and Tihange 2 until 2022 and 2023, the dates set for their final shutdown. Both plants were in operation in January 2016.

The Tihange 1 reactor, owned in equal shares by EDF Belgium and Electrabel, has been offline since 7 September 2016 after a building on the non-nuclear part of the plant was damaged during engineering work, and will not come back online until February 2017, according to the most recent information released on Electrabel's website. Tihange 1 had resumed operations in mid-August 2016 after more than three months of maintenance work. This reactor has a capacity of 962MW and was closed in late April for maintenance in preparation for the extension of certain reactors' operating lifetimes.

5.1.3.14.3 Opening of EDF Lab on the Paris-Saclay campus

After two years under construction, in March 2016 the first occupants moved into the new Paris-Saclay research centre dedicated to the EDF group's new energy technologies. EDF Lab comprises a research and development centre, and a campus with the capacity for more than 3,000 employees and 20,000 trainees every year, making it the biggest R&D centre specifically dedicated to European energy issues.

Located on the new Saclay plateau campus, EDF Lab covers more than 12 hectares and consists of four circular buildings of 76,000 square metres devoted entirely to innovation and training. The choice of this location, which is already well-known for its technological potential and houses several schools and universities, was driven by EDF's ambition to keep close to the major scientific and academic actors of the sector, in a win-win approach.

5.1.3.14.4 Compensation protocol for the closure of the Fessenheim plant

At a meeting held on 24 January 2017, the EDF Board of Directors examined the terms of the protocol negotiated between the company and the French State in order to set the terms governing compensation for the damage suffered by the company as the result of the closure of the Fessenheim nuclear power plant, in application of the Law on energy transition of 17 August 2015. This Law sets a ceiling of 63.2GW for installed nuclear electricity generation capacity in France. This means that the commissioning of the Flamanville 3 EPR is conditional upon the shutdown, on the same date, of an equivalent generation capacity.

The Board of Directors was informed of the unanimously negative opinion submitted by the EDF Works Council on 10 January 2017.

The Board approved the terms of the protocol and authorised the CEO to sign it on behalf of EDF in due course. The protocol provides for the following compensation for EDF:

- a fixed initial portion covering the anticipated costs associated with the closure (costs of staff retraining, decommissioning, the INB tax and "post-operation" costs). This fixed portion is currently estimated at approximately €490 million, 20% of which would be paid in 2019 and 80% in 2021;
- a further, variable portion giving rise, where applicable, to subsequent payments reflecting EDF's shortfall up to 2041. This will be determined on the basis of market prices and EDF's 900MW generation volumes, without Fessenheim, as established over that period. EDF's partners in the power plant (EnBW and CNP) will be entitled, under certain conditions, to receive a share of the shortfall compensation in proportion to their contractual rights over the generation capacity of the power plant.

In addition, the closure of the Fessenheim plant requires a decree revoking the licence to operate the power plant, to be issued at the request of the company and which, in application of the Law, will take effect at the same time as the commissioning of the Flamanville 3 EPR, scheduled for late 2018.

In the corporate interests of EDF, and in order to comply with the statutory ceiling of 63.2GW, the Board has made the submission of this request for revocation subject to the entry into effect of the permissions necessary to proceed with the construction of Flamanville 3 and the continued operation of Paluel 2, which is currently shut down, and also confirmation from the European Commission that the protocol complies with State aid regulations.

The Board has decided that the submission of this application for revocation will give rise to further deliberation on its part to establish that these conditions are met.

¹ Enedis is an independent EDF subsidiary as defined in French Energy Code.

5.1.3.14.5 Quality audit at the Le Creusot plant

The quality audit launched at the end of 2015 by AREVA at the Le Creusot plant revealed irregularities in the manufacturing records of equipment for nuclear reactors, and an internal analysis of these findings to date has been completed.

For EDF's fleet currently in operation, 88 cases have been detected. All those relating to the fleet currently in operation in France have been specified.

The analysis, which is based on information supplied by AREVA for parts used in the EDF fleets and EDF's own expert assessment, confirms that the integrity of the equipment concerned is unaffected. In the case of Fessenheim 2, this specification initially demonstrates that the steam generator's integrity is unaffected. Nonetheless, EDF wants to confirm the demonstration of safety, particularly for metallurgical factors, and the absence of defects. To carry out further investigations, EDF therefore shut down Fessenheim reactor 2 on 13 June 2016 and sent its initial analysis of the irregularity detected to the Nuclear Safety Authority (ASN) on 15 June 2016. In a decision of 18 July 2016 the ASN required AREVA NP, the maker of the steam generator, to send a file presenting the approach it intends to adopt to demonstrate the steam generator no. 335's compliance with the Decree of 2 April 1926, so that the ASN could decide on its acceptability. The steam generator, and therefore the reactor, must remain shut down until the test certificate suspension is lifted.

Analyses are continuing and have been extended beyond the cases reviewed to all cases concerning equipment made by Creusot Forge. It will take several months to examine these thousands of cases and the work will proceed throughout 2017.

The ASN is kept abreast of progress on these analyses. The number of irregularities noted on parts made by Creusot Forge constitutes a failure in quality assurance terms. This is a "generic" quality assurance failure because it concerns several nuclear plants. It was declared by EDF to the ASN as a Significant Safety Event on 13 June 2016 and classified as level 1, below the INES scale (the international nuclear event scale classifying nuclear events on seven levels).

The audit has been extended to the Saint-Marcel and Jeumont plants, under EDF's supervision for equipment concerning its own power plants.

On 30 June 2016, AREVA gave a progress report to France's High Committee for Transparency and Information on Nuclear Safety, which was complemented by a progress report by EDF. This matter was also the subject of a hearing by the Parliamentary Office for Evaluation of Scientific and Technical Options on 25 October 2016 and experts in equipment under nuclear pressure (the ESPN Standing Group) at meeting organised by the ASN on 7 December 2016.

5.1.3.15 Governance – Board of Directors

The General Shareholders' Meeting of 12 May 2016 approved the appointment of Mrs. Claire Pedini, Senior Vice-President in charge of Human Resources for the Saint Gobain group, as a Director of EDF, to replace Mr. Philippe Varin whose resignation took effect at that date. Mrs. Pedini's term of office will expire at the end of the Ordinary General

Shareholders' Meeting called to approve the financial statements for the year ended 31 December 2019. At its meeting of 30 March 2016, the Board of Directors had examined Mrs. Pedini's individual position in the light of the independence criteria laid down by the AFEP-MEDEF Corporate Governance Code, and classified her as an independent director. The Board of Directors also appointed Mrs. Pedini to its Ethics Committee at its meeting of 3 June 2016.

In accordance with Articles L. 225-24 of the Commercial Code and Article 13 of Ordinance 2014-948 of 20 August 2014, EDF's Board of Directors decided to appoint Mrs. Michèle Rousseau, Chair of the Hauts de France Regional mission for the environmental authority (MRAe) that is part of France's General Environment and Sustainable Development Council, as a temporary Director, to replace Mr. Gérard Magnin whose resignation took effect on 28 July 2016. This temporary appointment is for the remainder of Mr. Magnin's term of office, which runs until the end of the General Shareholders' Meeting called to approve the financial statements for the year ended 31 December 2018. Mrs. Rousseau's appointment will be submitted to the shareholders for ratification at the General Shareholders' Meeting scheduled for 18 May 2017. The Board of Directors also appointed Mrs. Rousseau to its Nuclear Commitments Monitoring Committee at its meeting of 3 November 2016.

At the date of publication EDF's Board of Directors thus includes seven women, including two of the directors elected by employees. Women thus make up 41.7% of the Board members taken into consideration to calculate this percentage under the AFEP-MEDEF Corporate Governance Code (i.e. excluding Directors representing employees). EDF has thus attained in 2016 the proportion of 40% of female Board members, which will be a legal requirement in France from 2017.

The Board of Directors also has five independent directors out of the twelve taken into consideration for calculation of this proportion under the AFEP-MEDEF Code (i.e. i.e. excluding Directors representing employees), giving a proportion of 41.7% of independent directors, which is higher than the recommendations of the Code.

5.1.4 ANALYSIS OF THE BUSINESS AND THE CONSOLIDATED INCOME STATEMENTS FOR 2015 AND 2016

Presentation and analysis of the consolidated income statements for 2015 and 2016 is shown at two levels of analysis for Sales and EBITDA: a first focusing on the Group, then a second reporting on the different business segments (France – Generation and supply activities, France – Regulated activities, United Kingdom, Italy, Other international and Other activities). EBIT (operating profit) and net income are analysed from a more general standpoint.

Following regulatory changes in France in late 2015 (discontinuation of the "yellow" and "green" regulated tariffs, and opening up to market offers), the Group has revised its segment reporting. The former "France" segment has been replaced by two new segments, "France – Generation and supply activities" and "France – Regulated activities". The segments used by the Group are detailed in note 6.1 to the 2016 consolidated financial statements, "Reporting by operating segment".

<i>(in millions of Euros)</i>	2016	2015
Sales	71,203	75,006
Fuel and energy purchases	(36,050)	(38,775)
Other external purchases	(8,902)	(9,526)
Personnel expenses	(12,543)	(12,529)
Taxes other than income taxes	(3,656)	(3,641)
Other operating income and expenses	6,362	7,066
Operating profit before depreciation and amortisation (EBITDA)	16,414	17,601
Net changes in fair value on energy and commodity derivatives, excluding trading activities	(262)	175
Net depreciation and amortisation	(7,966)	(9,009)
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(41)	(102)
(Impairment)/reversals	(639)	(3,500)
Other income and expenses	8	(885)
Operating profit (EBIT)	7,514	4,280
Cost of gross financial indebtedness	(1,827)	(1,994)
Discount effect	(3,417)	(2,812)
Other financial income and expenses	1,911	2,218
Financial result	(3,333)	(2,588)
Income before taxes of consolidated companies	4,181	1,692
Income taxes	(1,388)	(483)
Share in net income of associates and joint ventures	218	192
GROUP NET INCOME	3,011	1,401
EDF net income	2,851	1,187
Net income attributable to non-controlling interests	160	214
EARNINGS PER SHARE (EDF SHARE) IN EUROS		
Earnings per share	1.15	0.32
Diluted earnings per share	1.15	0.32

5.1.4.1 Sales

Consolidated sales were down by 5.1% while showing an organic decline of 3.2%.

5.1.4.1.1 Change in Group sales

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)	Organic growth (%)
Sales	71,203	75,006	(3,803)	-5.1	-3.2

Sales amounted to €71,203 million in 2016, down by €3,803 million (-5.1%) from 2015.

Excluding the effects of exchange rates (-€1,394 million), principally the pound sterling's decline against the Euro, and changes in the scope of consolidation (+€19 million), the organic decline in Group sales was 3.2%.

5.1.4.1.2 Change in sales by segment

The following table shows sales by segment, excluding inter-segment eliminations.

(in millions of Euros)	2016	2015	Variation	Variation (%)	Organic growth (%)
France – Generation and supply activities ⁽¹⁾	35,191	37,327	(2,136)	-5.7	-5.7
France – Regulated activities ⁽²⁾	15,728	15,418	310	+2.0	+2.0
United Kingdom	9,267	11,622	(2,355)	-20.3	-9.0
Italy	11,125	11,694	(569)	-4.9	-4.5
Other International	5,286	5,827	(541)	-9.3	-6.8
Other activities	7,734	7,288	446	+6.1	+4.5
Eliminations	(13,128)	(14,170)	1,042	-7.4	-7.4
GROUP SALES	71,203	75,006	(3,803)	-5.1	-3.2

(1) Generation, supply and optimisation in mainland France, and sales of engineering and consulting services.

(2) Regulated activities comprise distribution in mainland France, which is carried out by Enedis, transmission, EDF's island activities and the activities of Électricité de Strasbourg (which was previously part of the "Other activities" segment). In mainland France, distribution network activities are regulated via the network access tariff TURPE (Tarifs d'Utilisation des Réseaux Publics d'Électricité). Sales of Enedis include the share delivery costs for customers of alternative suppliers in mainland France.

5.1.4.1.2.1 France – Generation and supply activities

Sales by the France – Generation and supply activities segment amounted to €35,191 million, an organic decrease of €2,136 million (-5.7%) from 2015.

These sales were adversely affected by unfavourable market conditions following the discontinuation of the "yellow" and "green" regulated tariffs from 1 January 2016, more intense competition and lower market prices.

The downturn in nuclear power output, mainly associated with the additional inspections requested by the ASN, caused a substantial decrease in net sales on the markets.

Sales figures include the €988 million adjustment of regulated sales tariffs for the period 1 August 2014 to 31 July 2015 following the Council of State's decision of 15 June 2016. They also benefited from favourable weather conditions (€478 million), a tariff increase (€172 million) and a positive "leap year" effect (€84 million).

Gas sales to final customers showed an increase of €89 million, largely driven by portfolio growth and favourable weather effects.

At 31 December 2016, EDF's volume market share for electricity sales to all final customers was 70%, down by -7 points from 31 December 2015. EDF's share of the natural gas market was 5.7%, a year-on-year gain of 0.7 points.

Electricity generation

Nuclear generation produced 384TWh in 2016, compared to 416.8TWh in 2015, a decrease of -32.8TWh. This decline is mainly explained by shutdowns at several nuclear reactors for additional inspections requested by the ASN.

Hydropower output stood at 42.4TWh¹, up by 3.5TWh from 2015 due to more favourable hydrological conditions (see section 5.1.2.4 "Weather conditions: temperatures and rainfall").

Thermal generation produced 11.9TWh, a rise of +5.1TWh from 2015 as greater use was made of these facilities, particularly gas-fired plants.

Sales volumes to final customers (a market segment that includes local distribution firms and excludes foreign operators) were down by 35.1TWh, including -39.9TWh resulting from loss of customers (-30.3TWh for business customers). The impact of the temperature differential drove electricity consumption up by 5.5TWh from 2015.

As market prices were lower, no electricity was supplied under the ARENH system in 2016, compared to ARENH deliveries of 16.2TWh in 2015.

The effects of discontinuation of the VPP² system, which had begun in 2012, caused a 0.3TWh downturn in sales compared to 2015.

EDF was a net seller on the wholesale markets to the extent of 122.5TWh. The 36.5TWh increase in net market sales compared to 2015 is explained by a -63.2TWh decline in structured demand (essentially due to loss of customers and the absence of ARENH supplies), partly counterbalanced by a -26.8TWh decline in structured supply (notably including the -32.8TWh decrease in net nuclear output).

5.1.4.1.2.2 France – Regulated activities

Sales by the France – Regulated activities segment amounted to €15,728 million, an organic rise of €310 million (+2.0%) from 2015. Sales by Enedis, which account for 88% of sales by this segment, registered an organic rise of 2.1%. For the total portfolio managed by Enedis, sales increased by €288 million, primarily due to favourable weather effects and the fact that 2016 was a leap year (€207 million), plus the impact of tariff increases (€87 million).

1. After deduction of pumped-storage hydropower volumes, hydropower production stood at 35.8TWh for 2016 (32.1TWh for 2015).

2. Virtual Power Plant capacity auction system, generating deliveries for periods ranging from a few months to 3 years.

5.1.4.1.2.3 United Kingdom

The **United Kingdom's** contribution to Group sales amounted to €9,267 million in 2016, €2,355 million lower than in 2015. The pound sterling's decline against the euro in connection with the Brexit referendum had an unfavourable impact of €1,313 million. Excluding foreign exchange effects, the organic decrease in sales compared to 2015 was 9.0%.

The decline in UK sales is mainly explained by the lower electricity and gas prices on the wholesale markets, and the lower volumes of electricity sales to final customers, which reflect the falling customer numbers caused by a strong competition.

5.1.4.1.2.4 Italy

Italy contributed €11,125 million to consolidated sales, down by 569 million (-4.9%) from 2015 (-4.5% in organic terms).

This decrease was essentially driven by the market conditions, which were marked by downward trends for average sale prices on the electricity and gas markets, and the sharp drop in Brent oil prices.

In the electricity business, sales were down by 9.1%, principally due to lower sale prices, but also due to a decrease in volumes as demand showed a substantial downturn.

In the hydrocarbon business, in contrast, sales increased by 4.7% as a result of higher power output by combined-cycle gas plants to compensate for lower hydropower capacity. This trend, combined with a significant increase in sales volumes on the wholesale markets, more than offset the fall in gas and Brent oil prices.

5.1.4.1.2.5 Other international

The **Other international** segment principally covers operations in Europe, excluding the United Kingdom and Italy, and operations in the United States and Asia (China, Vietnam and Laos).

This segment contributed €5,286 million to Group sales in 2016, €541 million or -9.3% less than in 2015. Excluding foreign exchange effects (-€63 million) and changes in the scope of consolidation (-€79 million), sales declined by 6.8% in organic terms.

This downturn is essentially attributable to:

- **Belgium** (-€309 million organic decline), largely due to lower gas and electricity prices. This decrease was partly offset by higher volumes of electricity sold, particularly to business customers;
- **Asia** (-€196 million organic decline), where the decrease in sales is essentially explained by the handover of the Figlec concession in early September 2015.

However, sales were up in:

- **Brazil** (organic rise of +€95 million), essentially as a result of an operating performance that made it possible to take full advantage of increase in the Power Purchase Agreement (PPA) sales tariff;
- **Poland** (organic rise of +€43 million), thanks to higher heat sale prices, a rise in tariffs, and an increase in volumes due to favourable weather effects. Better plant availability, especially at the Rybnik plant which in 2015 was affected by extensive maintenance work, was another factor that contributed to the increase in sales.

5.1.4.1.2.6 Other activities

Other activities comprise, among other entities, EDF Énergies Nouvelles, EDF Trading, Dalkia and the gas activities.

The contribution by the **Other activities** segment to Group sales amounted to €7,734 million in 2016, an increase of €446 million from 2015. This includes a scope effect of €138 million and corresponds to an organic increase of +4.5%.

EDF Énergies Nouvelles' contribution to Group sales was €1,169 million in 2016 (an organic increase of 0.3% from 2015).

Sales by **Dalkia** contributed €3,600 million to 2016 Group sales. This organic increase of €68 million (+2.1%) is mainly explained by a favourable weather effect and the positive impact of commercial development despite the negative effect of lower gas prices.

EDF Trading's sales¹ amounted to €1,008 million, an organic rise of €385 million (+58.2%) from 2015. This change is attributable to a return to volatility across all commodities from June 2016, an effect that was accentuated towards the end of the year by plant unavailability in France.

5.1.4.2 Operating profit before depreciation and amortisation (EBITDA)

EBITDA decreased by 6.7% while the organic decline was -4.8%.

(in millions of Euros)	2016	2015	Variation	Variation (%)	Organic growth (%)
Sales	71,203	75,006	(3,803)	-5.1	-3.2
Fuel and energy purchases	(36,050)	(38,775)	2,725	-7.0	-4.8
Other external expenses	(8,902)	(9,526)	624	-6.6	-6.0
Personnel expenses	(12,543)	(12,529)	(14)	+0.1	+1.0
Taxes other than income taxes	(3,656)	(3,641)	(15)	+0.4	+1.1
Other operating income and expenses	6,362	7,066	(704)	-10.0	-9.8
EBITDA	16,414	17,601	(1,187)	-6.7	-4.8

1. EDF Trading's sales consist of its trading margin.

5.1.4.2.1 Change in consolidated EBITDA and analysis

Consolidated EBITDA for 2016 amounted to €16,414 million, a year-on-year decrease of 6.7%. Excluding foreign exchange effect (-€296 million) mainly caused by the decline of the pound sterling against the Euro, and changes in the scope of consolidation (-€51 million), the organic change in EBITDA was a decline of 4.8%.

The Group's fuel and energy purchases amounted to €36,050 million in 2016, down by €2,725 million (-7.0%) from 2015, or an organic decrease of €1,870 million (-4.8%).

- In the France – Generation and supply activities and France – Regulated activities segments, fuel and energy purchases were down by €487 million (-2.9%) to €16,146 million, principally due to purchases of fuel used by the France – Generation and supply activities segment.
- The organic decreases observed in the United Kingdom (-€633 million or -9.4%), Belgium (-€370 million or -13.5%) and Italy (-€411 million or -4.1%) relate to the lower market prices.

Other external expenses amounted to €8,902 million, €624 million lower than in 2015 (-6.6%) corresponding to an organic decline of €576 million (-6.0%).

- In the France – Generation and supply activities and France – Regulated activities segments, other external expenses totalled €5,121 million. The organic decrease of €376 million (-6.8%) notably results from cost-cutting drives. Performance improvement plans are in application across all activities.
- In the United Kingdom, other external expenses totalled €939 million. The organic decline of €114 million (-9.6%) principally relates to EDF Energy's measures to reduce operating costs.
- In Italy, other external expenses totalled €578 million. The organic decline of €26 million (-4.2%) is mainly due to variable Marketing and Sales costs (fewer new customers) and the reduction in overheads for the exploration-production activities (lower maintenance costs in Italy and internationally).

The Group's personnel expenses totalled €12,543 million, up by €14 million from 2015, corresponding to an organic increase of €126 million (+1.0%).

- In the France – Generation and supply activities segment, personnel expenses totalled €6,315 million, €74 million more than in 2015. The workforce numbers at year-end were 4.4% lower in 2016 than 2015

across all activities, and this had a favourable €70 million effect on personnel expenses. Price effects were negative at -€144 million, notably reflecting the impacts of the AGIRC and ARRCO complementary pension reforms (€36 million) and adjustments to employee benefit valuation, notably through use of a lower discount rate (€38 million).

- In the France – Regulated activities segment, personnel expenses totalled €3,106 million. The €57 million increase is chiefly explained by the lower discount rate applied to employee benefits (€20 million), and the effects of the AGIRC and ARRCO complementary pension reforms (€16 million). Workforce numbers were down by 0.5% from 2015.
- In the United Kingdom, personnel expenses amounted to €1,085 million. The organic decline of €72 million (-5.5%) reflects EDF Energy's cost control efforts, including the introduction of a new organisation structure for sales teams.

Taxes other than income taxes amounted to €3,656 million for 2016, €15 million or +0.4% more than in 2015 (+1.1% in organic terms).

- This increase mainly concerns the France – Regulated activities segment, where non-income taxes rose by €55 million, primarily as a result of additional contributions to the energy equalisation fund in the years 2012 to 2016.

Other operating income and expenses generated net income of €6,362 million in 2016, €704 million less than in 2015 (an organic change of €693 million or -9.8%).

- In the France – Generation and supply activities segment, the income generated by other operating income and expenses was down by €145 million, due among other factors to the higher obligation associated with energy savings certificates, particularly for energy-poor customers. CSPE subsidies rose due to the increase in renewable energy purchase obligations.
- In Italy the organic decline in other operating income and expenses was €597 million, mainly attributable to the effects of arbitration in 2015 concerning the long-term gas contract with Libya, which was partly counterbalanced by a reduction in bad debt following action to recover outstanding payments.
- EDF Énergies Nouvelles registered an organic increase of €82 million (+20.0%) driven chiefly by high levels of business in Development and Sales of Structured Assets during 2016.

5.1.4.2.2 Change in consolidated EBITDA and analysis by segment

(in millions of Euros)	2016	2015	Variation	Variation (%)	Organic growth (%)
France – Generation and supply activities	6,156	6,936	(780)	-11.2	-11.2
France – Regulated activities	5,102	4,719	383	+8.1	+8.1
United Kingdom	1,713	2,242	(529)	-23.6	-12.3
Italy	641	1,345	(704)	-52.3	-50.6
Other International	711	609	102	+16.7	+21.2
Other activities	2,091	1,750	341	+19.5	+22.0
GROUP EBITDA	16,414	17,601	(1,187)	-6.7	-4.8

5.1.4.2.2.1 France – Generation and supply activities

EBITDA for the **France – Generation and supply activities** segment registered an organic decline of 11.2% to €6,156 million.

EBITDA was adversely affected by the -32.8TWh decrease in nuclear power output compared to 2015, which mainly resulted from outages and extensions of outages for the additional inspections requested by the ASN, with an estimated impact of -€1,274 million.

Meanwhile, the nuclear fleet's operating performance remained strong, with the lowest-ever volume of unscheduled outages and a record low number of automatic reactor outages.

Net purchases and sales on the markets had a negative impact estimated at close to -€500 million, and largely concerned purchases made necessary in the second half of the year due to nuclear plant unavailability.

The impacts of the change in market conditions following discontinuation of the regulated "yellow" and "green" sales tariffs, the fall in market prices, and more intense competition amount to approximately -€1,203 million.

This segment's EBITDA benefited from a positive weather effect, the "leap year" effect and tariff increases, totalling around €320 million. It also reflects the rectification of regulated sales tariffs for the period 1 August 2014 to 31 July 2015 following the Council of State's decision of 15 June 2016, amounting to €859 million.

In line with the EDF group's performance plan, operating expenses were reduced by 1.0%¹ through operating performance savings in all entities, including adjustment of commercial costs to the competitive environment, and optimisation of costs for the thermal fleet.

5.1.4.2.2.2 France – Regulated activities

EBITDA for the **France – Regulated activities** segment showed an organic increase of +8.1%. This rise is explained by favourable weather conditions in 2016 (+5.6TWh), the "leap year" effect (+1.2TWh), and a decrease, due to falling electricity market prices, in purchases to compensate for network losses. Cost optimisation campaigns are continuing.

5.1.4.2.2.3 United Kingdom

The **United Kingdom's** contribution to Group EBITDA for 2016 was €1,713 million, down by 23.6% from 2015, or -12.3% in organic terms. The pound sterling's decline against the Euro, especially after the Brexit referendum, had an unfavourable impact of €253 million compared to 2015.

The main factor affecting EBITDA in the United Kingdom was the decline in market prices for electricity, despite the positive effect of higher nuclear power output in 2016.

Nuclear power output amounted to 65.1TWh in 2016, a rise of +4.5TWh compared to 2015. This was a record high, achieved through an excellent operating performance. 2016 nuclear generation benefited from a very good plant availability and a very low level of unscheduled outages.

EDF Energy has also begun a cost saving plan across all of its businesses, and in 2016 successfully reduced its operating expenses by 3.6%¹.

5.1.4.2.2.4 Italy

The **Italy** segment contributed €641 million to the Group's consolidated EBITDA, 52.3% less than in 2015 corresponding to an organic decrease of 50.6%.

This change in EBITDA is principally explained by the positive effects in 2015 of the international arbitration Court's decision in the dispute between Edison and ENI over revision of the long-term Libyan gas contract prices.

EBITDA for the electricity activities reflects an adverse trend in average sales prices, the contraction of margins on thermal power generation, and less favourable hydrological conditions than in 2015.

EBITDA was also down for the gas activities, as a result of the positive effects in 2015 of the arbitration Court's decision concerning the Libyan gas contract, and the ongoing fall in Brent oil prices, which had a negative effect on exploration-production activities.

This decrease was partly offset by the positive effect of higher sales volumes for gas, and the recovery by sales margins on gas in 2016, following renegotiation of Libyan gas contract prices (end of 2015) and the Qatar gas contract with Rasgas (June 2016), which includes a price revision clause.

The cost-cutting plan is continuing, achieving a saving of -4.7%¹ compared to 2015 which partly absorbed the effect of poorer market conditions in 2016.

5.1.4.2.2.5 Other international

EBITDA for the **Other international** segment amounted to €711 million in 2016, 16.7% higher than in 2015 (an organic rise of +21.2%).

This increase was essentially attributable to:

- **Brazil** (organic growth of +€87 million), thanks to the positive effect of the annual PPA (power purchase agreement) price revision that more than covers the rise in costs, favourable market conditions during maintenance periods, and exports to Argentina;
- **Belgium** (organic growth of +€63 million), mainly due to the restart of the Doel 3 and Tihange 2 nuclear plants in December 2015, new installed wind power capacity (301MW in 2016 against 254MW in 2015) and sustained levels of business for system services, despite weather conditions that were not particularly favourable;
- **Poland** (organic growth of +€42 million), thanks to an increase in sales tariffs for heat and a favourable effect of fuel prices. This performance reflects progress in electricity and heat production due to better availability of generation assets, as modernisation work is in the final phases, favourable weather conditions and connections of new customers.

In **Asia**, however, EBITDA registered an organic decline of €68 million, essentially explained by the end of the Figlec concession in early September 2015.

5.1.4.2.2.6 Other activities

Other activities contributed €2,091 million to Group EBITDA for 2016, an organic rise of 22.0% compared to the previous year.

EDF Énergies Nouvelles' contribution to consolidated EBITDA totalled €861 million. The organic growth of €50 million (+6.1%) from 2015 was mainly driven by Development and Sales of Structured Assets, notably due to a significant volume of business in Europe and to a lesser extent in North America, and the new partnership for offshore wind farm projects in France.

¹. Based on 2016 exchange rates and scope of consolidation, using constant discount rates, and excluding changes in operating expenses for the service activities.

Dalkia contributed €252 million to 2016 Group EBITDA, corresponding to an organic growth of €18 million from 2015, notably due to favourable weather conditions and commercial development. Operating efficiency plans compensated for negative price effects, mainly lower gas prices.

EBITDA at EDF Trading amounted to €729 million in 2016, an organic increase of €281 million (+56.8%) from 2015. This rise follows an improvement in the trading margin observed on sales (see section 5.1.4.1.2.6).

5.1.4.3 Operating profit (EBIT)

EBIT was up by 75.6% from 2015.

(in millions of Euros)	2016	2015	Variation	Variation (%)
EBITDA	16,414	17,601	(1,187)	-6.7
Net changes in fair value on energy and commodity derivatives, excluding trading activities	(262)	175	(437)	-249.7
Net depreciation and amortisation	(7,966)	(9,009)	1,043	-11.6
Net increases in provisions for renewal of property, plant and equipment operated under concessions	(41)	(102)	61	-59.8
(Impairment)/reversals	(639)	(3,500)	2,861	-81.7
Other income and expenses	8	(885)	893	-100.9
EBIT	7,514	4,280	3,234	+75.6

The Group's consolidated EBIT amounted to €7,514 million for 2016, up by €3,234 million from 2015. This increase is primarily explained by lower net depreciation and amortisation, lower impairment and other operating income and expenses.

5.1.4.3.1 Net changes in fair value on energy and commodity derivatives, excluding trading activities

The net changes in fair value on energy and commodity derivatives, excluding trading activities, decreased from +€175 million in 2015 to -€262 million in 2016. In Italy, this change was mainly attributable to settlement of financial instruments upon maturity, which generated positive results in 2015.

5.1.4.3.2 Net depreciation and amortisation

Net depreciation and amortisation was down by €1,043 million compared to 2015.

The France – Generation and supply activities segment registered a €547 million decrease in net depreciation and amortisation, essentially explained by the extension to 50 years of the operating lifetimes of the 900MW PWR units (except Fessenheim) from 1 January 2016.

The France – Regulated activities segment registered a €167 million increase in net depreciation and amortisation, essentially associated with investments in distribution assets, including €149 million for Enedis and the impact of the Linky¹ meter rollout.

In the United Kingdom, the €347 million decrease in net depreciation and amortisation (an organic decrease of €187 million) mainly relates to impairment booked on coal and gas-fired facilities at 31 December 2015.

In Italy, net depreciation and amortisation was down by €298 million (an organic decline of €293 million), mainly due to lower exploration expenses and the reduction in depreciation and amortisation following the recognition of impairment at 31 December 2015.

In Belgium, the €55 million decrease in net depreciation and amortisation essentially relates to impairment recognised in respect of thermal assets at 31 December 2015.

5.1.4.3.3 Net increases in provisions for renewal of property, plant and equipment operated under concessions

The €61 million decrease between 2015 and 2016 in net increases in provisions for renewal of property, plant and equipment operated under concessions is attributable to the France – Regulated activities segment.

5.1.4.3.4 Impairment/reversals

In 2016, impairment amounted to €639 million and essentially concerned operating assets (see note 13 to the 2016 consolidated financial statements, "Impairment/reversals").

In 2015, impairment amounted to €3,500 million and principally concerned:

- the Group's thermal assets (coal, gas, gas storage) in Europe (mainly the United Kingdom, Italy, Belgium, Poland and Germany): €2,281 million;
- Edison's exploration-production assets: €551 million.

5.1.4.3.5 Other income and expenses

Other income and expenses are described in note 14 to the 2016 consolidated financial statements, "Other income and expenses".

1. Linky is a project led by Enedis, an independent EDF subsidiary as defined in French Energy Code.

5.1.4.4 Financial result

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Cost of gross financial indebtedness	(1,827)	(1,994)	167	-8.4
Discount effect	(3,417)	(2,812)	(605)	+21.5
Other financial income and expenses	1,911	2,218	(307)	-13.8
FINANCIAL RESULT	(3,333)	(2,588)	(745)	+28.8

The financial result for 2016 corresponds to a financial expense of €3,333 million, €745 million more than in 2015. This change is explained by:

- a decrease in the cost of gross financial indebtedness, as charges on the new bond issues of October 2016 were offset by the lower level of the average coupon, due notably to the positive effect of variabilisation of the debt, and a favourable foreign exchange effect that mostly concerned the pound sterling;
- an increase of €605 million in discount expenses, mainly resulting from the lower discount rate applied for nuclear provisions in France. At 31 December 2016 the discount rate was 4.2% including an average inflation rate of 1.5% (4.5% and 1.6% at 31 December 2015);
- a €307 million downturn in other financial income and expenses, chiefly caused by the lower capital gains on divestment of dedicated assets; this was partly counterbalanced by the absence in 2016 of financial interest paid following the European Commission's decision of 22 July 2015 concerning the French general electricity network.

5.1.4.5 Income taxes

Income taxes amounted to €1,388 million, corresponding to an effective tax rate of 33.2% in 2016 (28.5% in 2015).

This increase in the effective tax rate between 2015 and 2016 was mainly caused by lower income tax rates in France and the United Kingdom compared to 2015.

5.1.4.6 Share in net income of associates and joint ventures

The Group's share in net income of associates and joint ventures was a positive €218 million in 2016, compared to €192 million in 2015.

This change results primarily from impairment of fleets in Europe and North America in which EDF Énergies Nouvelles is a minority shareholder, and lower net income by RTE.

The share in net income of associates in 2016 includes impairment totalling €481 million. Details of this impairment are given in note 23 to the 2016 consolidated financial statements "Investments in associates and joint ventures".

5.1.4.7 Net income attributable to non-controlling interests

Net income attributable to non-controlling interests amounted to €160 million in 2016, €54 million less than in 2015. This change is essentially explained by the decrease in the United Kingdom of Centrica's revenues on nuclear generation activities, due to lower market prices for electricity.

5.1.4.8 EDF net income

EDF net income totalled €2,851 million for 2016, up by €1,664 million (+140.2%) from 2015.

5.1.4.9 Net income excluding non-recurring items

The Group's net income excluding non-recurring items¹ stood at €4,085 million for 2016, down by 15.3% from 2015.

1. Group net income excluding non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax. Non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax:

- -€1,039 million for miscellaneous risks and impairment in 2016, compared to -€3,759 million in 2015.
- -€195 million of net changes in fair value on Energy and Commodity derivatives, excluding trading activities, net of tax in 2016, compared to +€124 million in 2015.

5.1.5 CASH FLOW AND NET INDEBTEDNESS

5.1.5.1 Cash flows

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Net cash flow from operating activities	11,125	12,730	(1,605)	-12.6
Net cash flow used in investing activities	(16,557)	(18,839)	2,282	-12.1
Net cash flow from financing activities	4,138	5,574	(1,436)	-25.8
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(1,294)	(535)	(759)	+141.9
Cash and cash equivalents – opening balance	4,182	4,701	(519)	-11.0
Net increase (decrease) in cash and cash equivalents	(1,294)	(535)	(759)	+141.9
Effect of currency fluctuations	102	(36)	138	n.a.
Financial income on cash and cash equivalent	20	13	7	+53.8
Effect of reclassifications	(117)	39	(156)	n.a.
CASH AND CASH EQUIVALENTS – CLOSING BALANCE	2,893	4,182	(1,289)	-30.8

n.a. = not applicable.

5.1.5.1.1 Net cash flow from operating activities

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Income before taxes of consolidated companies	4,181	1,692	2,489	+147.1
(Impairment)/reversals	639	3,500	(2,861)	-81.7
Accumulated depreciation and amortisation, provisions and changes in fair value	9,814	11,392	(1,578)	-13.9
Financial income and expenses	948	951	(3)	-0.3
Dividends received from associates and joint ventures	330	322	8	+2.5
Capital gains/losses	(877)	(1,593)	716	-44.9
Change in working capital	(1,935)	132	(2,067)	n.a.
Net cash flow from operations	13,100	16,396	(3,296)	-20.1
Net financial expenses disbursed	(1,137)	(1,252)	115	-9.2
Income taxes paid	(838)	(1,508)	670	-44.4
European Commission decision ⁽¹⁾	–	(906)	906	-100.0
NET CASH FLOW FROM OPERATING ACTIVITIES	11,125	12,730	(1,605)	-12.6

n.a. = not applicable.

(1) On 22 July 2015, the European Commission issued a new decision classifying the tax treatment of provisions established between 1987 and 1996 for renewal of French General Electricity Network facilities as State aid incompatible with the European Union rules (see section 5.1.3.1 of the 2015 Reference Document).

The net cash flow from operating activities amounted to €11,125 million in 2016, €1,605 million less than in 2015.

This change primarily reflects a €3,296 million decrease in the net cash flow from operations, resulting from:

- the income before taxes of consolidated companies after adjustment for impairment, depreciation and amortisation, provisions and changes in fair value, which amounted to a total €14,634 million in 2016 compared to €16,584 million in 2015 (down by -€1,950 million from 2015);

this decrease was partly offset by the lower capital gains on disposals (+€716 million).

- the decrease in working capital (-€2,067 million compared to 2015).

The variation in the net cash flow from operating activities also reflects the lower amount of income taxes paid (+€670 million), and the unfavourable impact of the European Commission's decision of 22 July 2015 (+€906 million), which had no equivalent in 2016.

5.1.5.1.2 Net cash flow used in investing activities

The net cash outflow for investing activities amounted to €16,557 million in 2016, compared to €18,839 million in 2015. The following table sets forth the breakdown of the net cash flow used in investing activities between purchases and disposals of property, plant and equipment and intangible assets, acquisitions and disposals of companies net of cash acquired/transferred, and the change in financial assets:

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Investments in intangible assets and property, plant and equipment	(14,397)	(14,789)	+392	-2.7
Net proceeds from sale of intangible assets and property, plant and equipment	508	964	(456)	-47.3
Net Capex	(13,889)	(13,825)	(64)	+0.5
Acquisitions of equity investments, net of cash acquired	(127)	(162)	+35	-21.6
Disposals of equity investments, net of cash transferred	372	748	(376)	-50.3
Changes in financial assets	(2,913)	(5,600)	+2,687	-48.0
NET CASH FLOW USED IN INVESTING ACTIVITIES	(16,557)	(18,839)	+2,282	-12.1

Net capex

Net capital expenditure amounted to €13,889 million in 2016, up by €64 million (+0.5%) from 2015.

Changes in the Group's net capital expenditure over the period were as follows:

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
France – Generation and supply activities	5,745	5,688	+57	+1.0
France – Regulated activities	3,770	3,645	+125	+3.4
United Kingdom	1,911	1,821	+90	+4.9
Italy	406	586	(180)	-30.7
Other international	493	693	(200)	-28.9
Other activities	1,564	1,392	+172	+12.4
NET CAPEX	13,889	13,825	+64	+0.5

Capital expenditure is one of the components of net investments for which details are given in section 5.1.5.2 "Net indebtedness".

Acquisitions/disposals of equity investments, net of cash acquired/transferred

Net equity investments decreased by €341 million in 2016 to €245 million. They mainly concerned the sales of investments owned by EDF Énergies Nouvelles in the United States and Portugal.

Changes in financial assets

The overall change in financial assets in 2016 was -€2,913 million, principally reflecting the acquisition of liquid assets and the assignment of the portion of the CSPE receivable that was not allocated to dedicated assets (see section 5.1.6.1.6 "Management of financial risk on EDF's dedicated asset portfolio").

In 2015, the overall change in financial assets was -€5,600 million, also mainly reflecting the acquisition of liquid assets.

5.1.5.1.3 Net cash flow from financing activities

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Transactions with non-controlling interests ⁽¹⁾	1,368	64	+1,304	n.a.
Dividends paid by parent company	(165)	(1,420)	+1,255	-88.4
Dividends paid to non-controlling interests	(289)	(326)	+37	-11.3
Purchases/sales of treasury shares	(2)	(14)	+12	-85.7
Cash flows with shareholders	912	(1,696)	+2,608	-153.8
Issuance of borrowings	9,424	9,422	+2	-
Repayment of borrowings	(6,176)	(2,336)	(3,840)	+164.4
Issuance of perpetual subordinated bonds	(582)	(591)	+9	-1.5
Funding contributions received for assets operated under concessions	143	152	(9)	-5.9
Investment subsidies	417	623	(206)	-33.1
Other cash flows from financing activities	3,226	7,270	(4,044)	-55.6
NET CASH FLOW FROM FINANCING ACTIVITIES	4,138	5,574	(1,436)	-25.8

n.a. = not applicable.

(1) Contributions via capital increases and acquisitions of additional interests in controlled companies.

Cash flows related to financing activities generated a net inflow of €4,138 million in 2016, a decrease of €1,436 million from 2015. This change primarily reflects:

- a decrease of €3,838 million in net bond redemptions;
- an increase of +€1,304 million from transactions with non-controlling investments. In 2016 these transactions include an amount of €830 million received on the sale to CGN of 33.5% of Hinkley Point C (HPC) Holding Co and 20% of Sizewell C Holding Co (SZC), and an amount of €469 million concerning CGN's contribution to the capital increase in Hinkley Point C and Sizewell C;
- the lower level of dividends paid in cash by EDF in 2016 compared to 2015.

5.1.5.2 Net indebtedness

Net indebtedness comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or securities with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy. The Group's net indebtedness stood at €37,425 million at 31 December 2016 compared to €37,395 million at 31 December 2015.

<i>(in millions of Euros)</i>	2016	2015	Variation	Variation (%)
Operating profit before depreciation and amortisation (EBITDA)	16,414	17,601	(1,187)	-6.7
Cancellation of non-monetary items included in EBITDA	(1,703)	(1,610)	(93)	
Net financial expenses disbursed	(1,137)	(1,252)	115	
Income taxes paid	(838)	(1,508)	670	
Other items including dividends received from associates and joint ventures	323	271	52	
Operating cash flow ⁽¹⁾	13,059	13,502	(443)	-3.3
Change in working capital	(1,935)	132	(2,067)	
Net investments ⁽²⁾	(11,663)	(12,672)	1,009	
Cash flow after net investments	(539)	962	(1,501)	
European Commission decision ⁽³⁾	–	(906)	906	
Dedicated assets	10	217	(207)	
Cash flow before dividends ⁽⁴⁾	(529)	273	(802)	
Dividends paid in cash	(1,036)	(2,337)	1,301	
Group cash flow	(1,565)	(2,064)	499	
Other monetary changes	549	(278)	827	
(Increase)/decrease in net indebtedness, excluding the impact of changes in exchange rate	(1,016)	(2,342)	1,326	
Effect of change in exchange rate	1,107	(951)	2,058	
Effect of other non-monetary changes	(121)	106	(227)	
(Increase)/decrease in net indebtedness	(30)	(3,187)	3,157	
NET INDEBTEDNESS AT BEGINNING OF PERIOD	37,395	34,208		
NET INDEBTEDNESS AT END OF PERIOD	37,425	37,395		

(1) Operating cash flow is not an aggregate defined by IFRS as a measure of financial performance, and is not directly comparable with indicators of the same name reported by other companies. This indicator, also known as Funds From Operations ("FFO"), is equivalent to net cash flow from operating activities excluding changes in working capital after adjustment where relevant for the impact of non-recurring effects, less net financial expenses disbursed and income taxes paid.

(2) Net investments are operating investments and financial investments for growth, net of disposals. They also include net debts acquired or transferred in acquisitions or disposals of securities, investment subsidies received, non-Group partner investments, Linky, new developments and asset disposals.

(3) On 22 July 2015 the European Commission issued a new decision classifying the tax treatment of provisions established between 1987 and 1996 for renewal of the General Network facilities as state aid that is incompatible with European Union rules.

(4) Cash flow before dividends is not an aggregate defined by IFRS as a measure of financial performance, and is not comparable with indicators of the same name reported by other companies. It is equal to the operating cash flow defined in note (1) after the change in working capital, net investments (see note (2)), the European Commission decision concerning the French General Electricity Network and net allocations to dedicated assets.

5.1.5.2.1 Operating cash flow

The operating cash flow amounted to €13,059 million in 2016 compared to €13,502 million in 2015, a decrease of €443 million (-3.3%).

This change mainly reflects:

- the lower EBITDA (-€1,187 million);
- the lower level of net financial expenses disbursed (-€1,137 million in 2016 compared to -€1,252 million in 2015), essentially explained

by the lower average coupon, particularly with the positive impact of variabilisation of debt, and a favourable foreign exchange effect mainly concerning the pound sterling, despite the full-year effect in 2016 of borrowings issued in October 2015;

- a decrease in income taxes paid (-€838 million in 2016 versus -€1,508 million in 2015), essentially as a result of differences in France in the balance of income tax due for previous years.

5.1.5.2.2 Change in working capital

The change in working capital over 2016 amounted to -€1,935 million.

This change is mainly explained by:

- the effects of retroactive adjustment of 2014 French regulated sales tariffs (decrease of -€939 million);
- a cold weather effect in late 2016 (-€735 million);

- unfavourable effects of the reforms to the CSPE collection method and basis in France (approximately -€829 million);
- gains resulting from the working capital improvement plan, essentially on inventories and trade receivables (approximately +€716 million).

The difference between the 2016 and 2015 change in working capital (-€2,067 million) essentially concerns France (-€2,079 million), where it reflects the effect of the regularisation of 2014 French regulated sales tariffs (-€939 million), and the adverse effect of harsher weather in 2016 (-€893 million).

5.1.5.2.3 Net investments

Net investments amounted to €11,663 million in 2016 compared to €12,672 million in 2015, a decrease of €1,009 million (-8.0%). Details are as follows:

(in millions of Euros)	2016	2015 ⁽¹⁾	Variation	Variation (%)
France – Generation and supply activities	5,692	5,660	32	+0.6
France – Regulated activities	3,301	3,367	(66)	-2.0
United Kingdom	806	1,111	(305)	-27.5
Italy	458	585	(127)	-21.7
Other international	607	922	(315)	-34.2
Other activities	952	773	179	+23.2
NET INVESTMENTS EXCLUDING LINKY, NEW DEVELOPMENTS AND ASSET DISPOSALS	11,816	12,418	(602)	-4.8
LINKY, NEW DEVELOPMENTS AND ASSET DISPOSALS	(153)	254	(407)	N.A.
NET INVESTMENTS	11,663	12,672	(1,009)	-8.0

n.a. = non applicable.

(1) Investments in new-generation EPRs are now included in new developments.

5.1.5.2.3.1 Net investments excluding Linky, new developments and assets disposals

Net investments by the France – Generation and supply activities segment rose by €32 million or +0.6%. The increase is mainly attributable to nuclear maintenance activities, and was counterbalanced by lower investments in the thermal power plant fleet.

Net investments by the France – Regulated activities segment were down by €66 million, primarily as a result of the commissioning of island thermal plants between 2013 and 2015, particularly Pointe Jarry in 2015.

Outside France, net investments decreased by €747 million or -28.5%.

- In the **United Kingdom**, the decrease of €305 million or -27.5% is largely explained by lower investments in coal-fired and nuclear power, combined with a favourable foreign exchange effect.
- In **Italy**, the decrease of €127 million was principally due to lower investments in exploration-production, in response to the oil and gas market environments. In 2016 Edison stepped up its involvement in renewable energies and hydropower through asset swaps and acquisition of a mini-hydropower plant.

- The decrease in the **Other international** segment (-€315 million) is notably explained by the end of the modernisation programme bringing coal-fired and cogeneration plants in Poland up to the latest standards, and lower investments in China.

In the **Other activities** segment, net investments were up by €179 million or +23.2%. This rise primarily concerned EDF Énergies Nouvelles, where subsidies received were lower in view of the types of facilities commissioned in 2016.

5.1.5.2.3.2 Linky, new developments and assets disposals

The Group is also continuing investments in the Linky programme. 2016 was the first year of general rollout.

New developments correspond to the Group's new development projects, and are funded by disposals of assets. In 2016 and 2015 these new developments principally concerned New Nuclear investments in the United Kingdom, and to a smaller degree investments in offshore wind farm projects and new EPR models. They also include investments in new-generation EPRs in addition to the investments mentioned in the 2015 report.

Asset disposals essentially concerned sales of real estate property, and CGN's acquisition of a stake in new nuclear activities in the United Kingdom.

5.1.5.2.4 Dedicated assets

In compliance with the French Law no. 2006-739 of 28 June 2006 on the sustainable management of radioactive materials and waste, EDF has built up a portfolio of dedicated assets for secure financing of its long-term nuclear obligations which amounted to €23,471 million at 31 December 2016.

Overall, the changes in dedicated assets comprise:

- allocations to reach full coverage of obligations;
- reinvestment of financial income (dividends and interest) generated by these assets;
- withdrawals of assets corresponding to the costs incurred over the period in application of long-term nuclear obligations falling within the scope of the Law of 28 June 2006;
- exceptional withdrawals proposed to the governance bodies in charge of managing dedicated assets when the value of the portfolio exceeds the amount of the obligations to be financed; such withdrawals must be validated by these bodies.

The net movements of €10 million in 2016 correspond to the second and third types of change described above.

5.1.5.2.5 Cash flow before dividends

The cash flow before dividends in 2016 was negative at -€529 million (compared to a positive €273 million in 2015) and is mainly explained by the following factors:

- operating cash flow of +€13,059 million;
- an unfavourable change of -€1,935 million in working capital;
- net investments of -€11,663 million.

The -€802 million difference from 2015 is essentially due to unfavourable developments in the change in working capital (-€2,067 million), although this effect was reduced by the lower level of net investments (+€1,009 million).

5.1.5.2.6 Dividends paid in cash

Dividends paid in cash during 2016 (-€1,036 million) comprise:

- the balance of the 2015 dividend (-€82 million);
- the interim dividend for 2016 (-€83 million) decided by the Board of Directors on 30 September 2016 and paid on 31 October 2016 at the rate of €0.50 per share, for shareholders who did not take up the scrip dividend option;
- payments made in 2015 to bearers of perpetual subordinated bonds for the "hybrid" bond issues of January 2013 and January 2014 (-€582 million);
- dividends paid by Group subsidiaries to their minority shareholders (-€289 million).

The favourable difference of €1,301 million compared to 2015 is principally attributable to payment in the form of a scrip dividend to 92.2% of shareholders for the balance of the 2015 dividends, and 91.8% of shareholders for the interim dividend for 2016.

5.1.5.2.7 Group cash flow

The Group cash flow amounted to -€1,565 million, versus -€2,064 million in 2015. The €499 million improvement primarily reflects the decrease in dividends paid in cash (+€1,301 million) and the change in cash flow before dividends (-€802 million).

5.1.5.2.8 Effect of change in exchange rate

The foreign exchange effect (mainly resulting from a substantial decline by the pound sterling and the rise of the US dollar against the Euro¹) had a favourable impact of +€1,107 million on the Group's net indebtedness at 31 December 2016.

5.1.6 MANAGEMENT AND CONTROL OF MARKET RISKS

5.1.6.1 Management and control of financial risks

This section sets forth the policies and principles for management of the Group's financial risks defined in the Strategic Financial Management Framework (liquidity, interest rate, foreign exchange rate and equity risks), and the Group counterparty risk management policy set up by the EDF group. These principles apply only to EDF and operationally controlled subsidiaries or subsidiaries that do not benefit by law from specific guarantees of independent management such as Enedis. In compliance with IFRS 7, the following paragraphs describe the nature of risks resulting from financial instruments, based on analyses of sensitivities and credit (counterparty) risks.

Since 2002, a dedicated body – the Financial Risks Control Department (*Département Contrôle des Risques Financiers et Investissements* – CRFI) – has been in charge of financial risk control at Group level, mainly by ensuring correct application of the principles of the Strategic Financial Management Framework (July 2015). This department, which has reported to the Group's Risk Division since 2008, is an independent unit that also has the task of carrying out a second-level check of the risk of counterparty default (methodology and organisation) for EDF entities and operationally controlled Group subsidiaries (excluding Enedis), and a first-level check of financing activities by EDF SA's trading room. The CRFI Department also carries out a second-level check of management activities concerning the dedicated asset portfolio.

The CRFI Department issues daily and weekly monitoring reports of risk indicators relevant to activities in EDF SA's trading room.

Regular internal audits are carried out to ensure controls are actually applied and are effective.

5.1.6.1.1 Liquidity position and management of liquidity risks

5.1.6.1.1.1 Liquidity position

At 31 December 2016, the Group's liquidities, consisting of liquid assets, cash and cash equivalents, totalled €25,159 million and available credit lines amounted to €11,709 million.

For 2017, the Group's scheduled debt repayments (principal and interest) are forecast at 31 December 2016 at €13,506 million, including €5,253 million for bonds (excluding hybrid bonds).

No Group company was in default on any borrowing at 31 December 2016.

1. The pound sterling fell by -14.2% against the Euro, from €1.362/£1 at 31 December 2015 to €1.168/£1 at 31 December 2016. The US dollar rose by 3.3% against the Euro, from €0.919/\$1 at 31 December 2015 to €0.949/\$1 at 31 December 2016.

5.1.6.1.1.2 Management of liquidity risks

On 18 April 1996, EDF set up a programme to issue debt securities in the form of Euro Medium Term Notes (the "EMTN" programme). This programme was regularly renewed until May 2009, when an EMTN programme governed by French law was established for EDF's EMTN issues from that date. This second programme has also been regularly renewed since its introduction, and its current ceiling is €45 billion.

On 6 October 2016, EDF issued a senior "Formosa bond" on the Taiwanese market for a total \$2,655 million, in two tranches in US dollars:

- a \$491 million bond, with 30-year maturity and a coupon of 4.65%;
- a \$2,164 million bond, with 40-year maturity and a coupon of 4.99%.

The same day, EDF also undertook a €3 billion multi-currency senior bond issue in four tranches:

- a €1,750 million green bond, with 10-year maturity and a fixed coupon of 1%;
- a €750 million bond with 20-year maturity and a fixed coupon of 1.875%;
- a CHF 400 million bond, with 8-year maturity and a fixed coupon of 0.3%;
- a CHF 150 million bond, with 12-year maturity and a fixed coupon of 0.65%.

The green bond issue of €1,750 million with 10-year maturity and a 1% fixed coupon is enabling EDF to continue its investments for the growth of renewable energies. This operation is based on the structure of EDF's November 2013 bond issue which is a benchmark for the market, and demonstrates EDF's ongoing commitment to development of the green

bond market and its support for best practices, in line with the Green Bond Principles¹:

- the funds raised by the green bond are exclusively dedicated to financing renewable energy projects developed by EDF Énergies Nouvelles and eligible projects of EDF's hydropower Division;
- the projects funded are selected through a stringent, documented process based on ESG criteria validated by the extra-financial rating agency, Vigeo²;
- the funds raised are managed and monitored under a strict segregation principle, from their receipt in EDF's cash until allocation to eligible green projects.

EDF will regularly report on the amounts allocated from the green bond, the portfolio of projects financed and the associated environmental benefits. A statement by Deloitte & Associés on respect of EDF's commitments will be included in the 2016 Reference Document.

These operations contribute to the Group's investment strategy and are part of its policy to extend the average maturity of its debt.

Details of the Group's bond borrowings are given in note 38.2 to the 2016 consolidated financial statements "Loans and other financial liabilities".

The average maturity of Group debt was 13.4 years at 31 December 2016, compared to 13 years at 31 December 2015. For EDF SA, the average maturity of debt was 14.4 years at 31 December 2016, against 13.9 years at 31 December 2015.

At 31 December 2016, the residual maturities of financial liabilities (including interest payments) are as follows under IAS 39 (valued on the basis of exchange and interest rates at 31 December 2016):

31 December 2016 (in millions of Euros)	Hedging instruments ⁽¹⁾			Guarantees given on bonds
	Debt	Interest rate swaps	Currency swaps	
2017	13,506	(609)	(41)	259
2018-2021	21,773	(2,226)	(117)	250
2022 and later	66,970	(3,774)	(1,005)	135
TOTAL	102,249	(6,609)	(1,163)	644
Debt repayment	63,844			
Interest expense	38,405			

(1) Data on hedging instruments include both assets and liabilities.

The EDF group was able to meet its financing needs by conservative liquidity management, and has obtained financing on satisfactory terms.

A range of specific levers are used to manage the Group's liquidity risk:

- the Group's cash pooling system, which centralises cash management for controlled subsidiaries. The subsidiaries' cash balances are made available to EDF SA in return for interest, so as to optimise the Group's cash management and provide subsidiaries with a system that guarantees them market-equivalent financial terms;

- centralisation of financing for controlled subsidiaries at the level of the Group's Cash Management Department. Changes in subsidiaries' working capital are financed by this department in the form of stand-by credit lines provided for subsidiaries, which may also be granted revolving credit from the Group. EDF SA and the investment subsidiary EDF Investissements Groupe (EDF IG), set up in partnership with the bank Natixis Belgique Investissements, also provide medium and long-term financing for EDF group operations outside France, arranged by EDF SA and EDF IG on a totally independent basis: each company sets its own terms, which are the same as the subsidiary would have in an arm's-length market transaction;

1. The Green Bond Principles, updated in March 2015, are voluntary guidelines for issuance of green bonds. They recommend transparency and disclosure to support development of the green bond market and promote integrity. For more information, see <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles>.

2. ESG (Environmental, Social Governance) criteria cover five areas: respect for human rights and governance in the project's host country; management of environmental impacts; protection of employee health and safety; promotion of responsible relationships with suppliers; and dialogue with local stakeholders.

- active management and diversification of financing sources used by the Group: the Group has access to short-term resources on various markets through programmes for French commercial paper (*billets de trésorerie*), US commercial paper and Euro market commercial paper. For EDF, the ceilings for these programmes are €6 billion for its French commercial paper, \$10 billion for its US commercial paper and €1.5 billion for its Euro market commercial paper.

At 31 December 2016, the amount of commercial paper outstanding was €1,674 million for French commercial paper, and \$2,421 million for US commercial paper. No Euro market commercial paper was issued in 2016. EDF has access to the world's main bond markets: the Euro markets through its EMTN programme, which currently has a ceiling of €45 billion, particularly for Euro and sterling issues; and the domestic markets used for stand-alone issues in US dollars (144A bonds), yen (Samurai bonds) and Swiss francs.

The table below sets forth the Group's borrowings of more than €650 million or the equivalent value in other currencies at issue as reported in the consolidated financial statements, by type and by maturity at 31 December 2016:

Type of borrowing (in millions of currency units)	Entity	Issue date ⁽¹⁾	Maturity	Nominal amount	Currency	Rate
Bond	EDF	01/2014	01/2017	1,000	USD	1.15%
Euro MTN	EDF	02/2008	02/2018	1,500	EUR	5.00%
Bond	EDF	01/2009	01/2019	2,000	USD	6.50%
Bond	EDF	01/2014	01/2019	1,250	USD	2.15%
Bond	EDF	01/2010	01/2020	1,400	USD	4.60%
Bond	EDF	10/2015	10/2020	1,500	USD	2.35%
Euro MTN	EDF	05/2008	05/2020	1,200	EUR	5.38%
Euro MTN	EDF	01/2009	01/2021	2,000	EUR	6.25%
Euro MTN (green bond)	EDF	11/2013	04/2021	1,400	EUR	2.25%
Euro MTN	EDF	01/2012	01/2022	2,000	EUR	3.88%
Euro MTN	EDF	09/2012	03/2023	2,000	EUR	2.75%
Euro MTN	EDF	09/2009	09/2024	2,500	EUR	4.63%
Bond (green bond)	EDF	10/2015	10/2025	1,250	USD	3.63%
Euro MTN	EDF	11/2010	11/2025	750	EUR	4.00%
Euro MTN (green bond)	EDF	10/2016	10/2026	1 750	EUR	1.00%
Euro MTN	EDF	03/2012	03/2027	1,000	EUR	4.13%
Euro MTN	EDF	04/2010	04/2030	1,500	EUR	4.63%
Euro MTN	EDF	07/2001	07/2031	650	GBP	5.88%
Euro MTN	EDF	02/2003	02/2033	850	EUR	5.63%
Euro MTN	EDF	06/2009	06/2034	1,500	GBP	6.13%
Euro MTN	EDF	10/2016	10/2036	750	EUR	1.88%
Bond	EDF	01/2009	01/2039	1,750	USD	6.95%
Euro MTN	EDF	11/2010	11/2040	750	EUR	4.50%
Euro MTN	EDF	10/2011	10/2041	1,250	GBP	5.50%
Bond	EDF	01/2014	01/2044	1,000	USD	4.88%
Bond	EDF	10/2015	10/2045	1,500	USD	4.75%
Bond	EDF	10/2015	10/2045	1,150	USD	4.95%
Euro MTN	EDF	09/2010	09/2050	1,000	GBP	5.13%
Euro MTN	EDF	10/2016	10/2056	2 164	USD	4.99%
Bond	EDF	01/2014	01/2114	1,350	GBP	6.00%

(1) Date funds were received.

The €2,820 million bond issued by C25 matures in December 2017. 50.1% of this borrowing is included in "Financial assets" and 49.9% is included in "Assets held for sale" (see note 3.5.1 to the 2016 consolidated financial statements).

At 31 December 2016, EDF has an overall amount of €10,215 million in available credit facilities (syndicated credit and bilateral lines):

- the syndicated credit line amounts to €4 billion with maturities extending to November 2020. No drawings had been made on this syndicated credit line at 31 December 2016;
- credit lines represent an available amount of €6,085 million, with expiry dates extending to December 2019. The level of these credit facilities is regularly reviewed to ensure that the Group has sufficient back-up facilities;

- several credit lines exist between EDF and the European Investment Bank. Three credit lines were fully drawn at 31 December 2016 for the respective amounts of €225 million, €500 million and €500 million. A fourth credit line of €200 million was drawn to the extent of €70 million at the same date.

Since September 2015, EDF Investissements Groupe has had a new syndicated credit facility for €1,000 million (maturing in September 2020). At 31 December 2016, there were no drawings on this credit facility.

5.1.6.1.2 Credit rating

The financial ratings agencies Standard & Poor's, Moody's and Fitch Ratings attributed the following long-term and short-term ratings to EDF group entities at 31 December 2016:

Company	Agency	Long-term rating	Short-term rating
EDF	Standard & Poor's	A-, stable outlook ⁽¹⁾	A-2
	Moody's	A3, stable outlook ⁽²⁾	P-2
	Fitch Ratings	A-, stable outlook ⁽³⁾	F2
EDF Trading	Moody's	Baa2, stable outlook ⁽⁴⁾	n.a.
EDF Energy	Standard & Poor's	BBB-, stable outlook ⁽⁵⁾	A-3
Edison	Standard & Poor's	BB+, stable outlook ⁽⁶⁾	B
	Moody's	Baa3, stable outlook ⁽⁷⁾	n.a.

n.a. = non applicable.

(1) S&P downgraded EDF's rating from A to A- (with stable outlook) on 21 September 2016.

(2) Moody's downgraded EDF's rating from A2 to A3 (with stable outlook) on 28 September 2016. The rating for perpetual subordinated was also downgraded to Baa3.

(3) Fitch downgraded EDF's rating from A to A- on 7 June 2016.

(4) Moody's downgraded EDF Trading's rating from Baa1 to Baa2 on 13 May 2016. A stable outlook was added on 11 October 2016.

(5) S&P downgraded EDF Energy's rating from A- to BBB- on 13 May 2016. A stable outlook was added on 21 September 2016.

(6) S&P downgraded Edison's rating from BBB- to BB+ (with stable outlook) on 4 October 2016.

(7) Moody's downgraded Edison's rating from Baa2 to Baa3 on 13 May 2016. A stable outlook was added on 19 October 2016.

5.1.6.1.3 Management of foreign exchange risk

Due to the diversification of its activities and geographical locations, the Group is exposed to the risk of exchange rate fluctuations, which may have an impact on the translation differences affecting balance sheet items, Group financial expenses, equity and net income.

To limit exposure to foreign exchange risks, the Group has introduced the following management principles:

- local currency financing: to the extent possible given the local financial markets' capacities, each entity finances its activities in its own accounting currency. When financing is contracted in other currencies, derivatives may be used to limit foreign exchange risk;
- matching of assets and liabilities: the net assets of subsidiaries located outside the Euro zone expose the Group to a foreign exchange risk. The foreign exchange risk in the consolidated balance sheet is managed

either by matching with liabilities for acquisitions in the same currency, or by market hedging involving use of financial derivatives. Hedging of net assets in foreign currencies complies with risk/return targets, and the hedging ratio varies from 39% to 100% depending on the currency (apart from the BRL and CNY). If no hedging instruments are available, or if hedging costs are prohibitive, the foreign exchange positions remain open and the risk on such positions is monitored by sensitivity calculations;

- hedging of operating cash flows in foreign currencies: in general, the operating cash flows of EDF and its subsidiaries are in the relevant local currencies, with the exception of flows related to fuel purchases which are primarily in US dollars, and certain flows related to purchases of equipment, which concern lower amounts. Under the principles laid down in the Strategic financial management framework, EDF and the main subsidiaries concerned by foreign exchange risks (EDF Energy, EDF Trading, Edison, EDF Énergies Nouvelles) are required to hedge firm or highly probable commitments related to these future operating cash flows.

As a result of the financing and foreign exchange risk hedging policy, the Group's gross debt at 31 December 2016 breaks down as follows by currency after hedging:

GROSS DEBT STRUCTURE BY CURRENCY BEFORE AND AFTER HEDGING

31 December 2016 (in millions of Euros)	Initial debt structure	Impact of hedging instruments ⁽¹⁾	Debt structure after hedges	% of debt
EUR	31,204	20,220	51,424	79%
USD	22,239	(19,314)	2,925	4%
GBP	9,824	(827)	8,997	14%
Other currencies	1,928	(79)	1,849	3%
TOTAL DEBT	65,195	-	65,195	100%

(1) Hedges of liabilities and net assets of foreign subsidiaries.

The table below presents the impact of a variation in exchange rates on the Group's gross debt at 31 December 2016:

EXCHANGE RATE SENSITIVITY OF THE GROUP'S GROSS DEBT

31 December 2016 (in millions of Euros)	Debt after hedging instruments converted into Euros	Impact of a 10% unfavourable variation in exchange rates	Debt after a 10% unfavourable variation in exchange rates
EUR	51,424	-	51,424
USD	2,925	(293)	2,632
GBP	8,997	(900)	8,097
Other currencies	1,849	(185)	1,664
TOTAL DEBT	65,195	(1,378)	63,817

Due to the Group's foreign exchange risk hedging policy for liabilities, the income statement for companies controlled by the Group is marginally exposed to foreign exchange rate risk.

The table below sets forth the foreign exchange position relating to net assets in foreign currencies of the Group's subsidiaries:

NET ASSET POSITION

31 December 2016 ⁽¹⁾ (in millions of Euros)	Net assets	Bonds	Derivatives	Net assets after management
USD	4,745	3,200	(1,312)	2,857
CHF (Switzerland)	659	600	(110)	169
HUF (Hungary)	121,000	-	121,000	-
PLN (Poland)	2,357	-	2,193	164
GBP (United Kingdom)	14,642	5,435	1,149	8,058
BRL (Brazil)	1,377	-	-	1,377
CLP (Chile)	2,607	-	-	2,607
CNY (China)	10,141	-	-	10,141

(1) Net assets as stated at 31 December 2016, except for the net position in HUF, which corresponds to the sale price for EDF Démász Zrt; derivatives and bonds as stated at 31 December 2016. The net positions shown exclude certain non-significant exposures.

The above table shows the assets of the Group's foreign subsidiaries in foreign currencies, adjusted for changes in the fair value of cash flow hedges and available-for-sale financial assets recorded in equity, and changes in the fair value of financial instruments recorded in income.

The following table sets forth the risk for equity of foreign exchange losses on net assets in foreign currencies of the Group's principal subsidiaries at 31 December 2016, assuming unfavourable, uniform exchange rate variations of 10% against the Euro. Net assets are converted at the closing rate and impacts are reported in absolute value.

EXCHANGE RATE SENSITIVITY OF NET ASSETS

<i>(in millions of currencies)</i>	At 31 December 2016			At 31 December 2015		
	Net assets after management, into currency	Net assets after management, converted into Euros	Impact on equity of a 10% variation in exchange rates	Net assets after management, in currency	Net assets after management, converted into Euros	Impact on equity of a 10% variation in exchange rates
USD	2,857	2,710	271	2,916	2,678	268
CHF (Switzerland)	169	157	16	181	167	17
HUF (Hungary)	–	–	–	62,289	197	20
PLN (Poland)	164	37	4	807	189	19
GBP (United Kingdom)	8,058	9,412	941	7,401	10,084	1,008
BRL (Brazil)	1,377	401	40	1,065	247	25
CLP (Chile)	2,607	4	–	–	–	–
CNY (China)	10,141	1,385	139	9,770	1,384	138

The foreign exchange risk on available-for-sale securities is mostly concentrated in EDF's dedicated asset portfolio, which is discussed in section 5.1.6.1.6 "Management of financial risk on EDF SA's dedicated asset portfolio".

The foreign exchange risk associated with short-term investments and operating liabilities in foreign currencies remains restricted for the Group at 31 December 2016.

5.1.6.1.4 Management of interest rate risk

The exposure of the Group's net indebtedness to interest rate fluctuations covers two types of risk: a risk of change in the net financial expenses on floating-rate financial assets and liabilities, and a risk of change in the value of financial assets invested at fixed rates. These risks are managed by monitoring the floating-rate portion of net indebtedness, defined by reference to the risk/return for net financial expenses, taking into consideration expected movements in interest rates.

Some of the debt is variabilised and the Group may use interest rate derivatives for hedging purposes. The distribution of exposure between fixed and floating rates is monitored.

The Group's debt after hedging instruments at 31 December 2016 comprised 53.6% at fixed rates and 46.4% at floating rates.

A 1% uniform annual rise in interest rates would generate an approximate €303 million increase in financial expenses at 31 December 2016, based on gross floating-rate debt after hedging.

The average cost of Group debt (weighted interest rate on outstanding amounts) was 2.73% at the end of 2016.

The table below sets forth the structure of Group debt and the impact of a 1% variation in interest rates at 31 December 2016. The impact of the change in interest rates was €7 million higher than in 2015.

STRUCTURE AND INTEREST RATE SENSITIVITY OF GROUP DEBT

31 December 2016 <i>(in millions of Euros)</i>	Initial debt structure	Impact of hedging instruments	Debt structure after hedging	Impact on income of a 1% variation in interest rates
Fixed rate	58,650	(23,710)	34,940	–
Floating rate	6,545	23,710	30,255	303
TOTAL	65,195	–	65,195	303

Concerning financial assets, the table below presents the interest rate risk on floating-rate bonds and negotiable debt securities held by EDF, and their sensitivity to interest rate risks (impact on net income).

INTEREST RATE SENSITIVITY OF FLOATING-RATE INSTRUMENTS

31 December 2016 (in millions of Euros)	Value	Impact on income of a 1% variation of interest rates	Value after a 1% variation in interest rates
FLOATING-RATE INSTRUMENTS	1,497	(15)	1,482

The Group's interest rate risk notably relates to the value of the Group's long-term nuclear commitments (see note 29 to the 2016 consolidated financial statements) and its commitments for pensions and other specific employee benefits (see note 31 to the 2016 consolidated financial statements), which are adjusted to present value using discount rates that depend on interest rates at various time horizons, and debt instruments held for the management of the dedicated assets set aside to cover these commitments (see section 5.1.6.1.6 "Management of financial risk on EDF's dedicated asset portfolio").

5.1.6.1.5 Management of equity risks

The equity risk is concentrated in the following areas:

Coverage of EDF's nuclear obligations

Analysis of the equity risk is presented in section 5.1.6.1.6 "Management of financial risk on EDF SA's dedicated asset portfolio".

Coverage of employee benefit obligations for EDF SA, EDF Energy and British Energy

Assets covering EDF's employee benefit liabilities are partly invested on the international and European equities markets. Market trends therefore affect the value of these assets, and a downturn in equity prices would lead to a rise in balance sheet provisions.

30.9% of the assets covering EDF's employee benefit obligations were invested in equities at 31 December 2016, representing an amount of €3.6 billion of equities.

At 31 December 2016, the two pension funds sponsored by EDF Energy (EDF Energy Pension Scheme and EDF Energy Group Electricity Supply Pension Scheme) were invested to the extent of 37.7% in equities and 38.7% in equity funds, representing an amount of £588 million of equities.

At 31 December 2016, the British Energy pension funds were invested to the extent of 24.8% in equities and equity funds, representing an amount of £1,582 million of equities.

CENG fund

CENG is exposed to equity risks in the management of its funds established to cover nuclear decommissioning expenses.

EDF's long-term cash management

As part of its long-term cash management policy, EDF has continued its strategy to reduce the portion of equity-correlated investments, resulting in a non-significant position well below €1 million at 31 December 2016.

5.1.6.1.6 Management of financial risk on EDF SA's dedicated asset portfolio

Dedicated assets have been built up progressively by EDF since 1999 to secure financing of its long-term nuclear commitments. The Law of 28 June 2006 and its implementing regulations defined provisions not related to the operating cycle, which must therefore be covered by dedicated assets; they are listed in note 47 to the 2016 consolidated financial statements, "Dedicated assets".

The dedicated asset portfolio is managed under the supervision of the Board of Directors and its advisory Committees (Nuclear Commitments Monitoring Committee, Audit Committee).

The Nuclear Commitments Monitoring Committee (CSEN) is a specialised Committee set up by EDF's Board of Directors in 2007.

A Nuclear Commitments Financial Expertise Committee (CEFEN) exists to assist the company and its governance bodies on questions of matching assets and liabilities and asset management. The members of this committee are independent of EDF. They are selected for their skills and diversity of experience, particularly in the fields of asset/liability management, economic and financial research, and asset management.

Governance and management principles

The governance principles setting forth the structure of dedicated assets, and the relevant decision-making and control processes for their management, are validated by EDF's Board of Directors. These principles also lay down rules for the asset portfolio's structure, selection of financial managers, and the legal, accounting and tax structure of the funds.

Strategic asset allocation is based on asset/liability reviews carried out to define the most appropriate target portfolio for financing long-term nuclear expenses. Strategic allocation is validated by EDF's Board of Directors and reviewed every three years unless circumstances require otherwise. Since 2013, this target allocation has consisted of a financial portfolio and around one quarter of unlisted assets (the proportion of 21.9% had been reached at 31 December 2016). The unlisted assets are managed by EDF Invest (formed in 2013 following the Decree of 24 July 2013) and comprise infrastructures, real estate and investment funds.

The financial portfolio contains two sub-portfolios, "equities" and "bonds", themselves divided into "secondary asset classes" or "pockets" that correspond to specific markets. The strategic allocation of the financial portfolio is 49% international equities and 51% bonds. A benchmark index is set for monitoring performance and controlling the risk on the financial portfolio: MSCI World AC DN hedged in Euros 50% (excluding emerging country currencies) for the equities sub-portfolio, and a composite index of 60% Citigroup EGBI and 40% Citigroup EuroBIG corporate for the bonds sub-portfolio.

A third "cash" sub-portfolio exists to provide secure coverage for the disbursements related to the purpose of the asset covered, and may be reinforced tactically, particularly when a conservative approach is required in the event of a market crisis.

The CSPE receivable was allocated to dedicated assets on 13 February 2013.

Tactical management of the financial portfolio has several focal areas:

- monitoring of exposure between the "equities" and "bonds" sub-portfolios;
- within each sub-portfolio, allocation by "secondary asset class";
- selection of investment funds, aiming for diversification:
 - by style (growth securities, unlisted securities, high-return securities),
 - by capitalisation (major stocks, medium and small stocks),
 - by investment process (macroeconomic and sector-based approach, selection of securities on a "quantitative" basis, etc.),
 - by investment vehicle (for compliance with maximum investment ratios);
- for bonds, a choice of securities held directly, through brokers, or via investment funds incorporating the concern for diversification:
 - by type of issue (fixed income, indexed income),
 - by type of instrument (government or supranational bonds, covered bonds and similar, corporate bonds),
 - by issuer and by maturity.

The allocation policy for the financial portfolio was developed by the Operational Management Committee¹ on the basis of the economic and financial outlook for each market and geographical area, a review of market appreciation in different markets and market segments, and risk analyses produced by the CRFI Department.

Change in regulations

The Decree of 19 December 2016 authorised allocation of the shares in C25, the company holding the shares of RTE, to the dedicated asset portfolio.

Changes in the portfolio during 2016

EDF Invest continued to build up its portfolio of infrastructures, real estate property and investment funds in 2016.

In October 2016, EDF Invest and the Dutch infrastructure fund DIF, as partners in a 50/50 consortium, acquired 100% of Thyssengas, Germany's third largest regulated gas transporter. Thyssengas owns and operates 4,200km of natural gas transport networks, serving industrial and residential customers in North Rhine-Westphalia.

In November 2016, the Italian group Atlantia and EDF Invest acquired a majority stake in Aéroports de la Côte d'Azur, the company that manages the French airports of Nice-Côte d'Azur, Cannes-Mandelieu and Saint-Tropez, and the Sky Valet international business aviation service network (see section 5.1.3.9.1.2).

Both of these investments have been allocated to the "infrastructures" pocket of EDF Invest alongside C25 (the company that directly holds 100% of RTE shares), TIGF, Porterbrook, MRG and Géosel.

In December 2016, EDF entered into a binding agreement with Caisse des Dépôts and CNP Assurances setting the terms and conditions

for the acquisition by Caisse des Dépôts and CNP Assurances of a 49.9% indirect stake in RTE, and the modalities of a long-term partnership to promote the development of RTE (see section 5.1.3.8.1).

In a first step, after the publication of Decree 2016-1781 of 19 December 2016, on 23 December 2016 EDF transferred all of the shares in RTE to the new company C25, which is partly financing this operation through external debt. EDF will then sell 49.9% of the equity capital of C25 to Caisse des Dépôts and CNP Assurances. Finalisation of this second step is expected in the first half of 2017, once the relevant merger control authorities have given their approval.

The balance of EDF's stake in C25 (50.1%) will remain allocated to the portfolio of dedicated assets held to cover expenses related to the back-end of the nuclear cycle.

Changes in the financial portfolio are described in the following section, under the heading "Performance of EDF's dedicated asset portfolio".

The CSPE receivable is a financial receivable (bearing interest at 1.72%). It is to be repaid under a revised schedule extending to the end of 2020, which was set out in a decision of 2 December 2016, in compliance with a ministerial letter of 26 January 2016. In that letter the French State also acknowledged the additional shortfall that arose between 2013 and 2015, estimated at that date at €644 million and included in the revised repayment schedule, and authorised its allocation to dedicated assets. In December 2016, the total amount of this additional receivable, and some of the receivable allocated to dedicated assets, was assigned for a total of €1,538 million (see note 3.6 to the 2016 consolidated financial statements, "Partial assignment of the CSPE receivable"). The amount received for assignment of the portion of the CSPE receivable that was allocated to dedicated assets (€894 million) has been reinvested in dedicated assets.

At 31 December 2016, the degree of coverage of provisions by dedicated assets was 99.8% applying the regulatory calculations. All other things being equal, this coverage should reach 105.3% after completion of the sale of some of the shares of C25, which is planned for the first half of 2017. Without application of the regulatory limits set by Decree 2007-243, the provision coverage rate is 105.4%.

Withdrawals totalled €377 million, equivalent to the payments made in respect of the long-term nuclear obligations to be covered in 2016 (€378 million in 2015). No allocations to dedicated assets took place in 2016 (allocation of €38 million in 2015). The €972 million of allocations yet to be made, as reported at 31 December 2015, no longer applied at 30 June 2016, largely due to the extension of the depreciation period for 900MW PWR plants which led to a reversal of €1,657 million from the provisions covered by dedicated assets (see note 3.1 to the 2016 consolidated financial statements, "Extension to 50 years of the depreciation periods of the 900MW PWR series in France").

However, at 31 December 2016, largely due to the decrease in the real discount rate at the year-end, increases to provisions that must be offset by allocations to dedicated assets under the Decree of 24 March 2015 amount to a total €1,095 million. EDF will allocate this amount to dedicated assets over the months following finalisation of its financial statements, in accordance with the Letter of 10 February 2017 from the Minister for the Economy and Finance, and the Minister for the Environment, Energy and the Sea.

1. A permanent internal committee for evaluation, consultation and operational decision-making in the management of dedicated assets.

Content and performance of EDF's dedicated asset portfolio

BREAKDOWN OF THE PORTFOLIO

	31/12/2016	31/12/2015
Equities sub-portfolio	31.1%	31.1%
Bonds sub-portfolio	26.8%	28.5%
Cash sub-portfolio	3.5%	1.2%
CSPE after funding	16.7%	22.3%
Unlisted assets (EDF Invest)	21.9%	16.9%
TOTAL	100%	100%

At 31 December 2016, the total value of the portfolio was €25,677 million compared to €23,480 million in 2015.

The content of the financial portfolio is also presented in note 47 to the 2016 consolidated financial statements, "Dedicated assets".

PORTFOLIO CONTENT UNDER THE CLASSIFICATION FROM ARTICLE 4, DECREE 2007-243 OF 23 FEBRUARY 2007

Categories (in millions of Euros)	31 December 2016		31 December 2015	
	Net book value ⁽¹⁾	Realisable value	Net book value	Realisable value
OECD government bonds and similar	3,167	3,335	3,486	3,784
OECD corporate (non-government) bonds	542	593	595	630
Funds investing in the above two categories	3,910	4,058	2,701	2,840
Funds not exclusively invested in OECD bonds	6,059	7,790	5,643	7,019
Hedges, deposits, amounts receivable	(18)	(18)	7	7
TOTAL FINANCIAL PRODUCT PORTFOLIO	13,660	15,758	12,432	14,280
C25 (the holding company for RTE) ⁽¹⁾	3,905	3,905	2,015	2,580
Other unlisted securities and real estate assets	1,530	1,728	1,249	1,395
TOTAL EDF INVEST	5,435	5,633	3,264	3,975
CSPE after funding	4,182	4,286	5,225	5,225
TOTAL DEDICATED ASSETS	23,277	25,677	20,921	23,480

(1) Net book value in the parent company financial statements.

(2) In 2015, 50% of the Group's investment in RTE; in 2016, 75.9% of C25, the company that holds 100% of RTE shares.

PERFORMANCE OF EDF'S DEDICATED ASSET PORTFOLIO

The table below presents the performance by portfolio at 31 December 2016 and 31 December 2015:

(in millions of Euros)	31/12/2016 Stock market or realisable value	Performance for 2016		31/12/2015 Stock market or realisable value	Performance for 2015	
		Portfolio	Benchmark index ⁽¹⁾		Portfolio	Benchmark index ⁽¹⁾
Equities sub-portfolio	7,992	7.8%	9.8%	7,304	6.1%	4.9%
Bonds sub-portfolio	6,866	4.3%	3.8%	6,694	1.3%	0.8%
TOTAL FINANCIAL PORTFOLIO	14,858	6.2%	6.8%	13,998	3.5%	3.0%
Cash sub-portfolio	900	0.2%	-0.3%	282	0.4%	-0.1%
TOTAL FINANCIAL AND CASH PORTFOLIO	15,758	5.9%	-	14,280	3.5%	-
CSPE after funding	4,286 ⁽³⁾	4.2% ⁽³⁾	-	5,225	1.7%	-
EDF INVEST ⁽²⁾	5,633	40.1% ⁽⁵⁾	-	3,975	5.3%	-
including C25 shares ⁽⁴⁾	3,905	55.4% ⁽⁵⁾	-	2,580	4.6%	-
including other unlisted assets ⁽⁴⁾	1,728	7.9% ⁽⁶⁾	-	1,395	8.3%	-
TOTAL DEDICATED ASSETS	25,677	11.1% ^{(5) (7)}	-	23,480	3.5%	-

(1) Benchmark index: MSCI World AC DN hedged in Euros 50% (excluding emerging country currencies) for the equities sub-portfolio, composite index of 60% Citigroup EGBI and 40% Citigroup EuroBIG corporate for the bonds sub-portfolio, Eonia Capitalisé for the cash subportfolio, 49% equities index + 51% bonds index for the total financial portfolio.

(2) Performance for assets held at the start of the year. By limiting the value of certain investments in compliance with Articles 4 and 16 of Decree 2007-243 concerning calculation of the regulatory realisable value of dedicated assets which must be equal to or greater than long-term nuclear provisions, the amount of this regulatory realisable value has been reduced to €4,266 million for EDF Invest assets and a total €24,312 million for all dedicated assets.

(3) Including a €103 million adjustment after the €22 million gain on the €872 million of receivable assigned. For the unadjusted receivable, performance is 1.7%.

(4) The portion of RTE shares allocated to the dedicated asset portfolio (50%) was included at its equity value in the consolidated financial statements until 30 June 2016. At 31 December 2016, the share of C25 (the company that directly holds 100% of RTE shares) allocated to dedicated assets, i.e. 75.9%, is adjusted to fair value.

(5) Excluding adjustments related to the C25 operation, RTE's performance was 1.6%, EDF Invest's performance was 3.8% and the overall performance by all dedicated assets was 5.2%.

(6) 9.1% after adjustment for foreign exchange effects.

(7) Including adjustments of RTE and the CSPE receivable; 4.8% without these two adjustments. The performance by dedicated assets excluding RTE is 5.7%.

The stock market began the year 2016 dominated by three sources of uncertainty: political risks (Brexit, US presidential elections, etc), central bank policies (the Fed, ECB, BoJ, BoE) and the behaviour of oil prices, which suggested that a significant slowdown or even instability was to be feared in emerging countries.

All the political risks became reality. On 23 June the United Kingdom voted to leave the European Union, setting off a period of uncertainty. The protectionist programme by the new US government could have major implications for the country's business partners if applied as announced. Nonetheless, these developments only fleetingly affected the financial markets, which preferred to focus on good news.

Regarding monetary policy, the European Central Bank introduced negative interest rates, and further relaxed its policy early in the year by increasing its asset purchases and extending them to private-issuer bonds. The ECB announced in late 2016 that this policy was to continue for another 9 months. The Federal Reserve, in contrast, began to raise base rates. Overall, fears of deflation faded and there was a recovery in growth.

As a result, long-term rates, which showed a downward trend at the start of the year, picked up substantially during the second half of the year.

Oil prices, after briefly dipping below US\$30 early in the year, returned to levels of around US\$50 which appears to be an equilibrium price. As well as limiting the aggravating factors for the crisis in oil-producing countries, this stabilisation of oil prices contributed to a moderate rise in inflation in the western economies.

Against this background, the markets saw high volatility in the first half of the year, followed by a substantial recovery in the second part of the year, particularly after the US presidential elections. The world equities markets (MSCI World All Countries DN index hedged in Euros 50%, excluding emerging country currencies) ended the year up by +9.8%. The European bond index (60% Citigroup EGBI and 40% Citigroup EuroBIG corporate) progressed by +3.8%.

In the very uncertain environment at the start of the year, it was decided to concentrate on a defensive portfolio positioning. This was applied to both bonds, seeking lower sensitivity than the benchmark index, and equities, with overweighting on developed country markets rather than emerging countries, and less volatile equity funds.

This allocation strategy and the underperformance of active equity management in North America and Europe resulted in below-benchmark returns on the financial portfolio, which rose by 6.2% while the benchmark index rose by 6.8%.

In 2016, the overall after-tax performance of dedicated assets (impacts on reserves and net income) was +€728 million: +€575 million on the financial portfolio and cash portfolios (+€876 million before tax), +€71 million for the CSPE receivable after funding (+€108 million before tax) and +€82 million for EDF Invest (including +€38 million for the RTE shares allocated to dedicated assets).

Dedicated assets' exposure to risks

EDF is exposed to equity risks, interest rate risks and foreign exchange risks through its dedicated asset portfolio.

The market value of the equities sub-portfolio in EDF's dedicated asset portfolio was €7,992 million at 31 December 2016. The volatility of the equities sub-portfolio can be estimated through the volatility of its benchmark index, which at 31 December 2016 was 15.2% based on 52 weekly performances, compared to 15.5% at 31 December 2015. Applying this volatility to the value of equity assets at the same date, the Group estimates the annual volatility of the equities portion of dedicated assets at €1,215 million. This volatility is likely to affect the Group's equity.

At 31 December 2016, the sensitivity of the bond sub-portfolio (€6,866 million) was 4.89, i.e. a uniform 100 base point rise in interest rates would result in a €336 million decline in market value which would be recorded in consolidated equity. The sensitivity was 5.52 at the end of 2015. The sensitivity of the bond sub-portfolio was thus well below the sensitivity of the benchmark index (5.70).

The table below gives details, by rating, of the EDF group's consolidated exposure to counterparty risk. At 30 September 2016, 80% of the Group's exposure concerns "investment grade" counterparties, mainly as a result of the predominance of exposures generated by the cash and asset management activity, with most short-term investments concerning low-risk assets:

	Investment grade	Non investment grade	Unrated	Total
31/03/2016	81%	11%	8%	100%
30/09/2016	80%	11%	9%	100%

The exposure to counterparty risk by nature of activity is distributed as follows:

	Purchases	Insurance	Distribution and sales	Cash and asset management	Fuel purchases and energy trading	Total
31/03/2016	9%	0%	11%	71%	9%	100%
30/09/2016	10%	0%	11%	72%	7%	100%

Exposure in the energy trading activities is concentrated at the level of EDF Trading, where each counterparty is assigned a limit that depends on its financial robustness. A range of methods are used to reduce counterparty risk at EDF Trading, primarily position netting agreements, cash-collateral agreements and establishment of guarantees from banks or affiliates.

For counterparties dealing with EDF's trading room, the CRFI Department has drawn up a framework specifying counterparty authorisation procedures and the methodology for calculation of allocated limits. The level of exposure can be consulted in real time and is systematically monitored on a daily basis. The suitability of limits is reviewed without delay in the event of an alert or unfavourable development affecting a counterparty.

As the situation in the Euro zone is still unstable, EDF has continued to apply a conservative management policy for its cash investments in non-core countries. Apart from dedicated assets, purchases of sovereign debt are restricted to maximum maturities of three years for Italy and Spain (no exposure in Portugal, Greece, Cyprus, etc.). Only "investment grade" banking counterparties are authorised, for limited amounts and maturities.

5.1.6.1.7 Management of counterparty/credit risks

Counterparty risk is defined as the total loss that the EDF group would sustain on its business and market transactions if a counterparty defaulted and failed to perform its contractual obligations.

The Group has a counterparty risk management policy which applies to the parent company and all operationally controlled subsidiaries. This policy, updated in September 2014, sets out the governance associated with monitoring for this type of risk, and organisation of the counterparty risk management and monitoring (including definition of limits and Group indicators). The policy also involves monthly consolidation of the Group's exposures, updated monthly for financial and energy market activities and quarterly for other activities. The CRFI (Financial Risks Control) Department closely monitors Group counterparties (daily review of alerts, special cautionary measures for certain counterparties).

5.1.6.2 Management and control of energy market risks**5.1.6.2.1 Management and control of energy market risks**

In keeping with the opening of the final customer market, the growth of wholesale markets and its international development, the EDF group is exposed to price variations on the energy market which can significantly affect its financial statements.

Consequently, the Group has an "energy markets" risk policy for all energy commodities, applicable to EDF and entities over which it has operational control.

The purpose of this policy is to:

- define the general framework for management of energy market risks, governing the various Group entities' asset portfolio management activities (energy generation, optimisation and sale), and trading for EDF Trading;
- define the responsibilities of asset managers and traders, and the various levels of control of activities;

- implement a coordinated Group-wide hedging policy that is coherent with the Group's financial commitments;
- consolidate the exposure of the various entities operationally controlled by EDF on the structured energy-related markets.

At entities not operationally controlled by EDF, the risk management framework is reviewed by the governance bodies.

5.1.6.2.2 Organisation of risk control

The process for controlling energy market risks for entities operationally controlled by the Group is based on:

- a governance and market risk exposure measurement system, clearly separating management and risk control responsibilities;
- an express delegation to each entity, defining hedging strategies and establishing the associated risk limits. This enables the Comex to set out and monitor an annual Group risk profile consistent with the financial objectives, and thus direct operational management of energy market risks over market horizons (generally three years).

The basic principle for hedging is:

- netting of upstream/downstream positions; wherever possible, sales to final customers are hedged by Internal sales;
- gradual closing of net positions before the end of the budget year, based on a predefined hedging trajectory¹ that captures an average price, generally with overweighting in year N-1 in view of liquidity constraints on the forward markets.

On the French electricity market, EDF is exposed to very high uncertainty over its net exposure due to the fact that the ARENH system is optional. Since the volumes subscribed are only known shortly before the delivery period, EDF is obliged to use assumptions for ARENH subscriptions, which include prudence margins. EDF thus remains subject to risks that the assumptions may not correspond to reality, such that during the year it could find itself obliged to sell reserved volumes that in the end were not actually subscribed, or conversely to purchase volumes sold before the ARENH bids took place on the assumption that there would be no subscriptions. This last situation was experienced in the second half of 2016 for ARENH 2017 deliveries.

Given its close interaction with the decisions made in the generation, supply and trading activities, the energy risk management process involves Group management and is based on a risk indicator and measurement system incorporating escalation procedures in the event risk limits are exceeded.

The Group's exposure to energy market risks through operationally controlled entities is reported to the Comex on a quarterly basis. The control processes are regularly evaluated and audited.

5.1.6.2.3 Principle for operational management and control of energy market risks

The principles for operational management and control of energy market risks for the Group's operationally controlled entities are based on strict segregation of responsibilities for managing those risks, distinguishing between management of assets (generation and supply) and trading.

Managers of generation and supply assets are responsible for implementing a risk management strategy that minimises the impact of energy market risks on the variability of their financial statements (the accounting classifications of these hedges are described in note 41 to the 2016 consolidated financial statements, "Derivatives and Hedge accounting"). However, a residual risk remains that cannot be hedged on the market due to factors such as insufficient liquidity or market depth, uncertainty over volumes, etc.

For operationally controlled entities in the Group, positions on the energy markets are taken predominantly by EDF Trading, the Group's trading entity, which operates on the markets on behalf of other Group entities and for the purposes of its own trading activity associated with the Group's industrial assets. Consequently, EDF Trading is subject to a strict governance and control framework, particularly the European regulations on trading companies.

EDF Trading trades on organised or OTC markets in derivatives such as futures, forwards, swaps and options (regardless of the accounting classification applied at Group level). Its exposure on the energy markets is strictly controlled through daily limit monitoring overseen by the subsidiary's management and by the division in charge of energy market risk control at Group level. Automatic escalation procedures also exist to inform members of EDF Trading's Board of Directors of any breach of risk limits (value at risk limit) or loss limits (stop-loss limits). Value at Risk (VaR) is a statistical measure of the potential maximum loss in market value on a portfolio in the event of unfavourable market movements, over a given time horizon and with a given confidence interval². Specific Capital at Risk (CaR) limits are also used in certain areas (operations on illiquid markets, long-term contracts and structured contracts) where VaR is difficult to apply. The stop-loss limit stipulates the acceptable risk for the trading business, setting a maximum level of loss over a rolling three-month period. If these limits are exceeded, EDF Trading's Board of Directors takes appropriate action, which may include closing certain positions.

During the second half of 2016, the VaR limit was raised from €36 million to €50 million in view of the significant price volatility on European markets in this period, and the CaR limit for long-term contracts was raised from €200 million to €300 million. CaR limits for operations on illiquid markets and the stop-loss were unchanged and remain at €250 million and €180 million respectively.

These limits were not exceeded in 2016, apart from two occasions of small scale and duration before the VaR and CaR limits for short-term contracts were increased. The stop-losses have never been triggered since their introduction.

For an analysis of fair value hedges of the Group's commodities, see note 41.5 to the 2016 consolidated financial statements. For details of commodity derivatives not classified as hedges by the Group, see note 42.3 to the same consolidated financial statements.

5.1.6.3 Management of insurable risks

The EDF group has insurance programmes that cover EDF SA and its controlled subsidiaries as they are integrated. The coverage, exclusions, excesses and limits are appropriate to each business and the specificities of these subsidiaries.

1. The risk management frameworks, which are approved annually by the Group for each entity with exposure to energy market risks, may include acceleration or deceleration plans allowing departures from these trajectories if predefined price thresholds are exceeded. Since these plans do not comply with the general principle of gradual hedging, they can only be applied under strict conditions.

2. EDF Trading estimates the VaR by the "Monte Carlo" method, which is based on volatilities and historical correlations measured using observed market prices over the 40 most recent business days. The VaR limit applies to the total EDF Trading portfolio.

The main insurance programmes cover:

- **conventional damage to Group property:** EDF is a member of the international mutual insurance company for energy operators, OIL¹. Additional insurance coverage is provided by EDF's captive insurance subsidiary Wagram Insurance Company DAC², other insurers and reinsurers;
- **damage to the EDF group's nuclear facilities:** in addition to coverage through EDF's membership of OIL, physical damage (including following a nuclear accident) to EDF's nuclear installations in France and EDF Energy's nuclear facilities in the United Kingdom, and nuclear decontamination costs, are covered by a Group insurance policy involving the French nuclear pool (Assuratome), the British atomic pool National Risk Insurers (NRI), the European Mutual Association for Nuclear Insurance (EMANI), and the insurer Northcourt.

In connection with CENG's operations in the United States, EDF Inc. is a member of NEIL³;

- **damage to merchandise transported;**
- **nuclear operator's civil liability:** in France, EDF's insurance policies comply with French Laws no. 68-943 of 30 October 1968, no. 90-488 of 16 June 1990 and no. 2006-686 of 13 June 2006 (the "TSN" Law on nuclear transparency and safety) which are now part of the French Environment Code. These Laws transposed the civil liability obligations imposed on nuclear facility operators by the Paris Convention (see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities").

The Law on the Energy Transition for Green Growth enacted on 17 August 2015 amended the provisions of Articles L. 59-728 and L. 59-732 of the French Environment Code. Among the changes, the civil liability limits for nuclear operators were raised with effect from 18 February 2016 to €700 million for nuclear facilities (€70 million for reduced-risk facilities) and €80 million for risks during transport.

To comply with the new legal thresholds, EDF published a contract notice on 10 August 2015 entitled "EDF SA Nuclear Civil Liability Insurance" to obtain and arrange the insurance coverage needed for its nuclear civil liability and management of the associated claims from 18 February 2016.

With the insurance obtained in response to this call for tenders, the Group meets its new obligations. The insurance is shared between the nuclear insurance market (AXA, reinsured by the French nuclear pool Assuratome) the Group's captive insurance companies, and the nuclear mutual insurance company ELINI.

This cover took effect on 18 February 2016 for a three-year term. In view of the changes likely to be made to nuclear operators' obligations during this period (particularly the application of protocols amending the Paris and Brussels Conventions – see section 1.5.6.2.2), withdrawal clauses have been included in the contract.

Management of claims is the responsibility of ELINI, which has a computerised claim processing system, and Equad, which has the necessary human and network resources.

In the **United Kingdom**, where EDF Energy operates nuclear power plants, the nuclear operator's civil liability rules are similar to French rules. On 4 May 2016 the British parliament approved the Nuclear Installations

Order (for transposition of the protocols of February 2004 amending the existing conventions) which in substance makes the same changes as the French TSN Law of 2006, but will mostly only come into force at the same time as the protocols.

This Order raises the British operators' obligations from the current limit of £140 million to the equivalent of €700 million, and they will be progressively increased over a five-year period to reach a ceiling of €1.2 billion.

EDF Energy is currently insured by ELINI and Wagram Insurance Company DAC, one of the Group's captive insurance companies. The captive insurer Océane Re also bears the risk via a reinsurance contract for Wagram Insurance Company DAC.

The entry into force of France's Energy Transition Law on 18 February 2016 led to a 40% increase in the Group's insurance premiums. Premiums are also set to rise again substantially soon, when the protocols amending the Paris and Brussels Conventions take effect.

For further information on the legislation concerning nuclear operators' civil liability, see section 1.5.6.2.2 "Specific regulations applicable to basic nuclear facilities";

- **general civil liability:** this programme covers the Group against the possible financial consequences for third parties of the (non-nuclear) risks inherent to the EDF group's businesses;
- **civil liability of directors and senior executives:** EDF's insurance programme covers defence costs and other financial consequences arising from third party claims of liability against the Group's managers and key executives in connection with their duties;
- **construction risks:** EDF takes out insurance policies covering specific worksite risks (general worksite risks/general assembly and testing risks). These policies are not part of a Group programme but are purchased on an ad hoc basis for major projects such as the Flamanville EPR and Hinkley Point C, or construction of combined cycle power plants, dams, combustion turbines, etc. This cover is subject to specific monitoring and is renegotiated for each site as necessary;
- **exploration and production:** Edison had a specific insurance policy providing damage and civil liability coverage worth €2.2 billion for onshore and offshore assets. Through optimised use of EDF's membership of OIL, Edison was able to construct a new specific "Exploration and Production" programme from 1 January 2013 that is open to all Group subsidiaries. This programme was used by EDF Production UK, whose business has since been taken over by Edison;
- **Enedis' overhead distribution network:** to renew its insurance cover for storm and gale damage, on 27 June 2016 Enedis signed a parametric insurance contract for significant storm damage to the overhead distribution network. In the event of damage, this innovative five-year contract with total capacity of €275 million provides payouts based on a composite parametric index referring to wind speeds recorded by Météo France weather stations, weighted by the distribution network's vulnerability for each region included in the scope of Enedis' concession.

The total value of premiums for all types of coverage provided by EDF's insurance programmes and Group programmes managed by EDF Assurances was €197 million in 2016.

1. Oil Insurance Limited.

2. An Irish insurance company fully-owned by EDF.

3. Nuclear Electric Insurance Limited.

5.3 Changes in market prices in January 2017

Oil barrel prices closed in January 2017 at \$55.7/bbl. The average oil barrel price in January 2017 reached \$55.5/bbl. The agreement between OPEP members signed in Vienna in November, aimed at limiting oil supply, resulted in an increase of oil barrel price following a 2016 year during which oil reached its lowest price since 12 years at \$27.9/bbl on 20 January.

In January 2017, gas spot prices in the French market PEG North reached €21.2/MWh on average, up by €7.0/MWh since January 2016. The cold wave which swept across France and Europe in mid-January, with temperatures as low as 6.7°C below normal temperatures for this period, entailed an increase of consumption and, as a consequence, of prices. The clear increase as opposed to last year is due to the low level of last year prices following a relatively significant supply of gas and favorable weather conditions which did not increase gas demand.

The price of CO₂ emissions certificate for delivery in December 2017 closed in January at €5.4/t against €6.1/t in late January 2016.

The price of coal in Europe closed in January 2017 at \$67.1/t, increasing nearly \$28/t since late January 2016. This price evolution, steady in 2016, is the result of China's willingness to reduce its production by closing non profitable mines and limiting the number of working days for mine workers. In early January 2017, the targets of the reduction plan were exceeded and the Chinese government announced new, more ambitious objectives for 2017.

The spot prices for day to day electricity in France in January reached on average a basis price of €78.€/MWh and a peak price of €96.€/MWh, increasing by more than 132% for basis prices against January 2016. This prices increase is due to a strong consumption as a result of the cold wave which swept across France and Europe in mid-January. The hourly maximum consumption exceeded 93GW on 20 January, at 8 a.m., whereas the spot price reached a daily maximum of €121.1/MWh on 25 January. Prices in January 2017 were the highest since February 2012. German spot prices reached on average a basis price of €52.4/MWh and a peak price of €72.6/MWh, increasing by €23.3/MWh and €32.6/MWh respectively. This is also the highest average price since February 2012.

Forward electricity prices for delivery in France in 2018 closed in January 2017 at a basis price of €36.0/MWh and a peak price of €47.8/MWh. In late January 2016, the price for the annual French contract for delivery in base in 2017 was €29.4/MWh. The increase in price is mainly due to the increase of fuel prices. In January 2017, tensions between short-term demand and supply due to the cold wave led to an increase of forward electricity prices because of the increase of associated risk premiums.

5.4 2017 forecasts

5.4.1 ASSUMPTIONS MADE FOR THE ESTABLISHMENT OF THE GROUP'S FORECASTS FOR THE YEAR ENDED 31 DECEMBER 2017

These forecasts for fiscal year 2017 arise from the budget process and are established on the basis of the contribution of the Group entities to Group EBITDA for 2017. The 2017 budget has been approved by the Board of Directors of the Company during its meeting held on 14 December 2016. To prepare its EBITDA forecasts, the Company also drew on its Group's consolidated financial statements estimates for the 2016 fiscal year (see section 6.1 "Consolidated financial statement at 31 December 2016").

These forecasts are mainly based on the following assumptions:

- as for macro-economic assumptions, the use of an exchange rate of £0.80/€ for the British pound and \$1.10/€ for the US dollar, and of a Eurozone inflation rate of 1.4%. As a comparison, the average exchange rate for 2016 was £0.82/€ for the British pound and \$1.11/€ for the US dollar;
- normal weather and normal hydrology conditions;
- lack of major evolution in the scope of the consolidated entities (excluding the entities accounted for using the equity method which do not contribute to consolidated EBITDA, the share in the results being presented in "Share of net income from associates and joint-ventures") by the Group in 2017 (see note 51 of the appendix to the consolidated financial accounts for the year ended 31 December 2016 in section 6.1 "Consolidated financial statement at 31 December 2016").

AREVA NP has not been taken into account in the process of preparing these forecasts, and the Group made the assumption that AREVA NP will be consolidated as of 31 December 2017.

Moreover, the 2017 target includes the contribution of the Polish and Hungarian subsidiaries to EBITDA on a full-year basis, assuming their removal from the scope of consolidation as of 31 December 2017. As for EDF Démász subsidiary (Hungary), the sale and exit from the scope of the consolidation were finalized on 1 February 2017 (see note 3.5.3 of the appendix to the consolidated financial accounts for the year ended 31 December 2016 included in section 6.1 "Consolidated financial statement at 31 December 2016"). The cumulated contribution of the Hungarian and Polish subsidiaries to the 2017 EBITDA budget, on a full-year basis, will be between €250 million and €350 million;

- application of accounting standards and methods identical to those on which the consolidated financial accounts are based (see note 1 to the consolidated financial accounts for the year ended 31 December 2016 in section 6.1 "Consolidated financial statement at 31 December 2016");
- sustained existing tax and regulatory environment as of 31 December 2016; the Group has taken into account the implementation from 2017 of the capacity mechanism in France with a normative price of €10/kW. As for the assumptions regarding the regulatory tariffs in France, the budget was prepared in line with the final decision made by the *Commission de Régulation de l'Énergie* during its meeting held on 17 November 2016 and applicable to the tariffs for using the public electricity networks for High and Low voltage (TURPE 5 Distribution), representing a 2.7% increase, on 1 August 2017. The assumption made for 2017 regarding the evolutions in the blue tariffs complies with the currently applicable regulation, as proposed in the Decree of 28 October 2014, using the cost stacking methodology;

- subscription by the alternative suppliers to ARENH mechanism in France for a volume of 82.2TWh at an unchanged price of 42€/MWh. During 2016, no ARENH volumes have been sold;
- lower EDF Énergies Nouvelles' activities of Development and Sale of Structured Assets in 2017, with a priority given to generation, whereas they had strongly contributed to the Group's EBITDA during the years 2015 and 2016;
- the trading activity benefitted in 2016 from exceptional conditions due to high volatility in prices on energy markets, especially during the second half of the year. The Group does not expect these conditions to be renewed in 2017;
- in France, an increased nuclear output compared to 2016, at 390 to 400TWh. The difficulties faced in 2016 in the nuclear fleet are only partially being reduced in 2017. Moreover, the output increase in 2017 will be gradual, which will not allow for the monetisation of the additional output during the most profitable months.
In addition, it is reminded that, in accordance with its risk control policy, as described in section 5.1.6.2.2, EDF gradually closes its positions before the budget year. This policy was also applied in 2016;
- a competitive pressure that leads the Group to expect a decrease in its commercialization revenues, especially in France and in the United Kingdom. However, as stated above, France benefits from the implementation of the capacity market;
- in connection with its performance plan, the Group announced a reduction in its operating expenses for a total amount of €0.7 billion¹ between 2015 and 2018. The development of such plan is duly being taken into account in making assumptions in relation with the elaboration of the 2017 budget.

In addition, the 2014 tariffs adjustment, which had a +€0.8 billion favorable impact on EBITDA for 2016, does not have, as per its nature, any effect on the 2017 fiscal year, which automatically implies a decrease in EBITDA for 2017 compared to 2016.

Between the date of the elaboration of these assumptions and the filing date of the reference document, no major element required to update the forecasts for 2017.

5.4.2 GROUP'S FORECASTS FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2017

EDF carries on with its development driven by its CAP 2030 strategy goals. Based on the aforementioned assumptions, and, in accordance with the press release dated 14 December 2016, the Group's EBITDA for 2017 is expected to amount to €13.7-€14.3 billion, decreasing as compared to 2016.

EBITDA represents the main result aggregate on which the Group bases its financial communication and according to which it assesses the results of its strategy and operating performance.

The forecasts presented in this Section have been calculated on the basis of data, assumptions and estimates that the Group deems reasonable. These data, hypotheses, and estimates may evolve given the uncertainties linked, among others, to the economic, politic, accounting, competitive and regulatory environment, or due to other factors of which the Group is not aware at the date on which this Registration Document was filed.

Moreover, the materialization of one or more of the risks detailed in Chapter 2 "Risks Factors and control framework" of this registration document could adversely affect the Group's business, results, financial position or outlook, and consequently challenge these forecasts. The Group makes no undertaking and gives no warranty in connection with the materialization of the forecasts presented in this Section.

1. At constant scope, exchange and hypothesis of pensions discount rates. Excluding changes in the operating expenses for service activities.

5.4.3 STATUTORY AUDITORS' REPORT ON THE GROUP'S FORECASTS FOR THE YEAR ENDED 31 DECEMBER 2017

This is a free translation into English of the Statutory Auditors' report on the financial statements issued in French and is provided solely for the convenience of English speaking readers.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

To the Chief Executive Officer and Chairman,

In our capacity as Statutory Auditors of your company and in accordance with Commission Regulation (EC) no. 809/2004, we hereby report to you on the consolidated profit forecasts of Electricité de France SA set out in section 5.4 of its Registration Document (*document de référence*).

It is your responsibility to compile the profit forecasts, together with the material assumptions upon which they are based, in accordance with the requirements of Commission Regulation (EC) no. 809/2004 and ESMA's recommendations on profit forecasts.

It is our responsibility to express an opinion, based on our work, in accordance with Annex I, item 13.2 of Commission Regulation (EC) no. 809/2004, as to the proper compilation of these forecasts.

We performed the work that we deemed necessary according to the professional guidance issued by the French Institute of statutory auditors (*Compagnie nationale des Commissaires aux comptes – CNCC*) for this type of engagements. Our work included an assessment of the procedures undertaken by management to compile the profit forecasts as well as the implementation of procedures to ensure that the accounting policies used are consistent with the policies applied by Electricité de France SA for the preparation of the historical financial information. Our work also included gathering information and explanations that we deemed necessary in order to obtain reasonable assurance that the profit forecasts have been properly compiled on the basis stated.

Since profit forecasts, by nature, are uncertain and may differ significantly from actual results, we do not express an opinion as to whether the actual results reported will correspond to those shown in the profit forecasts.

In our opinion:

- the profit forecasts have been properly compiled on the basis stated; and
- the basis of accounting used for the profit forecasts is consistent with the accounting policies applied by Electricité de France SA.

This report has been issued solely for the purpose of:

- filing the registration document (*document de référence*) with the French financial markets authority (*Autorité des Marchés Financiers – AMF*);
- the admission to trading on a regulated market, and/or a public offer, of shares or debt securities with a denomination of less than €100,000 of Electricité de France SA in France and in other EU member states in which the prospectus approved by the AMF is notified;
- and cannot be used for any other purpose.

Paris - La Défense and Neuilly-sur-Seine, 6 March 2017

The Statutory Auditors

KPMG Audit

Deloitte & Associés

Département de KPMG SA

Jacques-François Lethu

Jean-Louis Caulier

Alain Pons

Anthony Maarek

5.5 Outlook

2017 TARGETS

The Group announced on 14 February the following financial targets for 2017:

- EBITDA¹: €13.7 to 14.3 billion (for more details on 2017 EBITDA forecast, see section 5.4 "2017 forecasts");
- net financial debt/EBITDA²: less than or equal to 2.5x;
- payout ratio, based on net income excluding non-recurring items³ post-hybrid: 55% to 65%.

With regard to operations in France, the Group expects for 2017 a volume of planned outages for maintenance that takes into account continued work under the "Grand carénage" industrial programme. EDF is targeting between 390 and 400TWh of nuclear output.

Also, in Italy, Edison estimates that 2017 EBITDA will be in line with 2016.

2018 TARGETS

The Group also announced on 14 February 2017 the following financial and operating targets for 2018:

- OPEX⁴: €0.7 billion decrease compared to 2015;
- net investments excluding Linky, new developments and asset disposals: around €10.5 billion;
- EBITDA⁵: greater than or equal to €15.2 billion;
- cash flow⁶: greater than or equal to 0;
- net financial debt/EBITDA^{5,6}: less than or equal to 2.5x;
- payout ratio, based on net income excluding non-recurring items³ post-hybrid: 50%.

These targets and forward-looking statements are based on reasonable figures, assumptions and estimations. Those factors may change or be modified as a result of uncertainties that may arise in economic, financial, competitive, regulatory and climatic environments. Moreover, if certain of the risks described in chapter 2 "Risk factors and control framework" of this Reference Document were to materialise, this would have an impact on the Group's business and its capacity to achieve its objectives. In addition, the achievement of these targets and forward-looking statements presupposes successful implementation of the strategy described in section 1.3 "Group strategy" of this Reference Document. Consequently, EDF does not give any undertaking or guarantee concerning the attainment of 2018 targets, and the forward-looking information contained in this chapter concerning the Group's financial prospects should not be used to forecast future results.

BEYOND 2018

The Group also set the following mid-term targets:

- an OPEX reduction⁴ in 2019 compared to 2015 of more than €1 billion;
- asset disposals over the 2015-2020 period of at least €10 billion;
- a payout ratio, based on net income excluding non-recurring items³ post-hybrid, between 45% and 50%.

1. At 2016 exchange rate.

2. At 2016 exchange rate and at an assumed discount rate on nuclear provisions of 4.1% in 2017.

3. Adjusted for the remuneration of hybrid bonds accounted for in equity.

4. At constant scope, exchange and hypothesis of pensions discount rates. Excluding change in operating expenses of service activities.

5. At 2016 exchange rate and assumption for 2018 power prices in France on volumes not hedged as of 31.12.2016: \geq €36/MWh.

6. At 2016 and exchange rates. Cash flow excluding Linky, new developments and asset disposals, with nuclear commitments discount rates at 4.1% for 2017 and 3.9% for 2018, excluding interim dividend for 2018, which will be decided in the second half of 2018.



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6.1 Consolidated Financial Statements at 31 December 2016

In application of article 28 of European Commission regulation 809/2004/EC, the following information is incorporated by reference in this Reference Document:

- The EDF group's consolidated financial statements (under international accounting standards) for the year ended 31 December 2015 and the Statutory Auditors' report on those financial statements, which are to be found in chapter 6, sections 6.1 (pages 306 to 412) and 6.2 (pages 413 and 414) of the EDF group's 2015 Reference Document.

- The EDF group's consolidated financial statements (under international accounting standards) for the year ended 31 December 2014 and the Statutory Auditors' report on those financial statements, which are to be found in chapter 20, sections 20.1 (pages 317 to 428) and 20.2 (pages 429 and 430) of the EDF group's 2014 Reference Document.

The Group's consolidated financial statements for the year ended 31 December 2016, prepared under IAS-IFRS, are presented below. They will be submitted for approval at the General Shareholders' Meeting to be held on 18 May 2017.

CONSOLIDATED INCOME STATEMENT

<i>(in millions of Euros)</i>	Notes	2016	2015
Sales	7	71,203	75,006
Fuel and energy purchases	8	(36,050)	(38,775)
Other external expenses	9	(8,902)	(9,526)
Personnel expenses	10	(12,543)	(12,529)
Taxes other than income taxes	11	(3,656)	(3,641)
Other operating income and expenses	12	6,362	7,066
Operating profit before depreciation and amortisation		16,414	17,601
Net changes in fair value on Energy and Commodity derivatives, excluding trading activities		(262)	175
Net depreciation and amortisation	22.2	(7,966)	(9,009)
Net increases in provisions for renewal of property, plant and equipment operated under concessions		(41)	(102)
(Impairment)/reversals	13	(639)	(3,500)
Other income and expenses	14	8	(885)
Operating profit		7,514	4,280
Cost of gross financial indebtedness	15.1	(1,827)	(1,994)
Discount effect	15.2	(3,417)	(2,812)
Other financial income and expenses	15.3	1,911	2,218
Financial result	15	(3,333)	(2,588)
Income before taxes of consolidated companies		4,181	1,692
Income taxes	16	(1,388)	(483)
Share in net income of associates and joint ventures	23	218	192
GROUP NET INCOME		3,011	1,401
EDF net income		2,851	1,187
Net income attributable to non-controlling interests		160	214
Earnings per share (EDF share) in Euros:	17		
Earnings per share		1.15	0.32
Diluted earnings per share		1.15	0.32

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

	2016			2015		
	EDF net income	Net income attributable to non-controlling interests	Total	EDF net income	Net income attributable to non-controlling interests	Total
<i>(in millions of Euros)</i>						
Group net income	2,851	160	3,011	1,187	214	1,401
Gross change in fair value of available-for-sale financial assets ⁽¹⁾	318	–	318	(703)	–	(703)
Related tax effect	(116)	–	(116)	214	–	214
Associates' and joint ventures' share of fair value of available-for-sale financial assets	21	–	21	(103)	–	(103)
Change in fair value of available-for-sale financial assets	223	–	223	(592)	–	(592)
Gross change in fair value of hedging instruments ⁽¹⁾	290	26	316	(600)	(5)	(605)
Related tax effect	268	(8)	260	(14)	2	(12)
Associates' and joint ventures' share of fair value of hedging instruments	(15)	–	(15)	(3)	–	(3)
Change in fair value of hedging instruments	543	18	561	(617)	(3)	(620)
Translation adjustments – controlled entities	(2,755)	(380)	(3,135)	1,199	159	1,358
Translation adjustments – associates and joint ventures	43	–	43	426	–	426
Translation adjustments	(2,712)	(380)	(3,092)	1,625	159	1,784
Gains and losses recorded in equity that will be reclassified subsequently to profit or loss	(1,946)	(362)	(2,308)	416	156	572
Gross change in actuarial gains and losses on post-employment benefits ⁽²⁾	468	93	561	1,009	(9)	1,000
Related tax effect	(175)	(16)	(191)	(153)	1	(152)
Associates' and joint ventures' share of change in actuarial gains and losses on post-employment benefits	(352)	–	(352)	35	–	35
Actuarial gains and losses on post-employment benefits	(59)	77	18	891	(8)	883
Gains and losses recorded in equity that will not be reclassified subsequently to profit or loss	(59)	77	18	891	(8)	883
Total gains and losses recorded in equity	(2,005)	(285)	(2,290)	1,307	148	1,455
CONSOLIDATED COMPREHENSIVE INCOME	846	(125)	721	2,494	362	2,856

(1) Gross changes in fair value transferred to income in respect of available-for-sale financial assets and hedging instruments are presented in notes 36.2.2 and 41.4 respectively.

(2) Gross changes in actuarial gains and losses are presented in note 31.1.2.

CONSOLIDATED BALANCE SHEET**ASSETS**

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/15
Goodwill	18	8,923	10,236
Other intangible assets	19	7,450	8,889
Property, plant and equipment operated under French public electricity distribution concessions	20	53,064	51,600
Property, plant and equipment operated under concessions for other activities	21	7,616	7,645
Property, plant and equipment used in generation and other tangible assets owned by the Group	22	70,573	71,069
Investments in associates and joint ventures	23	8,645	11,525
Non-current financial assets	36	35,129	35,238
Other non-current receivables	26	2,268	1,830
Deferred tax assets	16.3	1,641	2,713
Non-current assets		195,309	200,745
Inventories	24	14,101	14,714
Trade receivables	25	23,296	22,259
Current financial assets	36	29,986	27,019
Current tax assets		183	1,215
Other current receivables	26	10,652	8,807
Cash and cash equivalents	37	2,893	4,182
Current assets		81,111	78,196
Assets classified as held for sale	46	5,220	–
TOTAL ASSETS		281,640	278,941

EQUITY AND LIABILITIES

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/15
Capital	27	1,055	960
EDF net income and consolidated reserves		33,383	33,789
Equity (EDF share)		34,438	34,749
Equity (non-controlling interests)	27.5	6,924	5,491
Total equity	27	41,362	40,240
Provisions related to nuclear generation – back-end of the nuclear cycle, plant decommissioning and last cores	29	44,843	44,825
Provisions for decommissioning of non-nuclear facilities	30	1,506	1,447
Provisions for employee benefits	31	21,234	21,511
Other provisions	28	2,155	2,190
Non-current provisions	28	69,738	69,973
Special French public electricity distribution concession liabilities	33	45,692	45,082
Non-current financial liabilities	38	54,276	54,159
Other non-current liabilities	35	4,810	5,126
Deferred tax liabilities	16.3	2,272	4,122
Non-current liabilities		176,788	178,462
Current provisions	28	5,228	5,354
Trade payables	34	13,031	13,284
Current financial liabilities	38	18,289	17,473
Current tax liabilities		419	506
Other current liabilities	35	24,414	23,622
Current liabilities		61,381	60,239
Liabilities related to assets classified as held for sale	46	2,109	–
TOTAL EQUITY AND LIABILITIES		281,640	278,941

CONSOLIDATED CASH FLOW STATEMENT

<i>(in millions of Euros)</i>	Notes	2016	2015
Operating activities:			
Income before taxes of consolidated companies		4,181	1,692
Impairment/(reversals)		639	3,500
Accumulated depreciation and amortisation, provisions and changes in fair value		9,814	11,392
Financial income and expenses		948	951
Dividends received from associates and joint ventures		330	322
Capital gains/losses		(877)	(1,593)
Change in working capital	43.1	(1,935)	132
Net cash flow from operations		13,100	16,396
Net financial expenses disbursed		(1,137)	(1,252)
Income taxes paid		(838)	(1,508)
European Commission decision of 22 July 2015	3.8.3	–	(906)
Net cash flow from operating activities		11,125	12,730
Investing activities:			
Acquisitions of equity investments, net of cash acquired		(127)	(162)
Disposals of equity investments, net of cash transferred		372	748
Investments in intangible assets and property, plant and equipment	43.2	(14,397)	(14,789)
Net proceeds from sale of intangible assets and property, plant and equipment		508	964
Changes in financial assets		(2,913)	(5,600)
Net cash flow used in investing activities		(16,557)	(18,839)
Financing activities:			
Transactions with non-controlling interests ^{(1) (2)}		1,368	64
Dividends paid by parent company	27.3	(165)	(1,420)
Dividends paid to non-controlling interests		(289)	(326)
Purchases/sales of treasury shares		(2)	(14)
Cash flows with shareholders		912	(1,696)
Issuance of borrowings ⁽³⁾		9,424	9,422
Repayment of borrowings		(6,176)	(2,336)
Payments to bearers of perpetual subordinated bonds	27.4	(582)	(591)
Funding contributions received for assets operated under concessions		143	152
Investment subsidies		417	623
Other cash flows from financing activities		3,226	7,270
Net cash flow from financing activities		4,138	5,574
Net increase/(decrease) in cash and cash equivalents		(1,294)	(535)
CASH AND CASH EQUIVALENTS – OPENING BALANCE		4,182	4,701
Net increase/(decrease) in cash and cash equivalents		(1,294)	(535)
Effect of currency fluctuations		102	(36)
Financial income on cash and cash equivalents		20	13
Effect of reclassifications		(117)	39
CASH AND CASH EQUIVALENTS – CLOSING BALANCE	37	2,893	4,182

(1) Contributions via capital increases or reductions and acquisitions of additional interests or disposals of interests in controlled companies.

(2) In 2016, this item comprises a receipt of €830 million on the sale to CGN of 33.5% of Hinkley Point C (HPC) Holding Co and 20% of Sizewell C Holding Co, and an amount of €469 million relating to CGN's payment for the Hinkley Point C and Sizewell C capital increases (see note 3.2).

(3) In 2016, this item includes the €2,820 million bond issue by C25 (the company owning RTE's shares) (see note 3.5.1).

CHANGE IN CONSOLIDATED EQUITY

(in millions of Euros)	Capital	Treasury shares	Translation adjustments ⁽²⁾	Impact of fair value adjustment of financial instruments ⁽³⁾	Other consolidated reserves and net income	Equity (EDF share)	Equity (non-controlling interests)	Total equity
Equity at 31/12/2014 (restated) ⁽¹⁾	930	(41)	2,724	(1,144)	32,777	35,246	5,419	40,665
Gains and losses recorded in equity	–	–	1,625	(1,209)	891	1,307	148	1,455
Net income	–	–	–	–	1,187	1,187	214	1,401
Consolidated comprehensive income	–	–	1,625	(1,209)	2,078	2,494	362	2,856
Payments on perpetual subordinated bonds	–	–	–	–	(591)	(591)	–	(591)
Dividends paid	–	–	–	–	(2,327)	(2,327)	(327)	(2,654)
Purchases/sales of treasury shares	–	3	–	–	–	3	–	3
Capital increase by EDF ⁽⁴⁾	30	–	–	–	876	906	–	906
Other changes ⁽⁵⁾	–	–	–	–	(982)	(982)	37	(945)
Equity at 31/12/2015	960	(38)	4,349	(2,353)	31,831	34,749	5,491	40,240
Gains and losses recorded in equity	–	–	(2,712)	766	(59)	(2,005)	(285)	(2,290)
Net income	–	–	–	–	2,851	2,851	160	3,011
Consolidated comprehensive income	–	–	(2,712)	766	2,792	846	(125)	721
Payments on perpetual subordinated bonds	–	–	–	–	(582)	(582)	–	(582)
Dividends paid	–	–	–	–	(2,026)	(2,026)	(288)	(2,314)
Purchases/sales of treasury shares	–	9	–	–	–	9	–	9
Capital increase by EDF ⁽⁶⁾	95	–	–	–	1,767	1,862	–	1,862
Other changes ⁽⁷⁾	–	–	–	–	(420)	(420)	1,846	1,426
EQUITY AT 31/12/2016	1,055	(29)	1,637	(1,587)	33,362	34,438	6,924	41,362

(1) Figures published for 2014 have been restated for the impact of retrospective application of IFRIC 21.

(2) Changes in translation adjustments amount to €(2,712) million at 31 December 2016, mainly relating to the fall of the pound sterling against the euro.

(3) These changes correspond to the effects of fair value adjustments, amounts transferred to income following changes in the fair value of available-for-sale financial assets, the effects of fair value adjustment of financial instruments hedging cash flows and net foreign investments, and amounts transferred to income in respect of terminated contracts. For details see the statement of consolidated comprehensive income.

(4) In 2015, the capital increase and issue premium, totalling €906 million, relate to payment of the scrip interim dividend for 2015 (see note 27.3).

(5) "Other changes" in 2015 include the effect of the European Commission decision of 22 July 2015 (see note 3.8.3).

(6) In 2016, the capital increase and issue premium, totalling €1,862 million, relate to payment of the balance of the scrip dividend for 2015 and the scrip interim dividend for 2016 (see note 27.3).

(7) "Other changes" in 2016 include the effect of the sale to CGN of 33.5% of HPC Holding Co and 20% of Sizewell C Holding Co on 29 September 2016. This transaction has an effect of €(548) million on Equity (EDF share) and an effect of €1,510 million on Equity (non-controlling interests) (see note 3.2).

"Other changes" also include the effects of the Cogestar operation, amounting to €119 million (see note 5.1).

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Notes to the consolidated financial statements

Électricité de France (EDF or the “Company”) is a French *société anonyme* governed by French law, and registered in France.

The consolidated financial statements reflect the accounting position of the Company and its subsidiaries (which together form the “Group”) and the Group’s interests in associates, joint arrangements classified as joint operations, and joint ventures, for the year ended 31 December 2016.

The Group is an integrated energy operator engaged in all aspects of the energy business: generation, transmission, distribution, supply, energy trading and services.

The Group’s consolidated financial statements at 31 December 2016 were prepared under the responsibility of the Board of Directors and approved by the Directors at the Board meeting held on 13 February 2017. They will become final after approval at the General Shareholders’ Meeting to be held on 18 May 2017.

Note 1 Group accounting standards

1.1 DECLARATION OF CONFORMITY AND GROUP ACCOUNTING POLICIES

Pursuant to European regulation 1606/2002 of 19 July 2002 on the adoption of international accounting standards, the EDF group's consolidated financial statements for the year ended 31 December 2016 are prepared under the international accounting standards published by the IASB and approved by the European Union for application at 31 December 2016. These international standards are IAS (International Accounting Standards), IFRS (International Financial Reporting Standards), and SIC and IFRIC interpretations.

The Group has not opted for early application of standards and interpretations that were not yet mandatory in 2016.

1.2 CHANGES IN ACCOUNTING METHODS AT 31 DECEMBER 2016

The accounting and valuation methods applied by the Group in the consolidated financial statements for the year ended 31 December 2016 are identical to those used in the consolidated financial statements for the year ended 31 December 2015.

1.2.1 Accounting standard amendments adopted by the European Union that became mandatory as of 1 January 2016

The following amendments to accounting standards have been adopted by the European Union and are mandatory for financial years beginning on or after 1 January 2016:

- amendments to IAS 19 entitled "Defined benefit plans – Employee contributions";
- amendments to IAS 16 and IAS 38 entitled "Clarification of acceptable methods of depreciation and amortisation";
- amendments to IAS 1 entitled "Disclosure initiative";
- amendments to IFRS 10, IFRS 12 and IAS 28 "Investment Entities: Applying the Consolidation Exception";
- amendments to IFRS 11 entitled "Accounting for acquisitions of interests in joint operations".

The application of these amendments does not have a significant impact on the EDF group's annual consolidated financial statements.

The amendments to IFRS 11 "Accounting for acquisitions of interests in joint operations" could have impacts if the Group acquires initial or additional interests in a joint operation that constitutes a business as defined by IFRS 3.

1.2.2 Standards adopted by the European Union but not yet mandatory at 1 January 2016

The following two new standards have been adopted by the European Union and will be mandatory for financial years beginning on or after 1 January 2018:

1.2.2.1 IFRS 15 "Revenue from Contracts with Customers"

On 29 October 2016, the European Union adopted IFRS 15 "Revenue from Contracts with Customers", which must be applied from 1 January 2018 at the latest. Subject to approval by the European Union, the associated amendments will be applicable at the same date as the standard itself. The Group has not opted for early application of this standard.

The Group's preliminary analysis has identified a list of subjects for examination in the light of IFRS 15. The entities concerned have analysed their contracts and sales revenues by major categories, and working groups have been set up to assess the potential impacts of this new standard.

The cumulative revenues of entities covered by this preliminary analysis represent 95% of the Group's total revenues. The subjects identified are currently under examination, and the impacts of first application of IFRS 15 are also being assessed.

The subjects identified so far that may have an impact on Group sales are the following.

- Recognition of income from energy delivery (the agent-principal distinction):

In accordance with IAS 18, all Group entities supplying electricity or gas include the service of delivery in their sales revenues.

IFRS 15 requires analysis of whether or not the energy delivery service is a separate performance obligation within the electricity supply contract. It sets out the conditions in which an entity operates as principal or agent for the supply of a good or service with third party involvement. If the entity is classified as the principal, it can recognise the sales revenue from the delivery service, including the part of the service executed by a third party. Otherwise, it is classified as an agent, and can only include the amount of any commission in its sales revenues on delivery services.

In France, electricity delivery services are performed by Enedis, the Group's regulated subsidiary that is the French distribution network operator. As a result the principal-agent analysis under IFRS 15 only relates to the presentation of revenues in segment reporting.

However, gas delivery services in France and electricity and gas delivery services in Italy, the United Kingdom and Belgium are carried out by non-Group entities.

- Among the other subjects analysed by the Group, in certain countries, IFRS 15 could lead to changes in the recognition of market energy purchase and sale transactions as part of optimisation activities, but this would have no impact on the Group's consolidated net income.

- The Group has identified further subjects for which accounting practices could change, but the impacts on Group net income would be non-significant. Analyses will continue, in response to developments in the contractual framework and the Group's business activity, until the standard is applied.

1.2.2.2 IFRS 9 "Financial Instruments"

IFRS 9 "Financial Instruments", released by the IASB in July 2014 and adopted by the European Union on 29 November 2016, will replace IAS 39 "Financial Instruments: Recognition and Measurement" from 1 January 2018. The new standard introduces new principles for classification and measurement of financial instruments, impairment for credit risk on financial assets, and hedge accounting.

The Group has no plans for early application of this standard.

Application of IFRS 9 in the Group, and potential impacts

The Group began analyses in 2015 to assess the possible consequences of application of IFRS 9.

At this stage of the preparations for application of the new standard, which has several phases, estimation of the impact of application is in process.

Phase 1 concerns the **classification and measurement** of financial assets and liabilities.

Analysis of the business models and contractual features of the Group's financial assets is currently being finalised.

The main potential impacts concern financial assets held in the form of shares in equity or bond investment funds, and to a lesser degree equities held, and the directly-managed bond portfolio:

- For shares in equity or bond investment funds that correspond strictly to the definition of puttable financial instruments, application of IFRS 9 will mean that unrealised gains or losses on such assets, which were previously recorded in equity and subsequently transferred to profit and loss upon sale, will now have a direct impact on the Group's net income.
- For equity instruments not held for trading and for which an irrevocable option is made to recognise fair value changes in other components of comprehensive income (OCI), IFRS 9 only allows dividends received to be reported in the income statement. Unrealised gains and losses recognised in OCI while the instrument is held can no longer be included in profit and loss upon derecognition of the instrument. The Group has not yet decided which option it will take.
- For the directly-held bond portfolio, if the associated cash flows consist solely of payments related to the principal and associated interest, the principle is that fair value changes should be recorded in equity and transferred under a "collect and sell" business model, or at amortised cost under a "collect" model.

Many of the financial assets affected by these changes are part of the portfolio of dedicated assets held to cover future expenses for the back-end of EDF's nuclear cycle in France.

Phase 2 concerns the **impairment model** for financial assets. IFRS 9 introduces a single, prospective model based on expected losses (i.e. the probability that the counterparty will default in a given time horizon). This model applies to financial assets carried at amortised cost, debt securities

carried at fair value through other components of comprehensive income, trade receivables and lease receivables. The existing IAS 39 model requires recognition of a provision when a loss is incurred (non-payment or late payments). For financial assets with a low credit risk that do not require recognition of impairment under IAS 39, the new IFRS 9 provisioning model based on expected losses within 12 months could lead to an increase in impairment for credit risk, as all financial assets will be concerned from the inception of operations, which is not the case under IAS 39. The work done so far has concerned the rules for assessing credit risk.

Finally, **phase 3** concerning the **general hedge accounting model** intends to align hedge accounting more closely with the entity's risk management activities, notably by broadening the list of eligible hedging instruments and relaxing certain rules that had been considered too restrictive under IAS 39. The Group is currently studying the potential impacts of these points on its financial risk hedging strategies and documentation. Based on the analysis to date, no material impact is expected in the consolidated financial statements.

At the transition date

The classification and measurement rules and the new impairment model introduced by IFRS 9 are applicable retrospectively via adjustments to the opening balance sheet at the date of first application. The new standard's hedge accounting methods are principally for prospective application.

1.2.3 Standards and amendments published by the IASB but not yet adopted by the European Union

The following IASB publications related to the accounting principles applied by the Group have not yet been adopted by the European Union:

- IFRS 16 "Leases";
- amendments to IFRS 15 "Clarifications to IFRS 15 Revenue from Contracts with Customers";
- amendments to IFRS 10 and IAS 28 entitled "Sale or contribution of assets between an investor and its associate or joint venture";
- amendments to IAS 12 "Recognition of Deferred Tax Assets for Unrealised Losses";
- amendments to IAS 7, as part of the "Disclosure initiative" project;
- amendments to IFRS 2 "Classification and measurement of share-based payment transactions";
- amendments to IAS 40 "Transfers of Investment Property".

Subject to European Union adoption, application of IFRS 16 "Leases" will be mandatory for financial years beginning on or after 1 January 2019.

This standard requires all leases other than short-term leases and leases of low-value assets to be recognised in the lessee's balance sheet in the form of a right-of-use asset, with a corresponding financial liability. Currently, leases classified as "operating leases" are reported as off-balance sheet items (see note 44.1.3).

The potential impact of the standards and amendments listed above is currently being evaluated by the Group.

1.3 SUMMARY OF THE PRINCIPAL ACCOUNTING AND VALUATION METHODS

The following accounting methods have been applied consistently through all the periods presented in the consolidated financial statements.

1.3.1 Valuation

The consolidated financial statements are based on historical cost valuation, with the exception of assets acquired and liabilities assumed through business combinations, and of certain financial instruments, which are stated at fair value.

1.3.2 Management judgments and estimates

The preparation of the financial statements requires the use of judgments, best estimates and assumptions in determining the value of assets and liabilities, income and expenses recorded for the period, considering positive and negative contingencies existing at year-end. The figures in the Group's future financial statements could differ significantly from current estimates due to changes in these assumptions or economic conditions.

In the specific case of the accounting depreciation period of its French nuclear power plants, the EDF group's industrial strategy is to continue operation beyond 40 years, in optimum conditions as regards safety and efficiency.

The Group has been making preparations for extending this useful life for several years, and the necessary investments are being made through its *Grand carénage* industrial overhaul programme which was approved in principle by the Board of Directors in January 2015.

During 2016, all the technical, economic and governance conditions for extending the accounting depreciation period of 900MW series power plants were fulfilled. The Group therefore changed the estimate at 1 January 2016 for all 900MW power plants, with the exception of Fessenheim (see note 3.1 "Extension to 50 years of the depreciation period of the 900MW PWR series in France").

The depreciation period of other Group series in France (1300MW and 1450MW), which are more recent, is currently unchanged at 40 years, as the conditions for extension are not yet fulfilled.

These lifetimes are in line with the date of recoupling with the network after the most recent 10-year inspection.

The other principal sensitive accounting methods involving use of estimates and judgments are described below.

In a context characterised by financial market volatility, the parameters used to prepare estimates are based on macro-economic assumptions appropriate to the very long-term cycle of Group assets.

1.3.2.1 Nuclear provisions

The measurement of provisions for the back-end of the nuclear cycle, decommissioning and last cores is sensitive to assumptions concerning technical processes, costs, inflation rates, long-term discount rates, the useful life of plants currently in operation and disbursement schedules.

These parameters are therefore re-estimated at each closing date to ensure that the amounts accrued correspond to the best estimate of the costs eventually to be borne by the Group.

The Group considers that the assumptions used at 31 December 2016 are appropriate and justified. However, any future change in assumptions could have a significant impact on the Group's balance sheet and income statement.

The main assumptions and sensitivity analyses relating to nuclear provisions are presented in note 29.1.5.

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs carries uncertainty factors such as:

- changes in the regulations, particularly on safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la Gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in relation to the regulatory limit, inflation rates, or changes in the contractual terms of spent fuel management.

1.3.2.2 Pensions and other long-term and post-employment benefit obligations

The value of pensions and other long-term and post-employment benefit obligations is based on actuarial valuations that are sensitive to all the actuarial assumptions used, particularly concerning discount rates, inflation rates and wage increase rates.

The principal actuarial assumptions used to calculate these post-employment and long-term benefits at 31 December 2016 are presented in note 31. These assumptions are updated annually. The Group considers the actuarial assumptions used at 31 December 2016 appropriate and well-founded, but future changes in these assumptions could have a significant effect on the amount of the obligations and the Group's equity and net income. Sensitivity analyses are therefore presented in note 31.

1.3.2.3 Impairment of goodwill and long-term assets

Impairment tests on goodwill and long-term assets are sensitive to the macro-economic and segment assumptions used – particularly concerning energy price movements – and medium-term financial forecasts. The Group therefore revises the underlying estimates and assumptions based on regularly updated information.

These assumptions, which are specific to Group companies, are presented in note 13.

1.3.2.4 Financial instruments

In measuring the fair value of unlisted financial instruments (essentially energy contracts), the Group uses valuation models based on a certain number of assumptions subject to unforeseeable developments.

1.3.2.5 Energy supplied but not yet measured and billed

As explained in note 1.3.7, the quantities of energy supplied but not yet measured and billed are calculated at the reporting date based on consumption statistics and selling price estimates. Determination of the unbilled portion of sales revenues at the year-end is sensitive to the assumptions used to prepare these statistics and estimates.

1.3.2.6 Obligations concerning French public distribution concession assets to be replaced

In view of the specific nature of French public electricity distribution concessions, the Group has opted to present its obligation to replace concession assets in the balance sheet at a value based on the amount of contractual commitments as calculated and disclosed to the grantors in the annual business reports (see note 1.3.13.2.1). An alternative approach would be to value the obligations based on the present value of future payments necessary to replace these assets at the end of their industrial useful life. The impacts this alternative approach would have had on the accounts are shown in note 1.3.24 for information. Whatever valuation method is used, measurement of the concession liability concerning assets to be replaced is notably subject to unforeseeable developments in terms of costs, useful life and disbursement dates.

1.3.2.7 Deferred tax assets

The use of estimates and assumptions over recovery horizons is particularly important in the recognition of deferred tax assets.

1.3.2.8 Interests in other entities

For the application of IFRS 10 and IFRS 11, the Group uses judgment to assess control or classify the type of partnership arrangement represented by a jointly-controlled entity.

For an overall analysis of its interests in other entities, the Group mainly exercised judgment to assess the situation of the following entities in particular:

- The EDF group owns 100% of the capital of RTE Réseau de Transport d'Électricité, but EDF ceased exercising control (exclusive or joint) over RTE in 2010 when its governance was brought into line with EU Directive 2009/72/EC of 13 July 2009 as transposed into French law. However, the Group has significant influence over RTE since it appoints one third of its Supervisory Board members. RTE is therefore an associate for the EDF group, and is accounted for by the equity method in accordance with the instructions of IAS 28 (revised). At 31 December 2016, operations in process with RTE (described in note 3.5.1) do not affect the consolidation method applied to RTE.
- EDF has set up "reserved" investment funds for some of its funds set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste (see note 47.3). In view of the funds' characteristics, the prerogatives exercised by their managers and the procedures for defining the management strategies applicable to them, the Group considers that it does not have control, as defined by IFRS 10, over these funds. They are consequently treated as available-for-sale financial assets, in application of IAS 39.

- Through its subsidiary Edison, since 2014 the Group has held a 30% investment in Edens, with F2i. However, the governance arrangements and contractual agreements introduced for Edens in connection with this transaction give Edison exclusive control over the company. In application of IFRS 10, Edens is therefore fully consolidated (via Edison) in the Group's consolidated financial statements.

To determine the appropriate joint arrangement classification for each jointly-controlled entity, the Group examines whether the partners benefit from substantially all economic benefits of the assets and are substantially continuously responsible for settlement of liabilities. A joint arrangement is classified as a joint operation when both these conditions are fulfilled, and as a joint venture otherwise.

1.3.2.9 Other judgments

When there is no standard or interpretation applicable to a specific transaction, the Group exercises judgment to define and apply accounting methods that supply relevant and reliable information for preparation of its financial statements.

1.3.3 Consolidation methods

A list of the main subsidiaries, associates and joint ventures is presented in note 51.

Certain companies owned by the Group are not consolidated as they are not significant for the Group.

1.3.3.1 Controlled entities

Subsidiaries are companies in which the Group exercises exclusive control and are fully consolidated. The Group controls an entity when the three following conditions are fulfilled:

- it holds power over the entity;
- it is exposed, or has rights, to variable returns from its involvement with the entity;
- it has the ability to use its power to affect the amount of the investor's returns.

The Group considers all facts and circumstances when assessing control. All substantive potential voting rights exercisable, including by another party, are also taken into consideration.

1.3.3.2 Investments in associates and joint ventures

An associate is an entity in which the Group exercises significant influence on financial and operational policies without having exclusive or joint control. Significant influence is presumed to exist when the Group's investment is at least 20%.

A joint venture is a partnership in which the parties (joint venturers) that exercise joint control over the entity have rights to the entity's net assets. Joint control is the contractually agreed sharing of control of an entity operated jointly by a limited number of partners or shareholders, such that the financial and operational policies result from unanimous consent of the parties.

Investments in associates and joint ventures are accounted for by the equity method. They are carried in the balance sheet at historical cost, adjusted for the share in net assets generated after the acquisition, less any impairment. The share in the net income for the period is reported in "Share in net income of associates and joint ventures" in the income statement.

1.3.3.3 Investments in joint operations

A joint operation is a joint arrangement in which the parties (joint operators) that exercise joint control over the entity have direct rights to its assets, and obligations for its liabilities. The Group, as an operator in a joint operation, reports the assets and liabilities and income and expenses related to its investment line by line.

1.3.4 Financial statement presentation rules

Assets and liabilities of dissimilar natures or functions are disclosed separately.

Assets and liabilities contributing to working capital used in the entity's normal operating cycle are classified as current in the consolidated balance sheet. Other assets and liabilities are classified as current if they mature within one year of the closing date, and non-current if they mature more than one year after the closing date.

Commitments given by the Group to purchase minority interests in Group-controlled companies are included in liabilities. For commitments of this kind given since 1 January 2010, the date of the Group's first application of IAS 27 (amended) and IFRS 3 (revised), the differential between the value of the non-controlling interests and the liability corresponding to the commitment is recorded in equity.

The income statement presents items by nature. The heading "Other income and expenses" presented below the operating profit before depreciation and amortisation comprises items of an unusual nature or amount.

In the cash flow statements, cash flows related to operating activities are presented under the indirect method.

1.3.5 Translation methods

1.3.5.1 Reporting currency

The parent company's functional currency is the Euro. The Group's financial statements are presented in millions of Euros.

1.3.5.2 Functional currency

An entity's functional currency is the currency of the economic environment in which it primarily operates. In most cases, the local currency is the functional currency. But for some entities, a functional currency other than the local currency may be used when it reflects the currency used in the principal transactions.

1.3.5.3 Translation of the financial statements of foreign companies whose functional currency is not the Euro

The financial statements of foreign companies whose functional currency is not the Euro are translated as follows:

- balance sheets are translated into Euros at the closing rate;
- income statements and cash flows are translated at the average rate for the period;
- resulting differences are recognised in equity under the heading "Translation adjustments".

Translation adjustments affecting a monetary item that is an integral part of the Group's net investment in a consolidated foreign company are included in consolidated equity until the disposal or liquidation of the net

investment, at which date they are recognised as income or expenses in the income statement, in the same way as other exchange differences concerning the company.

1.3.5.4 Translation of transactions in foreign currencies

In application of IAS 21, transactions expressed in foreign currencies are initially translated and recorded in the functional currency of the entity concerned, using the rate in force at the transaction date.

At each reporting date, monetary assets and liabilities expressed in foreign currencies are translated at the closing rate. The resulting foreign exchange differences are taken to the income statement.

1.3.6 Related parties

Related parties include the French State, companies in which the State holds majority ownership and certain of their subsidiaries, and companies in which the EDF group exercises joint control or significant influence. They also include members of the Group's Management and governance bodies.

1.3.7 Sales

Sales essentially comprise income from energy sales (to final customers and as part of trading activities), connections and other services, which mainly include energy transmission and distribution, and capacity and interconnection auctions.

The Group accounts for sales when:

- there is a proven contractual relationship;
- delivery has taken place (or the service has been completed);
- a quantifiable price has been established or can be determined;
- and the receivables are likely to be recovered.

Delivery takes place when the risks and benefits associated with ownership are transferred to the buyer.

Energy supplied but not yet measured and billed is calculated based on consumption statistics and selling price estimates.

Sales of goods and revenues on services not completed at the balance sheet date are valued by reference to the stage of completion at that date.

Energy trading operations are recognised net of purchases.

1.3.8 Income taxes

Income taxes include the current tax expense (income) and the deferred tax expense (income), calculated under the tax legislation in force in the countries where earnings are taxable.

In compliance with IAS 12, current and deferred taxes are generally recorded in the income statement or in equity symmetrically to the underlying operation.

Under IAS 32, income taxes on distributions to holders of equity instruments (notably dividends and the remuneration paid to holders of perpetual subordinated bonds) must be recognised in accordance with IAS 12. The Group considers that these distributions are paid out of previous years' accumulated profits and as a result the associated tax effects are included in the net income for the period.

The current tax expense (income) is the estimated amount of tax due on the taxable income for the period, calculated using the tax rates adopted at the year-end.

Deferred taxes result from temporary differences between the book value of assets and liabilities and their tax basis. No deferred taxes are recognised for temporary differences generated by:

- goodwill which is not tax deductible;
- the initial recognition of an asset or liability in a transaction which is not a business combination and does not affect the accounting profit or taxable profit (tax loss) at the transaction date;
- investments in subsidiaries and associates, investments in branches and interests in joint arrangements, when the Group controls the timing of reversal of the temporary differences, and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax assets and liabilities are valued at the expected tax rate for the period in which the asset will be realised or the liability extinguished, based on tax rates adopted at the year-end. If the tax rate changes, deferred taxes are adjusted to the new rate and the adjustment is recorded in the income statement, unless it relates to an underlying for which changes in value are recorded in equity, for example in accounting for actuarial gains and losses or fair value on hedging instruments and available-for-sale financial assets.

Deferred taxes are reviewed at each closing date, to take into account changes in tax legislation and the prospects for recovery of deductible temporary differences. Deferred tax assets are only recognised when it is probable that the Group will have sufficient taxable profit to utilise the benefit of the asset in the foreseeable future, or beyond that horizon, if there are deferred tax liabilities with the same maturity.

Deferred tax assets and liabilities are reported on a net basis, determined at the level of a tax entity or tax group.

1.3.9 Earnings per share and diluted earnings per share

Earnings per share is calculated by dividing the Group's share of net income by the weighted average number of shares outstanding over the period. This weighted average number of shares outstanding is the number of ordinary shares at the beginning of the year, adjusted by the number of shares redeemed or issued during the year.

This number, and the earnings per share, are adjusted whenever necessary to reflect the impact of translation or exercise of dilutive potential shares (stock options, stock warrants and convertible bonds issued, etc.).

In compliance with IAS 33, earnings per share and diluted earnings per share are based on the net income for the year after deduction of payments to bearers of perpetual subordinated bonds.

1.3.10 Business combinations

In application of IFRS 3 business combinations arising since 1 January 2010 are measured and recognised under the following principles.

At the date of acquisition, the identifiable assets acquired and liabilities assumed, measured at fair value, and any non-controlling interests in the company acquired (minority interests) are recorded separately from goodwill.

Non-controlling interests may be valued either at fair value (full goodwill method) or their share in the fair value of the net assets of the acquired

company (partial goodwill method). The decision is made individually for each transaction.

In application of IFRS 10, any acquisition or disposal of an investment that does not affect control is considered as a transaction between shareholders and must be recorded directly in equity.

If additional interests are acquired in a joint venture, joint operation or associate without resulting in acquisition of control, the value of the previously-acquired assets and liabilities remains unchanged in the consolidated financial statements.

If control is acquired in stages, the cost of the business combination includes the fair value, at the date control is acquired, of the purchaser's previously-held interest in the acquired company.

Related costs directly attributable to an acquisition leading to control are treated as expenses for the periods in which they were incurred, except for issuance costs for debt securities or equity instruments, which must be recorded in compliance with IAS 32 and IAS 39.

IFRS 3 does not apply to common control business combinations, which are examined on a case-by-case basis to determine the appropriate accounting treatment.

1.3.11 Goodwill and other intangible assets

1.3.11.1 Goodwill

1.3.11.1.1 Determination of goodwill

In application of IFRS 3, "Business combinations", goodwill is the difference between:

- the sum of the following items:
 - the acquisition-date fair value of the price paid to acquire control,
 - the value of non-controlling interests in the entity acquired, and
 - for acquisitions achieved in stages, the acquisition-date fair value of the Group's share in the acquired entity before it acquired control; and
- the net value of the assets acquired and liabilities assumed, measured at fair value at the acquisition date.

When this difference is negative it is immediately included in net income.

The fair values of assets and liabilities and the resulting goodwill are finalised within twelve months of the acquisition.

1.3.11.1.2 Measurement and presentation of goodwill

Goodwill on acquisition of subsidiaries is disclosed separately in the balance sheet. Impairment on this goodwill is reported under the heading "Impairment" in the income statement. After initial recognition, goodwill is carried at cost less any impairment recognised.

Goodwill on acquisition of associates and joint ventures is included in the investment's net book value. Impairment on this goodwill is included under the heading "Share in income of associates and joint ventures".

Goodwill is not amortised, but impairment tests are carried out as soon as there is an indication of possible loss of value, and at least annually, as described in note 1.3.15.

1.3.11.2 Other intangible assets**1.3.11.2.1 Research and development expenses**

Research expenses are recognised as expenses in the financial period incurred.

Development costs that qualify for capitalisation under IAS 38 are included in intangible assets and amortised on a straight-line basis over their foreseeable useful life.

1.3.11.2.2 Other self-produced or purchased intangible assets

Other intangible assets mainly comprise:

- software, which is amortised on a straight-line basis over its useful life;
- purchased brands with an indefinite useful life, or amortised on a straight-line basis over their useful life;
- operating or usage rights for power plants, which are amortised on a straight-line basis over the useful life of the underlying asset;
- rights or licenses relating to hydrocarbon concessions, which are amortised under the Unit Of Production (UOP) method, and exploration expenses amortised over the year (see note 1.3.11.2.3);
- intangible assets related to environmental regulations (greenhouse gas emission rights and renewable energy certificates acquired for a consideration – see note 1.3.28);
- the positive value of energy purchase/sale contracts stated at fair value as part of a business combination governed by IFRS 3: this value is amortised as the contractual deliveries take place;
- assets related to concession contracts governed by IFRIC 12, under the “intangible model” (see note 1.3.13.2.4).

1.3.11.2.3 Hydrocarbon prospecting, exploration and generation

The Group applies IFRS 6 “Exploration for and Evaluation of Mineral Resources”.

Prospection and exploration costs and costs incurred in connection with geological surveys, exploration tests, geological and geophysical mapping and exploratory drilling are recognised as intangible assets and fully amortised in the year they are incurred.

Development costs related to commercially viable mineral wells and investments in facilities to extract and store hydrocarbons are recognised as “Property, plant and equipment used in generation and other tangible assets owned by the Group” or “Property, plant and equipment operated under concessions for other activities” as appropriate.

They are amortised under the Unit Of Production (UOP) method.

1.3.12 Concession assets, generation assets and other property, plant and equipment

The Group’s property, plant and equipment is reported under three balance sheet headings, as appropriate to the business and contractual circumstances of their use:

- property, plant and equipment operated under French public electricity distribution concessions;

- property, plant and equipment operated under concessions for other activities;
- property, plant and equipment used in generation and other tangible assets owned by the Group.

1.3.12.1 Initial measurement

Property, plant and equipment is recorded at acquisition or production cost.

- The cost of facilities developed in-house includes all labour and materials costs, and all other production costs that can be included in the construction of the asset.
- Borrowing costs attributable to the financing of an asset incurred during the construction period are included in the value of the asset provided it is a qualifying asset as defined by IAS 23 “Borrowing costs”.
- The cost of property, plant and equipment also includes the initial estimate of decommissioning costs. These assets are associated with the provisions recorded to cover decommissioning obligations. At the date of commissioning, property, plant and equipment is measured and recorded in the same way as the corresponding provision (see note 1.3.21).
- Decommissioning costs for nuclear generation installations also include last core costs (see note 1.3.21).

When some of the decommissioning costs for a plant are to be borne by a partner, the expected reimbursement is recognised as accrued income in the assets. The difference between the provision and the accrued income is recorded in Property, plant and equipment, and subsequent payments by the partner are deducted from the accrued income.

The Group capitalises safety expenses incurred as a result of legal and regulatory obligations sanctioning non-compliance by an administrative ban from operation.

Strategic safety spare parts for generation facilities are treated as property, plant and equipment, and depreciated over the residual useful life of the installations.

The costs of major inspections that are necessary for continued operation by generation assets are capitalised and amortised over a period corresponding to the time elapsing between two inspections.

When a part of an asset has a different useful life from the overall asset’s useful life, it is identified as an asset component and depreciated over a specific period.

1.3.12.2 Depreciation

Items of property, plant and equipment are depreciated on a straight-line basis over their useful life, defined as the period during which the Group expects to draw future economic benefits from their use.

Depending on each country’s specific regulations and contractual arrangements, the expected useful lives for the main facilities are as follows:

- | | |
|--|----------------|
| ■ hydroelectric dams | 75 years |
| ■ electromechanical equipment used in hydropower plants | 50 years |
| ■ fossil-fired power plants | 25 to 45 years |
| ■ nuclear generation facilities: | |
| ■ in France | 40 to 50 years |
| ■ outside France | 35 to 60 years |
| ■ transmission and distribution installations (lines, substations) | 20 to 50 years |
| ■ wind farm and photovoltaic facilities | 20 to 25 years |

1.3.13 Concession agreements

1.3.13.1 Accounting treatment

The accounting treatment of public and private agreements depends on the nature of the agreements and their specific contractual features.

For most of its concessions, other than concessions for heat generation and distribution, the Group considers that in substance the grantors do not have the characteristic features of control over infrastructures as defined in IFRIC 12.

1.3.13.2 French concessions

In France, the Group is the operator for four types of public service concessions:

- public electricity distribution concessions in which the grantors are local authorities (municipalities or syndicated municipalities);
- hydropower concessions with the State as grantor;
- the public transmission network operated under concession from the State;
- concessions from public grantors for heat generation and distribution.

1.3.13.2.1 Public electricity distribution concessions

General background

Since the enactment of the French Law of 8 April 1946, the EDF group has by law been the sole operator for the main public distribution concessions in France.

The accounting treatment of concessions is based on the concession agreements, with particular reference to their special clauses. It takes into consideration the possibility that the EDF group may one day lose its status as the sole authorised State concession operator.

These agreements generally cover terms of between 20 and 30 years, and use standard concession rules deriving from the 1992 Framework Contract (updated in 2007) negotiated with the National Federation of Licensing Authorities (*Fédération nationale des collectivités concédantes et régies – FNCCR*) and approved by the public authorities.

Recognition of assets as property, plant and equipment operated under French public electricity distribution concessions

All assets used by the EDF group in public electricity distribution concessions in France, whether they are owned by the grantor or the operator, are reported together on a specific line in the balance sheet assets at acquisition cost, or their estimated value at the transfer date when supplied by the grantor.

1.3.13.2.2 Hydropower concessions

Hydropower concessions follow standard rules approved by decree. Hydropower concession assets consist solely of hydropower generation equipment (dams, pipes, turbines, etc) for initial concessions. In other concessions, they comprise hydropower generation equipment and switching facilities (alternators, etc).

Assets used in these concessions, whether operated under the concession agreement or owned by the EDF group, are recorded under "Property, plant and equipment operated under concessions for other activities" at acquisition cost.

1.3.13.2.3 Public transmission concession

Under French law, assets assigned to the public transmission concession belong to RTE Réseau de Transport d'Électricité (RTE). Following the Group's loss of control over RTE from 31 December 2010, these assets are included in calculating the equity value of RTE in the consolidated balance sheet.

1.3.13.2.4 Heat generation and distribution concessions

Heat generation and distribution concession agreements signed by Dalkia with public authorities confer the right to operate facilities remitted by or constructed at the request of those authorities for a limited period, under the grantor's supervision.

These agreements set the terms for remuneration and transfer of the facilities to the grantor or another succeeding operator at the end of the agreement.

The assets are recorded as intangible assets, in accordance with IFRIC 12 "Service concession agreements".

1.3.13.3 Foreign concessions

Foreign concessions are governed by a range of contracts and national laws. Most assets operated under foreign concessions are recorded under "Property, plant and equipment operated under concessions for other activities". Foreign concessions essentially concern Edison in Italy, which operates hydrocarbon generation sites, gas storage sites, local gas distribution networks and hydropower generating plants under concessions. Edison owns all the assets except for some items of property, plant and equipment on the hydropower generation sites, which will be returned to the grantor for nil consideration or with an indemnity when the concession ends. In compliance with IFRIC 12, certain concession agreements are recorded as intangible assets.

Hydropower generation assets which will be returned for nil consideration at the end of the concession are depreciated over the duration of the concession. Hydrocarbon generation sites are recorded in compliance with the rules applicable to the sector (see note 1.3.11.2).

1.3.14 Leases

In the course of its business the Group uses assets made available to it, or makes assets available to lessees, under lease contracts. These contracts are analysed in the light of the situations described and indicators provided in IAS 17 in order to determine whether they are finance leases or operating leases.

1.3.14.1 Finance leases

Contracts that effectively transfer substantially to the lessee all risks and benefits inherent to ownership of the leased item are classified as finance leases. The main criteria examined in determining whether substantially all the risks and benefits are transferred by an agreement are the following:

- the ratio of the duration of the lease to the leased asset's economic life;
- total discounted future payments as a ratio of the fair value of the financed asset;
- whether ownership is transferred at the end of the lease;
- whether the purchase option is attractive;
- the features specific to the leased asset.

Assets used under finance leases are derecognised from the lessor's balance sheet and included in the relevant category of property, plant and equipment in the lessee's accounts. Such assets are depreciated over their useful life, or the term of the lease contract when this is shorter.

A corresponding financial liability is booked by the lessee, and a financial asset by the lessor.

If the Group performs a sale and leaseback operation resulting in a finance lease agreement, this is recognised in accordance with the principles described above. If the transfer price is higher than the asset's book value,

the surplus is deferred and recognised as income progressively over the term of the lease.

1.3.14.2 Operating leases

Lease agreements that do not qualify as finance leases are classified and recognised as operating leases. Rental charges are spread over the duration of the lease agreement on a straight-line basis.

1.3.14.3 Arrangements containing a lease

In compliance with IFRIC 4, the Group identifies arrangements that do not have the legal form of a lease contract but nonetheless convey the right to control the use of an asset or group of specific assets to the purchaser.

Such arrangements are treated as leases, and analysed with reference to IAS 17 for classification as either finance or operating leases.

1.3.15 Impairment of goodwill, intangible assets and property, plant and equipment

At the year-end and at each interim reporting date, in application of IAS 36, the Group assesses whether there is an indication that an asset could have been significantly impaired. An impairment test is also carried out at least once a year on cash-generating units (CGUs) or groups of CGUs including an intangible asset with an indefinite useful life, or to which goodwill has been partly or totally allocated.

Impairment tests are carried out as follows:

- The Group measures any long-term asset impairment by comparing the carrying value of these assets and goodwill, grouped into CGUs where necessary, and their recoverable amount.
- CGUs are groups of homogeneous assets that generate identifiable independent cash flows. They reflect the way activities are managed in the Group: they may be subgroups when the activity is optimised across the whole subgroup, or CGUs formed by parts of subgroups corresponding to different types of activity that are managed separately (fossil-fired generation, renewable energy production, services). Goodwill is allocated to the CGUs that benefit from synergies resulting from the acquisition.
- The recoverable value of these CGUs is the higher of fair value net of disposal costs, and value in use. When this recoverable value is lower than the carrying amount in the balance sheet, an amount equal to the difference is booked under the heading "Impairment". The loss is allocated first to goodwill, and any surplus to the other assets of the CGU concerned.
- Fair value is the asset's potential sale price in a normal transaction between economic actors.
- Value in use is calculated based on projected future cash flows:
 - over a horizon that is coherent with the asset's useful life and/or operating life:
 - for certain intangible assets with an indefinite useful life (such as brands), beyond the horizon that can be observed or modelled, a terminal value is determined by discounting to infinity a normative cash flow;
 - excluding development projects other than those that have been decided at the valuation date;
 - and discounted at a rate that reflects the risk profile of the asset or CGU.

- The discount rates used are based on the weighted average cost of capital (WACC) for each asset or group of assets concerned, determined by geographical area and by business segment under the CAPM. WACC is calculated after taxes.
- Future cash flows are calculated on the basis of the best available information at the valuation date:
 - for the first few years, the flows correspond to the Medium-Term Plan (MTP). Over the MTP horizon, energy and commodity prices are determined based on available forward prices, taking hedges into consideration;
 - beyond the MTP horizon, cash flows are estimated based on long-term assumptions prepared for each country and each energy, using a process that is updated annually. Medium and long-term electricity prices are constructed analytically by assembling blocks of assumptions, e.g. economic growth, commodity prices (oil, gas, coal) and CO₂, demand for electricity, interconnections, and developments in the energy mix (rise of renewable energies, installed nuclear capacity, etc) with fundamental models of supply-demand balance. The Group refers in particular to external analyses for each assumption object (for example, for commodities and CO₂, which are primary factors in electricity prices, the Group compares its own scenarios with scenarios developed by organisations such as the AIE, IHS or Wood Mackenzie, bearing in mind that each of these analysts itself proposes a cone of scenarios corresponding to different macro-economic environments).
- Income from capacity market mechanisms is also taken into consideration in valuing generation assets, starting from the MTP horizon where relevant, provided the countries concerned have introduced or announced the future introduction of a capacity remuneration mechanism.

These calculations may be influenced by several variables:

- changes in discount rates;
- changes in market prices for energy and commodities and tariff regulations;
- changes in demand and the Group's market share, and the attrition rate on customer portfolios;
- the useful life of facilities, or the duration of concession agreements where relevant;
- the growth rates used beyond the medium-term plans and where relevant the terminal values taken into consideration.

Impairment recognised on goodwill is irreversible.

1.3.16 Financial assets and liabilities

Financial assets include available-for-sale assets (non-consolidated investments, investment securities and certain dedicated assets), loans and receivables at amortised cost, including trade receivables, and the positive fair value of derivatives.

Available-for-sale securities allocated to dedicated assets are presented in note 47.

Financial liabilities comprise loans and other financial liabilities, trade payables, bank credit and the negative fair value of financial derivatives.

Financial assets and liabilities are recorded in the balance sheet as current if they mature within one year and non-current if they mature after one year, apart from derivatives held for trading, which are all classified as current.

Operating debts and receivables, and cash and cash equivalents, are governed by IAS 39 and reported separately in the balance sheet.

1.3.16.1 Valuation of financial assets and liabilities

Financial instruments are stated at fair value, which corresponds to the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction on the principal or most advantageous market at the measurement date.

The valuation methods for each level are generally as follows:

- level 1 (unadjusted quoted prices): prices accessible to the entity at the measurement date on active markets, for identical assets or liabilities;
- level 2 (observable data): data concerning the asset or liability, other than the market prices included in initial level 1 input, which are directly observable (such as a price) or indirectly observable (i.e. deducted from observable prices);
- level 3 (non-observable data): data that are not observable on a market, including observable data that have been significantly adjusted. In the EDF group this chiefly concerns certain non-consolidated investments.

1.3.16.1.1 Financial assets and liabilities carried at fair value with changes in fair value included in income

Financial assets carried at fair value with changes in fair value included in the income statement are classified as such at the inception of the operation if:

- they were acquired from the outset with the intention of resale in the short term;
- they are derivatives not classified as hedges (derivatives held for trading);
- the Group has elected to include them in this category under the option allowed by IAS 39.

These assets are recorded at the transaction date at fair value, which is generally equal to the amount of cash paid out. Transaction costs directly attributable to the acquisition are recorded in the income statement. At each subsequent reporting date they are adjusted to fair value, based on quoted prices available from external sources for listed financial instruments, or using recognised valuation techniques such as the discounted cash flow method or reference to external sources for other financial instruments.

Changes in fair value other than those concerning commodity contracts are recorded in the income statement under the heading "Other financial income and expenses".

Dividends and interest received on assets carried at fair value are recorded in the income statement under "Other financial income".

Changes in the fair value of commodity trading contracts are recorded in the income statement under "Sales".

Changes in the fair value of non-trading commodity transactions are reported separately on a specific line of the income statement, "Net changes in fair value on Energy and Commodity derivatives, excluding trading activities" below the operating profit before depreciation and amortisation. These are transactions that come under the scope of IAS 39, which for accounting purposes are not eligible for hedge accounting or the IAS 39 "own use" exemption (see note 1.3.16.1.6).

Regarding the fair value option, the Group classifies an asset or liability "at fair value with changes in fair value included in income" in the three following circumstances:

- when using fair value eliminates or significantly reduces an inconsistency in the measurement of assets and liabilities;

- when the performance of a group of financial assets or financial liabilities is managed on a fair value basis, in accordance with documented strategies and the reporting to management;
- when a contract contains one or more embedded derivatives. In such cases the fair value option may be applied to the hybrid instrument, unless:
 - the embedded derivative does not substantially affect the cash flows of the contract,
 - analysis of the host contract and the embedded derivative does not lead to separation of this embedded derivative.

1.3.16.1.2 Held-to-maturity financial assets

This category covers fixed-term investments which the Group acquires with the intent and ability to hold to maturity. They are recorded at amortised cost at the transaction date. Interest is calculated at the effective interest rate and recorded in the income statement under the heading "Other financial income and expenses".

1.3.16.1.3 Loans and financial receivables

Loans and financial receivables are valued and recorded at the transaction date, at amortised cost less any impairment.

Interest is calculated at the effective interest rate and recorded in the income statement under the heading "Other financial income and expenses".

1.3.16.1.4 Available-for-sale financial assets

Available-for-sale financial assets comprise non-consolidated investments, investment securities, reserved funds and certain dedicated assets.

On initial recognition, available-for-sale financial assets are recorded at fair value plus transaction costs attributable to their acquisition. They are subsequently readjusted to fair value at each reporting date.

Fair value measurement is based on quoted prices available from external sources for financial instruments listed on an active market, and on the discounted cash flow method for other financial instruments. Shares not listed on an active market for which fair value cannot be reliably estimated are recorded at acquisition cost.

Unrealised gains or losses on these assets are recorded in equity, unless there is evidence of a realised loss, in which case impairment is recognised in the financial result (see note 1.3.16.2.2).

For available-for-sale financial assets represented by debt securities, interest income is calculated at the effective interest rate and credited to the income statement under the heading "Other financial income and expenses".

1.3.16.1.5 Loans and financial liabilities

When specific hedge accounting treatments are not applied (see note 1.3.16.1.6 (A)), loans and financial liabilities are recorded at amortised cost, with separation of embedded derivatives where applicable. Interest expenses are calculated at the effective interest rate and recorded in the income statement under the heading "Cost of gross financial indebtedness" over the duration of the loan or financial liability.

1.3.16.1.6 Derivatives

Scope

The scope of derivatives applied by the Group corresponds to the principles set out in IAS 39.

In particular, forward purchases and sales for physical delivery of energy or commodities are considered to fall outside the scope of application of IAS 39 when the contract concerned is considered to have been entered into as part of the Group's normal business activity ("own use"). This is demonstrated to be the case when all the following conditions are fulfilled:

- a physical delivery takes place under all such contracts;
- the volumes purchased or sold under the contracts correspond to the Group's operating requirements;
- the contracts cannot be considered as options as defined by the standard. In the specific case of electricity sale contracts, the contract is equivalent to a firm forward sale or can be considered as a capacity sale.

The Group considers that transactions negotiated with a view to balancing the volumes between electricity purchase and sale commitments are part of its business as an integrated electricity operator, and are outside the scope of IAS 39.

In compliance with IAS 39, the Group analyses all its contracts, of both financial and non-financial nature, to identify the existence of any "embedded" derivatives. Any component of a contract that affects the cash flows of that contract in the same way as a stand-alone derivative corresponds to the definition of an embedded derivative. If they meet the conditions set out by IAS 39, embedded derivatives are accounted for separately from the host contract at inception date.

Measurement and recognition

Derivatives are initially recorded at fair value, based on quoted prices and market data available from external sources. If no quoted prices are available, the Group may refer to recent comparable transactions or if no such transactions exist base its valuation on internal models that are recognised by market participants, giving priority to information directly derived from observable data, such as over-the-counter listings.

Changes in the fair value of these derivatives are recorded in the income statement, unless they are designated as hedges for a cash flow or net investment. Changes in the fair value of such hedging instruments are recorded directly in equity, excluding the ineffective portion of the hedge.

In the specific case of financial instruments entered into as part of the trading business, realised and unrealised gains and losses are reported net under the heading "Sales".

In application of IFRS 13, the fair value of derivatives incorporates the counterparty credit risk for derivative assets and the own credit risk for derivative liabilities. The probabilities of default used to calculate these credit risks are based on historical data.

Derivatives classified as hedges

The EDF group uses derivatives to hedge its foreign exchange and interest rate risks, as well as risks related to certain commodity contracts.

The Group applies the criteria defined by IAS 39 to classify operations for hedge accounting purposes:

- the instrument must hedge changes in fair value or cash flows attributable to the risk hedged, and the effectiveness of the hedge (i.e. the degree to which changes in the value of the hedging instrument offset changes in the value of the hedged item or future transaction) must be between 80% and 125%;
- in the case of cash flow hedges, the future transaction being hedged must be highly probable;
- reliable measurement of the effectiveness of the hedge must be possible;
- the hedge must be supported by appropriate documentation from its inception.

The hedging relationship ends when:

- a derivative ceases to be an effective hedging instrument;

- a derivative expires, or is sold, terminated or exercised;
- the hedged item expires, is sold or redeemed;
- a future transaction ceases to be considered as highly probable.

Only derivatives external to the Group, and internal derivatives that are matched with similar transactions external to the Group, qualify for hedge accounting.

The Group uses the following categories for hedges:

(A) Fair value hedges

These instruments hedge the exposure to changes in the fair value of an asset or liability recorded in the balance sheet, or a firm commitment to purchase or sell an asset. Changes in the fair value of the hedged item attributable to the hedged component of that item are recorded in the income statement and offset by corresponding variations in the fair value of the hedging instrument. Only the ineffective portion of the hedge has an impact on income.

Loans and financial liabilities include bonds that are covered by a fair value hedge. In application of hedge accounting, their balance sheet value is adjusted for changes in fair value attributable to the hedged risks (foreign exchange and interest rate risks).

(B) Cash flow hedges

These instruments hedge highly probable future transactions: the variability in cash flows generated by the hedged transaction is offset by changes in the value of the hedging instrument.

The effective portion of accumulated changes in the hedge's fair value is recorded in equity, and the ineffective portion (i.e. changes in the fair value of the hedging instrument in excess of changes in the fair value of the hedged item) is recorded in the income statement.

When the hedged cash flows materialise, the amounts previously recognised in equity are transferred to the income statement in the same way as for the hedged item.

(C) Hedges of a net investment

These instruments hedge exposure to the foreign exchange risk related to a net investment in an entity which does not have the same functional currency as the Group. The effective portion of accumulated changes in the hedge's fair value is recorded in equity until the disposal or liquidation of the net investment, when it is included in the gain or loss on disposal. The ineffective portion (defined in the same way as for cash flow hedges) is recorded directly in the income statement.

The change in fair value resulting from the foreign exchange effect and interest rate effect of derivatives hedging a net investment in a foreign operation is recorded in equity.

1.3.16.2 Impairment of financial assets

At the year-end and at each interim reporting date, the Group assesses whether there is any objective evidence that an asset could have been significantly impaired. If so, the Group estimates the asset's recoverable value and records any necessary impairment as appropriate for the category of asset concerned.

1.3.16.2.1 Impairment of financial assets recorded at amortised cost

Impairment is equal to the difference between the asset's net book value and the discounted value of expected future cash flows, using the original effective interest rate of the financial instrument. The impairment is included in the income statement under the heading "Other financial income and expenses". If the impairment loss decreases in a subsequent period, the amount of the decrease is reversed and transferred to the income statement.

1.3.16.2.2 Impairment of available-for-sale financial assets

If there is a substantial, long-term decline in the fair value of available-for-sale assets, the unrealised loss is reclassified from equity to income. For debt instruments, impairment is only recorded in income when there is an indication of impairment associated with the counterparty. If the fair value of an available-for-sale financial asset rises in a subsequent period, the increase in value is included in equity when it concerns equity instruments, and leads to a reversal from previously-recorded impairment when it concerns debt instruments.

Different criteria for impairment apply to different types of available-for-sale financial assets.

For available-for-sale financial assets (other than dedicated assets) held by controlled companies, the Group generally uses the following criteria to assess impairment:

- 3 years as the threshold for assessment of long-term loss of value;
- a 50% decline from historical cost as indication of a significant loss of value.

For available-for-sale financial assets held as part of EDF's dedicated asset portfolio, the Group uses the following criteria to assess impairment:

- a 5-year period as the threshold for assessment of a long-term loss of value;
- a 40% decline from historical portfolio value as indication of a significant loss of value.

In assessing impairment of dedicated assets, the Group takes into consideration factors specific to their nature: legal and regulatory obligations associated with the funds concerned, the timing of the payments they are to finance, and long-term management of the funds.

1.3.16.3 Derecognition of financial assets and liabilities

The Group derecognises a financial asset when:

- the contractual rights to the cash flows generated by the asset expire; or
- the Group transfers the rights to receive contractual cash flows related to the financial asset through the transfer of substantially all of the risks and benefits associated with ownership of the asset.

Any interest created or retained by the Group in transferred financial assets is recorded as a separate asset or liability.

The Group derecognises a financial liability when its contractual obligations are extinguished, cancelled or expire. When a debt is renegotiated with a lender on substantially different terms, a new liability is recognised.

1.3.16.4 Securitisation operations

When it can be demonstrated that the Group has transferred substantially all the risks and benefits related to transfers of receivables, particularly the credit risk, the items concerned are derecognised.

Otherwise, the operation is considered as a financing operation, and the receivables remain in the balance sheet assets, with recognition of a corresponding financial liability.

1.3.16.5 Offsetting financial assets and liabilities

The Group offsets financial assets and liabilities when:

- there is a legally enforceable right to set off the recognised amounts; and
- the intent is either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In application of IFRS 7, disclosures are provided in the notes to the consolidated financial statements to indicate the actual or potential impact of the offsetting agreement.

1.3.17 Inventories

Inventories are recognised at the lower of acquisition cost or net realisable value, except for inventories held for trading activities, which are carried at market value. Inventories consumed are generally valued by the weighted average unit cost method.

Cost includes all direct material costs, labour costs, and a share of indirect production costs.

1.3.17.1 Nuclear fuel and materials

Inventory accounts include:

- nuclear materials, whatever their form during the fuel production cycle; and
- fuel components in the warehouse or in the reactor.

The stated value of nuclear fuel and materials and work-in-progress is determined based on direct processing costs including materials, labour and subcontracted services (e.g. fluorination, enrichment, production, etc.).

In accordance with regulatory obligations specific to each country, inventories of fuel (new or not entirely consumed) may also comprise expenses for spent fuel management and long-term radioactive waste management, with corresponding provisions or debts in the liabilities, or full and final payments made when the fuel is loaded.

In compliance with IAS 23, interest expenses incurred in financing inventories of nuclear fuels are charged to expenses for the period provided these inventories are manufactured in large quantities on a repetitive basis.

Nuclear fuel consumption is determined as a proportion of the expected output when the fuel is loaded in the reactor. These quantities are valued at weighted average cost of inventories. Inventories are periodically corrected in view of forecast spent quantities based on neutronic measurements and physical inventories.

1.3.17.2 Other operating inventories

Other operating inventories comprise:

- fossil fuels required for operation of fossil-fired power plants;
- operating materials and equipment such as spare parts supplied under a maintenance programme (excluding capitalised strategic safety spare parts);
- certificates issued under the various environmental schemes (see note 1.3.28);
- certificates issued under capacity obligation mechanisms (capacity guarantees in France) (see note 4.3);

- goods and services in progress, particularly relating to the businesses of EDF Énergies Nouvelles and Dalkia;
- gas stocks.

Other non-trading operating inventories are generally valued at weighted average cost including direct and indirect purchasing costs.

Impairment of spare parts principally depends on the turnover of these parts.

Inventories held for trading purposes are stated at market value.

1.3.18 Trade receivables

Trade receivables are initially recognised at the fair value of the consideration received or receivable. Impairment is recorded when, based on the probability of recovery assessed according to the type of receivable, their carrying amount falls below their book value. Depending on the nature of the receivable, the risk associated with doubtful receivables is assessed individually or by experience-based statistical methods.

Trade receivables also include the value of unbilled receivables for energy already supplied.

1.3.19 Cash and cash equivalents

Cash and cash equivalents comprise immediately available liquidities and very short-term investments that are readily convertible into a known amount of cash, usually maturing within three months or less of the acquisition date, and with negligible risk of fluctuation in value.

Securities held short-term and classified as "Cash equivalents" are recorded at fair value, with changes in fair value included in the heading "Other financial income and expenses".

1.3.20 Equity

1.3.20.1 Fair value adjustment of financial instruments

The fair value adjustment of financial instruments results from the restatement to fair value of available-for-sale financial assets and certain hedging instruments.

1.3.20.2 Share issue expenses

Share issue expenses correspond exclusively to external costs expressly related to the capital increase. They are charged against the issue premium at their net-of-tax value.

Other expenses are classified as expenses of the period.

1.3.20.3 Treasury shares

Treasury shares are shares issued by EDF and held either by that company or by other entities in the consolidated Group. They are valued at acquisition cost and deducted from equity until the date of disposal. Net gains or losses on disposals of treasury shares are directly included in equity and do not affect net income.

1.3.20.4 Perpetual subordinated bonds

In 2013 and 2014 EDF issued perpetual subordinated bonds comprising several tranches in Euros, US dollars and pounds sterling (a "hybrid" bond issue). These bonds are redeemable at the initiative of EDF after a minimum period that depends on the specific terms of the issue, and subsequently at each coupon date or in the event of highly specific circumstances (such as a change in IFRS or tax regime). The annual yield is fixed and reviewable based on contractual clauses that vary according to the specific terms of the issue. There is no obligation for EDF to make any payment, due to the existence of contractual clauses that allow it to defer payment indefinitely. However, those clauses stipulate that deferred payments must be made if it is decided to pay dividend to EDF's shareholders. All these features give EDF an unconditional right to avoid paying out cash or another financial asset in redemption or interest on the principal. Consequently, in compliance with IAS 32, these bonds are recorded in equity and any payment made is treated as dividends.

1.3.21 Provisions other than employee benefit provisions

The Group recognises provisions when it has a present obligation (legal or constructive) arising from a past event, an outflow of resources will probably be required to settle the obligation, and the obligation amount can be estimated reliably.

If it is anticipated that all or part of the expenses covered by a provision will be reimbursed, the reimbursement is recognised under receivables if and only if the Group is virtually certain of receiving it.

Provisions are determined based on the Group's expectation of the cost necessary to settle the obligation. Estimates are based on management data from the information system, assumptions adopted by the Group, and if necessary experience of similar transactions, or in some cases based on independent expert reports or contractor quotes. The various assumptions are reviewed for each closing of the accounts.

The expected costs are estimated based on year-end economic conditions and spread over a forecast disbursement schedule. They are then adjusted to Euros of the year of payment through application of a forecast long-term inflation rate and discounted to present value using a nominal discount rate. The provisions are based on these discounted future cash flows.

The rate of inflation and the discount rate are based on the economic and regulatory parameters of the country where the economic entity is located, considering the long operating cycle of the Group's assets and the maturities of commitments.

The discount effect generated at each closing to reflect the passage of time is recorded under "Discount effect" in financial expenses.

In extremely rare situations, a provision cannot be booked due to lack of a reliable estimate. In such cases, the obligation is mentioned in the notes as a contingent liability, unless there is little likelihood of an outflow of resources.

1.3.21.1 Provisions related to nuclear generation

Provisions related to nuclear generation mainly cover the following:

- back-end nuclear cycle expenses: provisions for spent fuel management and long-term radioactive waste management are established in accordance with the obligations and final contributions specific to each country;

- costs for decommissioning power plants and losses relating to fuel in the reactor when the reactor is shut down (provision for last cores).

Last core expenses correspond to the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints, and the cost of fuel processing, and removal and storage of the resulting waste.

Changes in provisions resulting from a change in discount rates, a change in the disbursement schedule or a change in contractor quote are recorded:

- as an increase or decrease in the corresponding assets, up to the net book value, if the provision was initially covered by balance sheet assets (decommissioning of plants still in operation, long-term management of the radioactive waste resulting from such decommissioning, and last cores);
- in the income statement in all other cases.

Detailed information on the principles for determining provisions related to nuclear generation in France and the United Kingdom is given in note 29.

1.3.21.2 Other provisions

Other provisions primarily concern:

- contingencies related to subsidiaries and investments;
- tax liabilities;
- litigation;
- onerous contracts;
- environmental schemes.

Provisions for onerous contracts primarily relate to multi-year agreements for the purchase or sale of energy:

- losses on energy purchase agreements are measured by comparing the acquisition cost under the contractual terms with the forecast market price;
- losses on energy sale agreements are measured by comparing the estimated income under the contractual terms with the cost of the energy to be supplied.

Provisions for environmental schemes are established to cover the shortfall in greenhouse gas emission quotas and renewable energy certificates compared to the assigned targets (see note 1.3.28).

In extremely rare cases, description of a specific litigation covered by a provision may be omitted from the notes to the financial statements if such disclosure could cause serious prejudice to the Group.

1.3.22 Provisions for employee benefits

The Group grants its employees post-employment benefits (pension plans, retirement indemnities, etc) and other long-term benefits (e.g. long-service awards) in compliance with the specific laws and measures in force in each country where it does business.

1.3.22.1 Calculation and recognition of employee benefits

Obligations under defined-benefit plans are calculated by the projected unit credit method, which determines the present value of entitlements earned by employees at year-end under all types of plan, taking into consideration the prospects for wage increases and each country's specific economic conditions.

Post-employment benefit obligations are valued mainly using the following methods and assumptions:

- retirement age, determined on the basis of the applicable rules for each plan, and the requirements to qualify for a full pension;
- career-end salary levels, with reference to employee seniority, projected salary levels at the time of retirement based on the expected effects of career advancement, and estimated trends in pension levels;
- forecast numbers of pensioners, determined based on employee turnover rates and mortality data available in each country;
- reversion pensions where relevant, taking into account both the life expectancy of the employee and his/her spouse and the marriage rate;
- a discount rate that depends on the geographical zone and the duration of the obligations, determined at the year-end date by reference to the market yield on high-quality corporate bonds or the rate on government bonds whose duration is coherent with EDF group's commitments to employees.

The amount of the provision corresponds to the value of obligations less the fair value of the fund assets that cover those obligations.

The net expense booked during the year for employee benefit obligations includes:

- in the income statement:
 - the current service cost, corresponding to additional benefit entitlements earned during the year,
 - the net interest expense, corresponding to interest on obligations net of the return on fund assets, which is calculated using the same discount rate as for the obligations,
 - the past service cost, including the income or expense related to amendments or settlements of benefit plans or introduction of new plans,
 - the actuarial gains and losses relating to long-term benefits;
- in other components of consolidated comprehensive income:
 - the actuarial gains and losses relating to post-employment benefits,
 - the effect of the limitation to the asset ceiling if any.

1.3.22.2 Post-employment benefit obligations

When they retire, Group employees benefit from pensions determined under local rules. They may also be entitled to benefits directly paid by the companies, and additional benefits prescribed by the relevant regulations.

1.3.22.2.1 French entities covered by the IEG system

Entities belonging to the specific IEG (electricity and gas) sector system, namely EDF, Enedis (formerly ERDF), RTE, Électricité de Strasbourg, EDF PEI, Dunkerque LNG and certain subsidiaries of the Tiru subgroup, are Group companies where almost all employees benefit from the IEG statutes, including the special pension system and other statutory benefits.

Since the financing reform for the IEG sector system took effect on 1 January 2005, the CNIEG (*Caisse nationale des IEG*, the sector's specific pension body) has managed not only the special IEG pension system, but also the industrial accident, invalidity and death insurance system for the sector.

The CNIEG is a social security body governed by private law, formed by the Law of 9 August 2004. It has legal entity status and reports to the French government, operating under the joint supervision of France's ministers for the Budget, Social Security and Energy.

Under the funding arrangements introduced by the Law, IEG sector companies establish pension provisions to cover entitlements not funded by France's standard systems (CNAV, AGIRC and ARRCO), to which the IEG system is affiliated, or by the CTA (*Contribution Tarifaire d'Acheminement*) levy on gas and electricity transmission and distribution services.

As a result of this funding mechanism, any change (whether favourable or unfavourable to employees) in the standard French pension system that is not passed on to the IEG pension system is likely to cause a variation in the amount of the provisions recorded by the Group to cover its obligations.

The obligations concerned by the pensions and for which a provision is recorded thus include:

- specific benefits of employees in the deregulated or competitive activities;
- specific benefits earned by employees from 1 January 2005 for the regulated activities (transmission and distribution) (benefits earned prior to that date are financed by the CTA levy).

In addition to pensions, other benefits are granted to IEG status former employees (not currently in active service), as detailed below:

- benefits in kind: Article 28 of the IEG national statutes entitles such employees and current employees to benefits in kind in the form of supplies of electricity or gas at preferential prices. The obligation for supplies of energy to employees of the EDF and Engie (formerly GDF-Suez) groups corresponds to the probable present value of kWh to be supplied to beneficiaries or their dependants during their retirement, valued on the basis of the unit cost. It also includes the payment made under the energy exchange agreement with Engie;
- retirement gratuities: these are paid upon retirement to employees due to receive the statutory old-age pension, or to their dependants if the employee dies before reaching retirement. These obligations are almost totally covered by an insurance policy;
- bereavement benefit: this is paid out upon the death of an inactive or disabled employee, in order to provide financial assistance for the expenses incurred at such a time (Article 26 – § 5 of the National Statutes). It is paid to the deceased's principal dependants (statutory indemnity equal to three months' pension, subject to a ceiling) or to a third party that has paid funeral costs (discretionary indemnity equal to the costs incurred);
- bonus pre-retirement paid leave: all employees eligible to benefit immediately from the statutory old-age pension and aged at least 55 at their retirement date are entitled to 18 days of bonus paid leave during the last twelve months of their employment;
- other benefits include help with the cost of studies, time banking for pre-retirement leave, and pensions for personnel sent on secondment to subsidiaries not covered by the IEG system.

1.3.22.2.2 French and foreign subsidiaries not covered by the special IEG system

Pension obligations principally relate to the British companies and are mostly covered by defined-benefit plans.

In the United Kingdom, EDF Energy has three principal defined-benefit pension plans:

- the British Energy Generation Group (BEGG) plan affiliated to the Electricity Supply Pension Scheme (ESPS), of which the majority of members are employees in Nuclear Generation. The BEGG plan was closed to new members in August 2012;

- the EDF Energy Generation and Supply Group (EEGSG) plan, also affiliated to the ESPS, which was established in December 2010 for the employees remaining with EDF Energy following the transfer of the former Group plan to UK Power Networks as part of the sale of the Networks. The EEGSG plan has not accepted any new members since then;
- The EDF Energy Pension Scheme (EEPS). This scheme was established in March 2004 and membership remains open to new employees.

In 2016 EDF Energy introduced a new defined-benefit section of the EEPS pension plan named EEPS CARE (Career Average Revalued Earnings). Under EEPS CARE, pensions are based on a pensionable salary corresponding to the average salary over the beneficiary's entire career, adjusted for inflation. Pensions for the other sections continue to be based on the beneficiary's most recent pensionable salary.

Each pension plan is financially independent of the others. The BEGG and EEGSG plans are part of the industry-wide ESPS which is one of the largest private-sector pension schemes in the United Kingdom.

The plans are externally managed by separate trusts whose trustees are appointed by the firm and the plan participants to manage the funds in their exclusive interests. The trustees carry out an actuarial review of the plan every three years, defining the funding level, the necessary employer and employee contributions and the payment schedules. The trustees are responsible for defining the plans' investment strategy, in agreement with the firm.

1.3.22.3 Other long-term benefit obligations

These benefits concern employees currently in service, and are earned according to local regulations, particularly the statutory regulations for the electricity and gas sector for EDF and French subsidiaries covered by the IEG regime. They include:

- annuities following incapacity, invalidity, industrial accident or work-related illness; like their counterparts in the general national system, IEG employees are entitled to financial support in the event of industrial accident or work-related illness, and invalidity and incapacity annuities and benefits. The obligation is measured as the probable present value of future benefits payable to current beneficiaries, including any possible reversions;
- long-service awards;
- specific benefits for employees who have been in contact with asbestos.

1.3.23 Share-based payments

Under existing legislation in France, employees of a company or a group may benefit from capital increases reserved for them. Their company may also implement free share plans.

In the light of IFRS 2, these benefits granted to employees and former employees must be treated by the company as personnel expenses in the same way as additional remuneration, and recognised as such with a corresponding adjustment in equity.

Valuation of the benefit granted through a share offer reserved for current and former employees is based on the difference between the share subscription price and the share price at the grant date, with actuarial valuation of the impact, if any, of the payment terms, the minimum holding period, and the fact that no dividends were received during the vesting period for the free shares.

In the case of free shares, the value of the benefit is based on the share price at the grant date, depending on the number of shares granted and the fact that no dividends were received during the vesting period. The expense is spread over the vesting period.

1.3.24 Special concession liabilities

These liabilities represent the contractual obligations specific to the concession rules for public electricity distribution concessions in France, recognised in the liabilities as:

- rights in existing assets: these correspond to the grantor's right to recover all assets for nil consideration. This right comprises the value in kind of the facilities – the net book value of assets operated under concession – less any as yet unamortised financing provided by the operator;
- rights in assets to be replaced: these correspond to the operator's obligation to contribute to the financing of assets due for replacement. These non-financial liabilities comprise:
 - depreciation recorded on the portion of assets financed by the grantor,
 - the provision for renewal, exclusively for assets due for renewal before the end of the concession.

When assets are replaced, the provision and amortisation of the grantor's financing recorded in respect of the replaced item are eliminated and transferred to the rights in existing assets, since they are considered as the grantor's financing for the new asset. Any excess provision is taken to income.

During the concession, the grantor's rights in assets to be replaced are thus transferred upon the asset's renewal to become the grantor's rights in existing assets, with no outflow of cash to the benefit of the grantor.

In general, the value of special concession liabilities is determined as follows:

- the grantor's rights in existing assets, representing the share deemed to be held by the grantor in the concession assets, are valued on the basis of the assets recorded in the balance sheet;
- the obligations relating to assets to be replaced are valued on the basis of the estimated value of the relevant assets, measured at each year-end taking into consideration wear and tear on the asset at that date:
 - based on the difference between the asset's replacement value as assessed at year-end and the historical cost for calculation of the provision for renewal. Annual allocations to the provision are based on this difference, less any existing provisions, with the net amount spread over the residual useful life of the assets. Consequently, the expenses recognised for a given item increase over time,
 - based on the share of the asset's historical cost financed by the grantor for amortisation of the grantor's financing.

The Group considers that the obligations related to assets to be replaced are to be valued on the basis of the special clauses contained in the concession agreements. Under this approach, these obligations are stated at the value of the contractual obligations as calculated and reported annually in the reports to the grantors. This contractual value also reflects the possibility that the EDF group may one day lose its status as the concession operator.

If no such clauses existed, an alternative approach would be to state contractual obligations at the present value of future payments required for replacement of assets operated under concession at the end of their industrial useful life.

For information, the Group reports below the impacts of this alternative approach, i.e. the discounting of the future obligation to contribute to financing of assets to be replaced.

The principal assumptions used in preparing this simulation are as follows:

- the basis for calculation of the provision for renewal is the estimated replacement value at the end of the asset's useful life, applying a forecast annual inflation rate of 1.5%, less the asset's historical value. This amount is based on the wear and tear on the asset and discounted at a rate of 4.2%;
- amortisation of the grantor's financing is also discounted at the rate of 4.2%.

The following table shows the main impacts of this simulation for Enedis (formerly ERDF) in 2016:

IMPACTS ON THE INCOME STATEMENT

<i>(in millions of Euros and before taxes)</i>	2016
Operating profit	538
Financial result	(526)
Income before taxes of consolidated companies	12

IMPACTS ON THE BALANCE SHEET – EQUITY

<i>(in millions of Euros and before taxes)</i>	2016
At opening date	1,965
At closing date	1,977

Valuation of concession liabilities under this method is subject to uncertainty over costs and disbursements, and is also sensitive to inflation and discount rates.

1.3.25 Investment subsidies

Investment subsidies received by Group companies are included in liabilities under the heading "Other liabilities" and transferred to income as and when the economic benefits of the corresponding assets are utilised.

1.3.26 Assets classified as held for sale and related liabilities, and discontinued operations

Assets that qualify as held for sale and related liabilities are disclosed separately from other assets and liabilities in the balance sheet.

When assets or groups of assets are classified as discontinued operations, income and expenses relating to these discontinued operations are disclosed in a single net amount after taxes in the income statement and net changes in cash and cash equivalents of discontinued operations are also reported separately in the cash flow statement.

Impairment is booked when the realisable value is lower than the net book value.

1.3.27 Nature and extent of restrictions on the Group's ability to access and use assets or settle liabilities

The main restrictions that may limit the Group's ability to access or use its assets or settle its liabilities concern the following items:

- assets held to fund employee benefits (principally in France and the United Kingdom – see note 1.3.22) – and expenses related to nuclear liabilities (principally in France – see note 47 – and the United Kingdom – see note 29.2);
- tangible and intangible assets and the related liabilities associated with concession agreements, whether or not they are subject to regulatory mechanisms (obligations to supply energy or energy-related services, rules governing investments, an obligation to return concession facilities at the end of the contract, amounts payable at the end of the contract, tariff constraints, etc). These restrictions mainly apply to assets of this type in France (EDF, Enedis and Dalkia), and to a lesser extent Italy, Poland, and Hungary (see notes 1.3.13 and 1.3.24);
- the sale of Group investments in certain subsidiaries requires authorisations from State bodies, particularly when they exercise a regulated activity or operate nuclear power plants (this is the case for EDF Nuclear Generation Ltd. in the United Kingdom, Taishan (TNPJVC) in China and CENG in the United States);
- prudential reserves established and measures taken as regards distribution capacity, so that the insurance subsidiaries will meet their prudential ratio requirements;
- the cash of certain entities that use financing arrangements stipulating that dividend distribution is subject to conditions concerning repayment of bank debt (or qualification for loans) and shareholders, or are subject to regulatory limitations in certain countries.

Certain shareholder agreements concerning companies controlled by the Group include clauses to protect minority shareholders, requiring approval from minority shareholders for certain particularly important decisions.

Finally, certain financing loans granted to Group entities contain early repayment clauses (see note 38.2.6), and certain items of cash and cash equivalents are subject to restrictions (see note 37).

1.3.28 Environment

1.3.28.1 Greenhouse gas emission rights

The accounting treatment of emission rights depends on the holding intention. There are two economic models, both of which coexist in the EDF group.

Rights held under the "Trading" model are included in inventories at fair value. The change in fair value observed over the year is recorded in the income statement.

Rights held to comply with regulatory requirements on greenhouse gas emissions (the "Generation" model) are recorded in intangible assets:

- at acquisition cost when purchased on the market;
- at nil value when allocated free of charge (in countries that still have a free allocation system).

When the estimated emissions by a Group entity over a given period are higher than the rights allocated for no consideration for the period less any allocated rights sold on the spot or forward market, a provision is established to cover the excess emissions. This provision is equal to the shortfall in rights held (difference between actual emissions and allocated rights held at the closing date).

If no emission rights are allocated free of charge, a provision is systematically recorded equivalent to the actual emissions at the closing date.

In either case, the provision is measured on the basis of the acquisition cost up to the amount of rights acquired on the spot or forward markets, and on market prices for the balance. It is cancelled when the rights are surrendered to the State.

At the closing date, the portfolio of emission rights and the obligation to surrender rights for the emissions of the year are presented gross, without netting.

If the number of purchased emission rights recorded as intangible assets at the end of the year and not subject to forward sale is higher than the number of purchased rights that will be surrendered to the State for the year's emissions, an impairment test must be applied to the excess. If there is a significant negative differential on the purchased rights held, impairment is booked.

1.3.28.2 Renewable energy certificates

In application of EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources, every EU member state has set national targets for consumption of electricity from renewable sources.

There are two ways for States to meet these targets:

- incorporating the costs of generating such electricity into the sale price for electricity (this is the approach taken in France);
- introducing a renewable energy certificate system (as is the case in the United Kingdom, Poland and Belgium).

The renewable energy certificates system may apply to:

- non-obligated electricity producers when the obligation applies to energy sales (EDF Énergies Nouvelles, Poland);
- obligated electricity producers when the obligation applies to generation;
- producers who are also sellers of electricity when the obligation applies to energy sales (EDF Energy, EDF Luminus, Fenice).

The EDF group applies the following accounting treatments:

- for non-obligated electricity producers, certificates obtained based on generation output are recorded in "Other inventories" until they are sold on to suppliers;
- for obligated producers and an entity that both produces and supplies energy and is under an obligation to sell a specified quantity of renewable energy, the Group uses the following accounting treatments for certificates obtained based on generation output:
 - up to the level of the obligation, these certificates are not recognised,
 - certificates in excess of the obligation are recorded in "Other inventories",
 - in the specific situation when an entity is not in a position to meet its obligation at the year-end, the Group applies the following accounting treatment:
 - certificates acquired for a consideration in order to meet the obligation are recorded in intangible assets at acquisition cost, and
 - a provision is established equivalent to the shortfall in certificates compared to the obligation at the year-end. The value of this provision is based on the acquisition price of certificates already purchased on the spot or forward market, and market prices or penalty prices for the balance. The provision is cancelled when the certificates are surrendered to the State.

Forward purchases/sales of certificates related to trading activities are recorded in accordance with IAS 39, stated at fair value in the balance sheet date. The change in fair value is recorded in the income statement.

1.3.28.3 Energy savings certificates

In application of EU Directive 2012/27/EC on energy efficiency, EU Member States are required to meet energy savings targets by 2020. These targets can be met through a system of energy savings certificates, similar to the system introduced by the French Law of 13 July 2005.

The EDF group fulfils its obligations either by taking measures regarding its assets or actions with its final customers in order to receive energy savings certificates from the State, or by purchasing energy savings certificates directly.

Expenses incurred to meet the cumulative energy savings obligation are treated as:

- property, plant and equipment if the action taken by the entity concerns its own assets and the expenses qualify for recognition as an asset;
- expenses for the year incurred, if they do not meet the requirements for capitalisation or if the action taken is to encourage third parties to save energy.

Expenses incurred in excess of the accumulated obligation at year-end are included in inventories until they are used to cover the obligation.

A provision is recognised if the energy savings achieved are lower than the cumulative energy savings obligation. The amount of the provision is equal to the cost of actions still to be taken to meet the obligations related to the energy sales made.

1.3.28.4 Environmental expenses

Environmental expenses are identifiable expenses incurred to prevent, reduce or repair damage to the environment that has been or may be caused by the Group as a result of its activities. These expenses are treated as follows:

- they are capitalised if they are incurred to prevent or reduce future damage or protect resources;
- they are booked as environmental liabilities and increases to provisions for environmental risks if they correspond to an obligation that exists at the year-end and it is probable or certain at the reporting date that they will lead to an outflow of resources;
- they are recognised as expenses if they are operating expenses for the bodies in charge of environmental concerns, environmental supervision, environmental duties and taxes, processing of liquid and gas effluents and non-radioactive waste, or research unrelated to an investment.

Note 2 Comparability

Accounting methods for 2016 are unchanged from 2015.

Note 3 Significant events and transactions

3.1 EXTENSION TO 50 YEARS OF THE DEPRECIATION PERIOD OF THE 900MW PWR SERIES IN FRANCE¹

The Group considers that all the technical, economic and governance conditions necessary to bring the depreciation periods of its 900MW PWR power plants in France into line with its industrial strategy are fulfilled in 2016.

In view of studies and work already completed, particularly concerning replacement of components and controlled equipment ageing, the Group has sufficient assurance of the plants' technical capacity to operate for at least 50 years. This is also confirmed by the international benchmark.

The Group has also made progress with the Nuclear Safety Authority (*Autorité de Sûreté Nucléaire* (ASN)) on the question of the content of the fourth 10-year inspections of this series as part of the *Grand Carénage* overhaul programme. Although some points remain to be finalised, the components of these inspections are currently in a convergence process with the ASN. This is demonstrated by the Re-examination Orientation File response sent by the ASN to EDF in April 2016, in which the ASN stated its agreement with the company's chosen themes and commitments for these inspections. This was an important step in the process, giving EDF secure grounds for industrial preparations for the 10-year inspections pending the ASN's generic opinion, which should be issued a few months before the first of the inspections begins.

Once its fourth 10-year inspections are completed, the 900MW PWR series will have reached a level of safety that is both as close as possible to EPR safety level and one of the highest worldwide.

Extending the nuclear reactors' operating lifetimes beyond 40 years also offers clearly positive returns that are higher than in a 40-year scenario, even in the event of long-term price depression.

Furthermore, the principle of operating lifetimes of more than 40 years is laid down in France's multi-year energy plan (*Programmation Pluriannuelle de l'Énergie* (PPE)) adopted by Decree 2016-1442 of 27 October 2016 as a necessity for secure power supplies. Extending the depreciation period of the 900MW series is consistent with the objectives of the PPE (particularly development of renewable energies, and control of greenhouse gas emissions).

In view of all these factors, the Group considers that the best estimate for the depreciation period of the 900MW series is now 50 years. This change in accounting estimate does not affect the ASN's decisions to authorise continued operation. Authorisations will be given individually for each unit after each 10-year inspection, which is currently the case as required by law.

The Group therefore undertook this change of accounting estimate at 1 January 2016 for all its power plants in the 900MW series in France, except for Fessenheim.

1. Except for Fessenheim.

This change of accounting estimate is applied prospectively, and has the following consequences for the Group's consolidated financial statements at 31 December 2016:

- At 1 January 2016, due to timing differences in the payment schedules, provisions relating to nuclear power generation were reduced by €2,044 million (see note 29), including €1,657 million covered by dedicated assets (see note 47.4). This reversal from provisions does not affect the income statement, but is allocated to the net book value of the assets in compliance with IFRIC 1 (see note 22.1). It is almost entirely taxable and generates a current tax liability of €679 million.
- The impacts in 2016, are estimated as follows:
 - the 10-year extension of the accounting depreciation period, and the reduction in the value of assets at 1 January 2016 in line with the decrease in nuclear provisions, leads to a lower depreciation charge compared to depreciation based on a 40-year depreciation period, estimated at €965 million for the year;
 - the reduction in nuclear provisions at 1 January 2016 leads to a €90 million decrease in the cost of unwinding the discount;
 - income related to partner advances made to EDF under the nuclear plant financing plans is down by €42 million;
 - overall, the various effects lead to a €1,013 million increase in the income before taxes, and a €664 million increase in consolidated net income.

3.2 HINKLEY POINT C: SIGNATURE OF THE FINAL AGREEMENTS

On 21 October 2015, EDF and China General Nuclear Power Corporation (CGN) signed a Strategic Investment Agreement for joint investment in the construction of two EPRs at the Hinkley Point C site (HPC) in Somerset. The agreement also includes a UK partnership to develop the new nuclear power plants Sizewell (SZC) in Suffolk and Bradwell B (BRB) in Essex.

The final agreements concerning Hinkley Point C were signed on 29 September 2016 following the final investment decision authorized by EDF's Board of Directors on 28 July 2016.

This important milestone marks the end of the development phase for the Hinkley Point C project after ten years of planning and preparation involving assessment of the generic EPR design, obtaining the licence for the nuclear site, and the start of on-site work.

Funding

Under the Strategic Investment Agreement, EDF holds 66.5% of the project entity HPC and CGN holds 33.5%.

EDF intends to remain the majority shareholder and has noted the British Government's stipulation that control of HPC should not be transferred during the construction phase without its approval. EDF has not ruled out the possibility of bringing other investors into the project in due course, but will retain a stake of at least 50%.

Financing guarantee agreements for the HPC project were also signed with the British Treasury on 29 September 2016. A first tranche of a maximum £2 billion will be made available once certain required conditions are fulfilled. However, as EDF has indicated to the British government, it currently has no intention of using this guarantee, and the project will be self-funded, at least initially.

Return on investment and sensitivity

The total project cost is estimated at £18 billion nominal (excluding interim interest). This investment will be equity financed by the partners, at least

in an initial phase. The EDF group's share amounts to £12 billion and CGN's share is £6 billion. These figures include a contingency provision. In the event the final project cost is lower, any gains made will be shared with consumers under the profit-sharing mechanism of the Contract for Difference. The plant construction risks, particularly those associated with delays and budget overruns, are borne by the investors.

The total equity commitment by the shareholders includes an additional 15% margin amounting to £2.7 billion, in addition to the £18 billion planned.

The projected IRR is estimated at around 9%.

The sensitivity of this IRR is approximately 45 base points for a twelve-month delay on construction.

Agreement for secure income: the Contract for Difference – CfD.

As announced on 21 October 2015, the HPC project entity and the British government's Department of Energy and Climate Change (DECC) have finalised the terms for the Contract for Difference that was approved in October 2014 by the European Commission as compliant with EU regulations on State aid.

This CfD was signed on 29 September 2016 and is designed to guarantee returns on the electricity produced and sold by HPC, through payments based on the differential between the contractual strike price defined below and the market price over a 35-year period beginning once the plant starts operation.

From that date, if the benchmark price for the sales of HPC-generated electricity on the market falls below the strike price agreed in the contract, the generator will receive a top-up payment. If the price is higher, the generator will pay the difference.

Impacts on the 2016 consolidated financial statements

The agreements signed notably led to the partial sale by EDF to CGN of Hinkley Point C (33.5%) and Sizewell C (20%). As these are non-controlling interests, Hinkley Point C and Sizewell C remain fully consolidated and the operation has no impact on net income. This operation had an impact of €(548) million on EDF's share of equity and €1,510 million on the non-controlling interests' share of equity. These amounts comprise the reallocation to non-controlling interests of part of the goodwill of EDF Energy, which was essentially recognised when the Group took over British Energy in 2009.

The amount received in 2016 for these sales was €830 million. CGN also participated to the extent of its ownership interest in the capital increases undertaken by Hinkley Point C and Sizewell C after these operations, in the total amount of €469 million.

3.3 SENIOR BOND ISSUES

On 6 October 2016, EDF raised the equivalent of €5.4 billion through a series of senior bond issues in US dollars, Euros and Swiss Francs. Details are as follows:

- EDF undertook a €3 billion multi-currency senior bond issue in 4 tranches:
 - a €1,750 million Green Bond, with 10-year maturity and a fixed coupon of 1%;
 - a €750 million bond with 20-year maturity and a fixed coupon of 1.875%;
 - a CHF 400 million bond, with 8-year maturity and a fixed coupon of 0.3%;
 - a CHF 150 million bond, with 12-year maturity and a fixed coupon of 0.65%.

- On the same day, EDF raised US\$2.7 billion from some twenty investors through 2 senior Formosa bonds on the Taiwanese market:
 - a US\$491 million bond, with 30-year maturity and a fixed coupon of 4.65%;
 - a US\$2,164 million bond, with 40-year maturity and a fixed coupon of 4.99%.

These transactions enable the Group to further diversify its investor base and extend the average maturity of its gross debt.

3.4 EDF AND AREVA SIGN BINDING AGREEMENTS FOR THE ACQUISITION OF AREVA NP'S ACTIVITIES

EDF and AREVA SA signed a non-binding memorandum of understanding on 30 July 2015 that formalised the state of progress on discussions concerning their contemplated partnership. This memorandum had three sections:

- Acquisition by EDF of exclusive control over AREVA NP. The plan was that EDF should hold majority control (at least 51%) of AREVA NP, while AREVA would hold up to 25% in a strategic partnership, that could potentially involve other minority partners;
- Formation of a dedicated company (currently named Nuclear Island Common Engineering), owned 80% by EDF and 20% by AREVA NP, to optimise design activities and construction for nuclear islands and command-control systems for new projects in France and internationally;
- Conclusion of a comprehensive strategic and industrial partnership agreement covering such areas as promotion of integrated offerings (fuel assemblies and materials) in the event of new reactor export sales, cooperation on dismantling work (methods, tools, skills, etc) and storage of spent fuel (joint export offerings), continuation of studies concerning fourth-generation reactors (boilers and fuel) and cooperation in R&D.

At its meeting of 27 January 2016, EDF's Board of Directors was informed that following due diligence work conducted during the second half of 2015, discussions with AREVA regarding EDF's takeover of the activities of AREVA NP had been finalized.

The Board approved the final valuation of the activities to be acquired by EDF, amounting to €2.5 billion for 100% of the capital¹ of AREVA NP. This amount could be revised upwards or downwards depending on the financial statements drawn up at the transaction's completion date, with a possible earn-out payment of up to €350 million based on achievement of certain performance objectives measured after the completion date.

A further non-binding memorandum of understanding was signed by the same parties on 28 July 2016, noting new developments since early 2016 which did not affect the three sections presented above. The valuation was unchanged and the earn-out payment was revised to a maximum €325 million.

The new developments since early 2016 are:

- The negative outcome of discussions with TVO on the initial proposed arrangements to give EDF total protection against the risks of the Olkiluoto 3 (OL3) project, leading to the following new transaction

structure: formation of a company, New AREVA NP, over which EDF will acquire exclusive control: this company will take over the contracts currently held by AREVA NP except for the OL3 contract and certain other contracts involving risks that EDF does not intend to bear. The contracts for the Olkiluoto 3 EPR project and the resources required to complete the project, as well as certain contracts relating to components forged in Le Creusot plant, will be retained by AREVA NP, which is part of the AREVA SA group, depending on their maturities and the assessment of the associated risks that is currently in process as part of the ongoing audits;

- AREVA NP remains a fully-owned subsidiary of AREVA SA and will retain all its current contracts that are not transferred to New AREVA NP. The valuation of New AREVA NP remains the figure validated by EDF for AREVA NP: €2.5 billion for 100% of the capital;
- AREVA and EDF have a common intention to set up the dedicated company currently named Nuclear Island Common Engineering (NICE) before EDF's acquisition of exclusive control over New AREVA NP;
- The cases of non-quality observed at AREVA's Le Creusot plant, whether insufficient control of carbon content ("Carbon segregation") or irregularities in the manufacturing records. The new memorandum of understanding laid down the principles for indemnification and protection of EDF against the consequences of these issues: non-transfer of terminated contracts to New AREVA NP, specific indemnities and a general guarantee, prerequisite conditions for completion of EDF's acquisition of exclusive control over New AREVA NP (intended for late 2017) depending on the ASN's conclusions on test results for the Flamanville 3 reactor's primary circuit, and the results of the quality audit launched by AREVA NP in the Le Creusot, Saint-Marcel and Jeumont plants. AREVA SA will remain responsible in the usual way for the contractual obligations concerning any defects brought to light in quality control for equipment manufactured at Le Creusot, and, if relevant at the Saint-Marcel and Jeumont plants. The aim is to provide EDF with full protection from the risks associated with any defects noted that are classified as serious.

In accordance with the terms of this memorandum of understanding, an equity sale contract was signed between EDF SA, and AREVA SA and AREVA NP. Opinions on the operation were issued by EDF's Central Works Committee on 27 October 2016 and AREVA's Central Works Committee on 10 November 2016, and it was approved by AREVA's Board of Directors on 10 November 2016 and EDF's Board of Directors on 15 November 2016. The contract was signed by all parties on 15 November 2016.

Completion of the transaction, expected during the second half of 2017, remains conditional on:

- favourable ASN conclusions regarding the outcome of the tests on the Flamanville 3 reactor's primary circuit,
- completion with satisfactory conclusions of the quality audits at Le Creusot, Saint-Marcel and Jeumont plants,
- clearance by the relevant merger control authorities.

Meanwhile, AREVA and EDF have begun discussions with strategic investors that have expressed an interest in becoming shareholders in New AREVA NP alongside EDF. The stake acquired by EDF could thus be reduced to a target of at least 51%, with EDF retaining exclusive control.

1. Without transfer of financial debt.

3.5 DISPOSAL PLAN**3.5.1 EDF, Caisse des Dépôts and CNP Assurances: Signature of a binding agreement for a long-term partnership with RTE**

On 14 December 2016, EDF entered into a binding agreement with Caisse des Dépôts and CNP Assurances for the acquisition by Caisse des Dépôts and CNP Assurances of 49.9% of the capital of Réseau de Transport d'Électricité (RTE)¹, and the modalities of a long-term partnership to promote the development of RTE.

The final agreed value was set at €8,200 million for 100% of RTE's equity, with a potential supplement of up to €100 million.

Completion of the operation is expected during 2017, once the necessary authorisations (e.g. by the merger control authorities) have been given.

Under the chosen structure for the sale, on 23 December 2016 EDF transferred all the shares in RTE to a new company, currently named C25, which is partly financing this operation through external debt to the extent of €2,820 million.

EDF will then sell 49.9% of the equity capital of this company to Caisse des Dépôts and CNP Assurances.

C25 remains fully-owned by EDF at 31 December 2016, and this operation has no impact on the Group's financial statements apart from the reclassification of 49.9% of C25's balance sheet items as assets and liabilities held for sale (see note 46).

Following publication of Decree 2016-1781 of 19 December 2016, the shares of C25 can be allocated to the portfolio of dedicated assets intended to cover EDF's back-end nuclear cycle expenses. At 31 December 2016, 75.93% of the shares in C25 are allocated to dedicated assets (see note 47.3). Once the operation is completed, EDF's remaining investment in C25 (50.1%) will be allocated to the dedicated asset portfolio.

3.5.2 EDF: Future sale of EDF Polska's assets

Following an open competitive process, on 26 October 2016 EDF announced that it was beginning exclusive negotiations with IFM Investors, which made a binding offer to the Group for its Polish cogeneration activities (heat and electricity). A separate sale process for the coal-fired Rybnik power plant (1.8GW capacity) was already in exclusive negotiations between the EDF group and EPH.

To finalise these two operations, it was necessary to split EDF Polska into two stand-alone entities, one holding the cogeneration assets and the other Rybnik. The Polish government informed the EDF group on 12 December 2016 that it had decided not to authorise this split.

In view of the ongoing sales process for EDF Polska's businesses, the assets and liabilities concerned have been classified as assets and liabilities held for sale (see note 46).

On 27 January 2017, a memorandum of understanding was signed by EDF and a consortium of Polish utilities comprising Polska Grupa Energetyczna (PGE), Enea, Energa and PGNiG Termika, in preparation for the sale of EDF Polska and Kogeneracja SA.

3.5.3 EDF finalises the sale of 100% of EDF Démász Zrt to ENKSZ

On 5 December 2016, EDF and the Hungarian state-owned national public utility Első Nemzeti Közműszolgáltató Zrt (ENKSZ) signed a firm agreement for the sale of 100% of the Hungarian subsidiary EDF Démász Zrt.

The Group has classified the assets and liabilities concerned by this operation as assets and liabilities as assets held for sale and related liabilities (note 46).

On 31 January 2017, EDF and ENKSZ completed the sale of the total capital of EDF Démász Zrt. This announcement followed approval of the operation by the Hungarian energy sector regulator and the French Ministry for the Economy.

The transaction values EDF's 100% stake in EDF Démász Zrt at approximately €400 million, and is a new step forward in the execution of the Group's disposal plan for the period 2015-2020.

3.5.4 EDF Trading and JERA: Sale of the coal trading and freight business

On 21 December 2016, EDF Trading signed a binding agreement for the sale of its coal business and the associated freight activity to JERA Trading Singapore. After this transaction is finalised, EDF Trading will own one third of the shares in the new trading company (JERA Trading) which should be operational by the end of the first half of 2017.

The Group has classified the assets and liabilities concerned by this operation as assets held for sale and related liabilities (see note 46).

3.6 PARTIAL ASSIGNMENT OF THE CSPE RECEIVABLE

On 22 December 2016 EDF assigned a portion (26.4%) of the CSPE (Contribution to the Public Electricity Service) receivable on the French state, corresponding to the accumulated shortfall at 31 December 2015 in compensation for public energy service costs.

This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. This assignment generated income of €1,538 million.

Part of the assigned receivable was not allocated to dedicated assets, and consequently assignment of this portion led to a €644 million improvement in net indebtedness (as defined in note 38.3). The balance was allocated to dedicated assets and the corresponding amount has been reinvested in those assets.

3.7 COMPENSATION ARRANGEMENTS FOR THE CLOSURE OF THE FESSENHEIM PLANT

At a meeting held on 24 January 2017, EDF's Board of Directors examined the terms of the protocol negotiated between the company and the French State concerning compensation for the prejudice to the company resulting from closure of the Fessenheim nuclear power plant, in application of the Energy Transition Law of 17 August 2015.

This Law caps the total authorised installed nuclear generation capacity in France at 63.2GW. This means that the Flamanville 3 EPR cannot be commissioned before the final shutdown of an equivalent generation capacity by the commissioning date.

The Board of Directors was informed of the unanimously negative opinion issued by EDF's Central Works Council on 10 January 2017.

¹ 29.9% for Caisse des Dépôts and 20% for CNP Assurances.

The Board approved the terms of the protocol and authorised the CEO to sign it on behalf of EDF in due course.

The protocol provides for the following compensation for EDF:

- a fixed initial portion covering the anticipated costs associated with the closure (costs of staff retraining, decommissioning, the INB tax on basic nuclear facilities and “post-operation” costs). This fixed portion is currently estimated at approximately €490 million, 20% of which would be paid in 2019 and 80% in 2021;
- a further, variable portion that could give rise to subsequent payments reflecting the loss of income for EDF until 2041. This will be determined on the basis of market prices and the actual volumes generated by EDF’s 900MW power plants other than Fessenheim over that period. EDF’s partners in the Fessenheim plant (EnBW and CNP) will have certain conditional entitlements to a share of the compensation for loss of income, proportional to their contractual rights to the plant’s generation capacity.

The closure of the Fessenheim plant requires a decree revoking its operating licence, to be issued at the request of the company. In application of the Law, this decree will take effect at the same time as the commissioning of the Flamanville 3 EPR, scheduled for late 2018.

In the corporate interests of EDF, and in order to comply with the statutory ceiling of 63.2GW, the Board decided that submission of the request for revocation would be subject to the entry into force of the authorisations required to continue construction of the Flamanville 3 EPR and operation of Paluel 2, which is currently offline, and European Commission clearance of the protocol as regards State aid regulations.

The Board has decided that further deliberations will take place to establish that these conditions are fulfilled before the request for revocation is submitted.

3.8 SIGNIFICANT EVENTS AND TRANSACTIONS OF 2015

3.8.1 Ministerial order concerning the cost of the Cigéo storage project

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued an order setting the cost associated with implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation is required by Article L. 542-12 of France’s Energy Code.

The cost stated in the order constituted an objective to be met by the French Agency for Radioactive Waste Management (ANDRA), in compliance with safety standards set by the Nuclear Safety Authority (ASN), in close cooperation with operators of nuclear installations. In application of this order, the cost of the Cigéo project will be regularly updated, at least at each key milestone of the project’s development (authorisation to create the facility, commissioning, end of the “pilot industrial phase”, safety reviews) in accordance with the opinion of the ASN.

The cost of the Cigéo project set by the ministerial order replaced the estimated benchmark cost of €20.8 billion previously used by the EDF group for its consolidated financial statements.

At 31 December 2015, the new cost figure resulted in an increase of around €820 million in the provisions for long-term radioactive waste management established to cover future expenses relating to the Cigéo deep storage project.

This increase in provisions had a negative impact of €509 million, net of taxes, on EDF net income attributable to the Group for 2015.

3.8.2 Edison: Arbitration concerning long-term gas supply contracts

On 27 November 2015, the International Chamber of Commerce Court of Arbitration notified Edison and ENI of its decision regarding arbitration concerning the long-term Libyan gas contract price. This decision led to a positive impact of €855 million on the Group’s operating profit before depreciation and amortisation for 2015.

3.8.3 European Commission decision on the tax treatment of provisions established between 1987 and 1996 for renewal of General Network facilities

In October 2002, the European Commission initiated proceedings against France, claiming that State aid had been granted to EDF when its balance sheet was restructured on 1 January 1997. By a decision dated 16 December 2003, the European Commission set the principal amount of aid to be repaid at €889 million. On 11 February 2004, the French State issued a collection note for €1,224 million which covered the principal amount and interest. This amount was paid by EDF. On 27 April 2004, EDF initiated an action before the European Union General Court, at the time known as the European Court of First Instance, to annul the European Commission’s decision. The European Union General Court issued a ruling on 15 December 2009 annulling the European Commission’s decision of 16 December 2003, holding that when making its decision, it should have applied the informed market economy investor test to determine whether or not the action constituted State aid. As this ruling was enforceable, the State repaid €1,224 million to EDF on 30 December 2009. On 26 February 2010, the European Commission filed an appeal against the European Union General Court’s ruling before the Court of Justice of the European Union. By order dated 5 June 2012, the Court of Justice rejected the appeal by the European Commission and confirmed the ruling of the General Court of the European Union of 15 December 2009.

On 2 May 2013, the European Commission decided to reopen its investigation to re-examine the question of whether or not the State aid had acted as an informed market economy investor under the tests established by the European courts.

On 22 July 2015 the European Commission issued a new decision classifying the tax treatment of provisions established between 1987 and 1996 for renewal of General Network facilities as state aid, considering that the tax exemption granted to EDF could not be treated as an investment for economic reasons. As a result of this decision the French state ordered EDF to reimburse the amount corresponding to the aid received, plus interest calculated as determined by the Commission, giving a total of €1.38 billion.

EDF duly reimbursed the sums demanded. However, the Group contests the existence of unlawful state aid and filed a new action for annulment before the European Union General Court on 22 December 2015. These proceedings are still ongoing.

EDF recognised the consequences of this decision as follows in its consolidated financial statements at 31 December 2015:

- in a symmetrical approach to the impacts recorded in the financial statements at 31 December 2009:
 - the principal amount of tax (€889) million was charged to the Group’s consolidated equity,
 - concerning the associated financial interest, amounting to €494 million, the portion concerning EDF and Enedis was included in “Other financial income and expenses” and the portion concerning RTE was included in “Share in net income of associates and joint ventures”. The impact on EDF net income attributable to the Group amounted to €(354) million;

- on 13 October 2015, EDF made a corresponding payment of €1,383 million to the French state, which was partly offset by a reimbursement of €375 million received from RTE;
- the value of RTE shares was thus reduced by a net-of-tax amount equivalent to its share in the above principal and interest (in "Investments in associates and joint ventures").

The Commission's decision led to a net-of-tax increase of €906 million in net indebtedness for the Group.

- US\$500 million with 20-year maturity and a 4.75% fixed coupon;
- US\$1,150 million with 30-year maturity and a 4.95% fixed coupon;
- US\$350 million, with 40-year maturity and a 5.25% fixed coupon.

On the same date, EDF launched a US\$1,250 million green bond with 10-year maturity and a fixed coupon of 3.625%.

These issues followed a US\$1,500 million senior Formosa bond issue on the Taiwanese market on 25 September 2015 (30-year maturity and a 4.75% fixed coupon).

3.8.4 Issuance of senior bonds

On 8 October 2015 EDF issued several tranches of a senior bond in US dollars:

- US\$1,500 million with 5-year maturity and a 2.35% fixed coupon;

Note 4 Regulatory changes in France

4.1 REGULATED ELECTRICITY SALES TARIFFS IN FRANCE

4.1.1 Cancellation by the Council of State of the 2014-2015 regulated tariffs

Several petitions for cancellation and repeal of the ministerial orders of 28 July and 30 October 2014 and the Decree of 28 October 2014 were brought before the Council of State by the ANODE (French Association of Energy Retail Operators).

After a public reading of the reporting officer's (*Rapporteur*) conclusions on 13 May 2016, the Council of State issued its decisions on 19 May and 15 June 2016, in which:

- it dismissed the substance of the appeal against the Decree of 28 October 2014, thereby validating the "stacking" method for constructing regulated sales tariffs;
- it overturned the ministerial order of 28 July 2014 that cancelled the 5% increase in "blue" tariffs from 1 August 2014 planned in a previous Decree of 26 July 2013, for reasons of unsound legal grounds.
- it cancelled the decision of 30 October 2014 due to the insufficient level of "blue" residential tariffs and "green" tariffs which had been set without including the total tariff regularisation adjustment existing at that date.

The rectified tariffs for 2014-2015 requested by the Council of State were published in the *Journal Officiel* on 2 October 2016.

Based on this rectification, additional sales revenues of €1,030 million (of which €1,018 million relate to EDF) were recognised in the Group's consolidated income statement in 2016. Including the various costs associated with the rectification, the impact on Group operating profit before depreciation and amortisation for 2016 amounts to €872 million.

4.1.2 Regulated electricity sales tariffs

"Blue" tariffs

In application of the NOME Law on organisation of the French electricity market, on 7 December 2015 responsibility for proposing tariff scales was transferred to France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE).

On 13 July 2016 the CRE proposed an average 0.5% reduction in the blue tariff for residential customers and an average 1.5% reduction in the blue tariff for non-residential customers. The ministers concerned accepted this proposal and the ministerial order on these new tariff scales was published in the *Journal Officiel* of 29 July 2016, to take effect from 1 August 2016. The CRE's proposal also gave details of the methodologies and options chosen to calculate regulated sales tariffs, using the "stacking" method in accordance with the Decree of 28 October 2014 and the NOME Law.

"Yellow" and "green" tariffs

31 December 2015 saw the end of the "yellow" and "green" regulated tariffs. By 1 January 2016 around three quarters of the sites concerned had signed a market-rate contract with their chosen supplier. The remaining quarter who had not yet signed up with a supplier continued to receive electricity from their former supplier, under a transitional contract that was due to end on 30 June 2016.

During the first half of 2016 the CRE organised calls for tenders from suppliers to allocate the sites that had not chosen a supplier at 30 June 2016 (approximately 20,000 sites at the beginning of June 2016). Suppliers bid for combinations of a contract and an electricity price set by the CRE, proposing an amount per megawatt sold that would be passed on to the State. No supplier could be awarded more than 15% of contract combinations.

EDF, like several other suppliers, was awarded 15% of these contracts and has supplied the sites concerned since 1 July 2016 on the basis of the contract and the prices set by the CRE, while continuing to offer its own contracts.

In November 2016, the CRE organised a second call for tenders to allocate the sites still on transitional contracts due to lack of bids, sites that were left out of the combinations in the first call for tenders, and sites that had not switched to the scope of the allocated supplier (around 2,700 sites). No bids were made, and these sites remain on transitional contracts.

4.2 “TURPE” NETWORK ACCESS TARIFFS

TURPE 4 indexing

On 2 June 2016 France’s Energy Regulation Commission (*Commission de Régulation de l’Énergie* or CRE) published its decision for changes from 1 August 2016 in the TURPE distribution tariff, raising it by 1.11%, rounded down to 1.1%. This rise reflected stable inflation (0.03%) and 1.08% for the clearance of the income and expenses adjustment account (CRCP¹).

On 13 May 2016 France’s Council of State rejected the application by energy company Direct Énergie for cancellation, on the grounds that the CRE had exceeded its powers, of the CRE’s decision of 12 December 2013 setting the tariffs for use of the high voltage and low voltage public electricity distribution network (the TURPE 4 distribution tariffs).

TURPE transmission tariffs increased by 1.37%, rounded up to 1.4%, from 1 August 2016, again corresponding to stable inflation (0.03%), -0.81% for the clearance of the CRCP, and 2.15% for the interruptibility service.

TURPE 5

On 17 November 2016, the CRE published its decisions for the TURPE Transmission and TURPE Distribution tariffs for the period 2017-2020, to take effect from 1 August 2017.

The TURPE 5 Transmission tariff is due to increase by 6.76% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 sets the weighted average cost of capital (WACC) at 6.125% for the return on RTE’s asset base, compared to 7.25% in TURPE 4.

The TURPE 5 Distribution tariff is due to increase by 2.71% from 1 August 2017, with subsequent rises on 1 August in the years 2018 to 2020, based on average inflation observed over the previous calendar year (excluding the correcting effects of the CRCP). The TURPE 5 continues to use the previous method for calculating cost of capital, but adjusts the margin on assets to 2.6% (2.5% for TURPE 4) and the return on regulated equity to 4.1% (6.1% for TURPE 4).

The *Journal officiel* of 28 January 2017 contained the three CRE decisions concerning the TURPE 5: the two above decisions on the TURPE 5 Transmission and Distribution tariffs, and the decision of 19 January 2017 issued in response to a request for a further decision. This request came from the Minister for the Environment, Energy and the Sea who is in charge of international relations on climate matters, and in the resulting decision the CRE upheld its initial decision concerning the TURPE 5 Distribution tariff.

On 3 February 2017, EDF filed a petition with the Council of State for cancellation of the CRE’s decisions concerning the TURPE 5 Distribution tariff.

Decision of the Paris Court of Appeal (gas) and the Council of State (electricity)

In a decision dated June 2, 2016, the Paris Court of Appeal ruled that the gas distributor GRDF should “bear, at least partly, the management costs of services provided by suppliers” of gas. It therefore ordered GRDF to conclude an amendment to the distribution network access contract (DAC), to ensure that Direct Énergie and ENI, the plaintiffs in the court case, would receive “fair remuneration commensurate with the cost savings for the Distribution Network Manager”. The Court also ordered GRDF to pay retroactive remuneration to Direct Énergie from 21 June 2005, the date the relevant DAC contract was signed.

On the grounds of this decision, EDF applied to GRDF for remuneration for services performed on behalf of the gas network operator from the start of its own DAC contract.

This decision concerning the gas industry was followed on 13 July 2016 for the electricity industry by the Council of State’s cancellation of the CRE’s decision of 10 December 2014 rejecting Engie’s application for withdrawal of the CRE’s decision of 26 July 2012 on management of customers under a single contract, which introduced an asymmetrical regulation system.

The Council of State considered that remuneration paid to suppliers for customer management tasks executed on behalf of the electricity or gas distribution network operators cannot legally be transitional and limited to certain suppliers.

The Group is currently analysing the scope of this decision, which entitles electricity suppliers to remuneration. On 23 December 2016, Engie initiated related proceedings against Enedis before the Paris Commercial Court. These proceedings are ongoing.

In its decision of 17 November 2016, the CRE states that remuneration is payable to suppliers for customer management under a single contract by distribution network operators, but does not set out the calculation methods. These methods will be decided by the CRE in the second quarter of 2017, following a public consultation, as announced in the CRE’s decision of 19 January 2017. This remuneration will be included in the expenses covered by the TURPE tariff.

4.3 EUROPEAN COMMISSION APPROVAL OF THE REVISED FRENCH CAPACITY MECHANISM

On 8 November 2016, the European Commission concluded that the capacity market proposed by France was compatible with internal market rules on State aid. This decision marked the end of an in-depth investigation opened one year earlier against France, and the mechanism was able to take effect as of 1 January 2017. The decision of 8 November 2016 lays down the methods for sales of capacity guarantees related to the ARENH system (see note 4.5).

The Commission’s decision results from commitments made by the French authorities to modify the mechanism, mainly along three dimensions:

- to facilitate the entry of new market players by allowing new capacities to obtain certificates with a seven-year duration, subject to certain conditions;
- to include capacity providers from neighbouring EU Member States, subject to the capacity available for interconnections at peak times;
- to increase the mechanism’s transparency and introduce measures to prevent possible market manipulation.

Amendments to the mechanism rules in November 2016 made it possible to apply the third of these measures.

For the first two, further amendments are needed that will take effect from 2019. Capacity market participants will be consulted on changes to the rules during 2017.

The first auction of French capacities was held on the European Power Exchange EPEX SPOT on 15 December 2016. A total volume of 22.6GW was traded between obligated capacity purchasers and operators selling capacity. The equilibrium price determined was €10/kWh. This price is also the “market reference price” of capacity for 2017.

The capacity price will be passed on to customers through their contracts with their supplier (EDF or a different supplier).

A further auction will take place in 2017 for 2017 and subsequent years.

1. A mechanism to measure and offset differences between the actual figures and the forecasts on which tariffs are based.

4.4 COMPENSATION FOR PUBLIC ENERGY SERVICE CHARGES

The financing and compensation mechanism for public energy service charges (*compensation des charges de service public de l'énergie*) exists to compensate operators who are assigned certain public service charges relating to gas and electricity. EDF is the main operator concerned¹.

Charges covered by the mechanism

The current system results from a reform by France's amended finance law for 2015, published in the *Journal officiel* on 30 December 2015. It is overseen by the French government, which funds it through the national budget with input from the CRE, which calculates and proposes the amounts of charges to be compensated for each operator. Public energy service charges are therefore included in the State budget through two items:

- a special "Energy Transition" budget item, mainly covering the expenses borne by obligated operators, such as the additional costs associated with contracts obliging suppliers to purchase renewable energies and biogas, the differences between forecast and actual expenses, the annual contribution to repayment of the accumulated shortfall due to EDF, and reimbursement of surplus amounts of TICFE (renamed CSPE) to industrial operators who were exempt prior to 2016;
- a "Public Energy Service" item in the general budget to cover solidarity charges, purchase obligations excluding renewable energies, and the cost of applying the standard national tariffs to zones that are not connected to France's mainland network.

Funding for the CSPE mechanism

Funding for this system comes from four taxes on energy consumption (the TIFCE for electricity, the TICC for coal and similar sources, the TICGN for natural gas and the TICPE for fuel oils), in varying proportions.

For 2016, the special "Energy Transition" budget item was funded by 100% of the TICFE and 2.16% of the income generated by the TICGN. Income from the other taxes went into the general budget without being allocated to any particular expense item.

From 1 January 2017, the special "Energy Transition" budget item is funded by income from taxes on carbon energies, mainly the TICPE, supplemented by the TICC. Income from the other taxes, including the TICFE, contributes to the general budget.

The level of the TICFE (renamed CSPE) remained stable in 2016, with the full rate at €22.5/MWh, and reduced rates for electro-intensive users of between €0.5/MWh and €7.5/MWh, depending on a criterion of kWh per euro of value added and electro-intensiveness. These rates have not been changed by the French finance law for 2017.

Compensation for charges borne by EDF in 2016

The amount of expenses to be covered by compensation for EDF for 2016 is €6,365 million, 1% more than in 2015. The main explanation for this slight rise is the increase in the cost of purchase obligations, principally due to growth in the volume of renewable energies as the renewable energy fleet expands in France, partly offset by lower surplus costs for generation in non-interconnected zones. The amounts received during 2016 totalled €6,357 million, up by 4% from 2015.

Reimbursement of the pre-reform shortfall

The French government issued a ministerial order on 2 December 2016 setting the final amount of the receivable due to EDF at 31 December 2015 for the past accumulated shortfall in compensation (€5,780 million in principal excluding interest accrued in 2015). A repayment schedule was also laid down in the ministerial order such that the receivable will be repaid by 2020.

On 22 December 2016 EDF assigned a portion (26.40%) of the receivable on the French government for compensation for public energy service charges, corresponding to the accumulated shortfall in compensation for public energy services at 31 December 2015. This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. The assignment operation generated income of €1,538 million.

Following this operation, from 2017 EDF will receive 73.6% (corresponding to the unassigned portion of the receivable) of reimbursements of this receivable and associated interest paid by the State.

4.5 ARENH

The slump in wholesale market prices made the wholesale market an attractive source of energy supplies over most of the year. Consequently, no applications for the ARENH (regulated access to historical nuclear electricity) scheme were made at the end of 2015 for supplies in the first half of 2016, or in mid-2016 for supplies during the second half of 2016.

However, a very large number of ARENH applications were made by alternative suppliers in November/December 2016 (a firm commitment of 40.8TWh for first-half 2017). Given the extremely rapid upturn in forward prices for 2017 (particularly for the first quarter, driving a general rise for the whole year) in the weeks leading up to the November/December 2016 round of bids for ARENH supplies, the application bids were higher than the ARENH price of €42/MWh, which also includes the value of capacity guarantees.

The ministerial orders of 8 and 14 November 2016 modified the ARENH framework agreement. The main changes were the addition of provisions concerning implementation of the capacity mechanism and the rules for early termination by suppliers. The revised framework agreement restricts the possibility of unilateral termination such that it is only applicable if the ARENH price is modified by more than 2%, there is a substantial modification to the framework agreement, or changes in ARENH regulations have a substantial, unfavourable effect on the balance of supply conditions for the buyer.

¹. Local distribution companies and *Électricité de Mayotte* also make small contributions to the system.

Note 5 Changes in the scope of consolidation

There was no significant change in the scope of consolidation during 2016. However, sales of non-controlling interests (other than the partial sale of HPC discussed in note 3.2) concerned the following entities:

5.1 DALKIA GROUP: SALE OF INVESTMENTS IN COGESTAR

Amundi Transition Énergétique (ATE), the asset management company jointly owned by Amundi and EDF, acquired an investment in Cogestar 1 and Cogestar 2 on 16 December 2016, corresponding to 70% of their capital, for €53 million. Dalkia retains 30% and remains the sole service provider to the Cogestar entities for the entire lifetimes of the cogeneration assets they own.

The analysis of voting rights and governance of the Cogestar entities confirms that Dalkia still has exclusive control. The sale of shares to ATE, considered as a transaction between owners with no change in control, has no significant impact on Group equity.

This operation includes a bond issue (consisting entirely of bonds convertible into shares) by the Cogestar entities for the total amount of €86 million, to be subscribed by ATE. These convertible bonds are classified as equity instruments under IAS 32 (see note 27.4).

This operation is presented in cash flows from financing activities in the cash flow statement.

5.2 CHANGES IN THE SCOPE OF CONSOLIDATION IN 2015

5.2.1 Budapesti Erőmű Zrt (BE Zrt)

On 10 December 2015, the EDF group completed the sale of its majority 95.6% stake in the Hungarian company Budapesti Erőmű Zrt (BE Zrt) to EP Energy.

This operation had no significant impact on the consolidated financial statements at 31 December 2015.

5.2.2 Estag

On 21 December 2015, the EDF group completed the sale of its minority 25% stake in Energie Steiermark Holding AG (Estag) following signature of an agreement for this operation with Macquarie Infrastructure and Real Assets in July 2015.

This operation had no significant impact on the consolidated financial statements at 31 December 2015.

5.2.3 Agreement on the EDF Luminus shareholder pact

On 26 October 2015 Publilec, Socofe, Ethias and Nethys, shareholders of EDF Luminus, and the EDF group signed an amendment to the shareholder pact extending it to 2025, and providing for the following reorganisation in the ownership structure (the control exercised by the Group was unaffected):

- four Belgian shareholders remained, and they benefit from a liquidity mechanism allowing them to exit the capital of EDF Luminus from the end of 2018, subject to certain conditions;
- the EDF group's stake rose from 63.5% to 68.6% as a result of the Group's acquisition of the shares in EDF Luminus held by Publilum and VEH for €58 million.

Note 6 Segment reporting**6.1 REPORTING BY OPERATING SEGMENT**

Segment reporting presentation complies with IFRS 8 "Operating segments". Segment reporting is determined before inter-segment eliminations. Inter-segment transactions take place at market prices.

In accordance with IFRS 8, the breakdown used by the EDF group corresponds to the operating segments as regularly reviewed by the Management Committee.

Following regulatory changes in France in late 2015 (discontinuation of the "yellow" and "green" regulated tariffs, and opening up to market offers), the Group is changing its segment reporting in the tables of note 6.1. The former "France" segment has been replaced by two new segments, "France – Generation and Supply" and "France – Regulated activities".

The Group now uses the following segments:

- "France – Generation and Supply";
- "France – Regulated activities": distribution, transmission, EDF's island activities and the activities of Électricité de Strasbourg (which was previously part of the "Other activities" segment);
- "United Kingdom": the entities of the EDF Energy subgroup;
- "Italy": Edison entities and TdE SpA;
- "Other international": EDF International and the other gas and electricity entities located in continental Europe, the US, Latin America and Asia;
- "Other activities": comprising in particular EDF Trading, EDF Énergies Nouvelles, Dalkia, Tiru, and EDF Investissements Groupe.

No segments have been merged.

6.1.1 At 31 December 2016

<i>(in millions of Euros)</i>	France – Generation and Supply	France – Regulated activities	United Kingdom	Italy	Other international	Other activities	Inter- segment eliminations	Total
Income statements:								
External sales	34,137	5,387	9,266	11,105	5,138	6,170	–	71,203
Inter-segment sales	1,054	10,341	1	20	148	1,564	(13,128)	–
TOTAL SALES	35,191	15,728	9,267	11,125	5,286	7,734	(13,128)	71,203
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION								
	6,156	5,102	1,713	641	711	2,091	–	16,414
OPERATING PROFIT	3,265	2,395	486	(255)	213	1,410	–	7,514
Balance sheet:								
Goodwill	–	223	7,818	2	13	867	–	8,923
Intangible assets and property, plant and equipment	47,136	57,305	13,353	6,887	2,242	11,780	–	138,703
Investments in associates and joint ventures	355	2,558	59	104	4,587	982	–	8,645
Other segment assets ⁽¹⁾	30,098	4,281	4,386	2,696	738	8,118	–	50,317
Assets classified as held for sale	–	2,623	–	–	2,115	482	–	5,220
Other non-allocated assets	–	–	–	–	–	–	–	69,833
TOTAL ASSETS	77,589	66,990	25,616	9,689	9,695	22,229	–	281,641
Other information:								
Net depreciation and amortisation	(2,681)	(2,674)	(1,069)	(558)	(378)	(606)	–	(7,966)
Impairment	(65)	–	(81)	(159)	(194)	(140)	–	(639)
Equity (non-controlling interests)	–	38	4,782	400	641	1,063	–	6,924
Investments in intangible assets and property, plant and equipment	5,752	3,779	1,911	436	497	2,022	–	14,397

(1) Other segment assets include inventories, trade receivables and other receivables. By convention, the CSPE receivable is totally allocated to the France-Regulated activities segment, in the amount of €1,647 million.

6.1.2 At 31 December 2015

The segment reporting at 31 December 2015 has been restated according to the new operating segments (see note 6.1).

<i>(in millions of Euros)</i>	France – Generation and Supply	France – Regulated activities	United Kingdom	Italy	Other international	Other activities	Inter- segment eliminations	Total
Income statements:								
External sales	36,098	4,323	11,618	11,677	5,634	5,656	–	75,006
Inter-segment sales	1,229	11,095	4	17	193	1,632	(14,170)	–
TOTAL SALES	37,327	15,418	11,622	11,694	5,827	7,288	(14,170)	75,006
OPERATING PROFIT BEFORE DEPRECIATION AND AMORTISATION	6,936	4,719	2,242	1,345	609	1,750	–	17,601
OPERATING PROFIT	2,387	2,322	(217)	(814)	(382)	984	–	4,280
Balance sheet:								
Goodwill	–	223	9,163	–	15	835	–	10,236
Intangible assets and property, plant and equipment	45,338	55,837	14,668	7,350	3,907	12,103	–	139,203
Investments in associates and joint ventures	466	5,159	61	171	4,891	777	–	11,525
Other segment assets ⁽¹⁾	27,461	3,789	5,044	3,196	1,033	7,087	–	47,610
Assets classified as held for sale	–	–	–	–	–	–	–	–
Other non-allocated assets	–	–	–	–	–	–	–	70,367
TOTAL ASSETS	73,265	65,008	28,936	10,717	9,846	20,802	–	278,941
Other information:								
Net depreciation and amortisation	(3,228)	(2,507)	(1,416)	(856)	(461)	(541)	–	(9,009)
Impairment	(259)	–	(1,096)	(1,420)	(473)	(252)	–	(3,500)
Equity (non-controlling interests)	–	37	3,174	633	640	1,007	–	5,491
Investments in intangible assets and property, plant and equipment	5,695	3,657	1,823	587	696	2,331	–	14,789

⁽¹⁾ Other segment assets include inventories, trade receivables and other receivables. By convention, the CSPE receivable is totally allocated to the France-Regulated activities segment, in the amount of €1,643 million.

6.2 SALES TO EXTERNAL CUSTOMERS, BY PRODUCT AND SERVICE GROUP

The Group's sales are broken down by product and service group as follows:

- "Generation/Supply": energy generation and energy sales to industry, local authorities, small businesses and residential consumers. This segment also includes commodity trading activities;

- "Distribution": management of the low and medium-voltage public electricity distribution networks;
- "Other": energy services (district heating, thermal energy services, etc.) for industry and local authorities, and new businesses mainly aimed at boosting electricity generation through cogeneration and renewable energy sources (e.g. wind turbines, photovoltaic panels, etc.).

<i>(in millions of Euros)</i>	Generation/ Supply	Distribution	Other	Total
2016:				
External sales:				
■ France ⁽¹⁾	24,247	15,202	75	39,524
■ International and Other activities	26,652	145	4,882	31,679
SALES	50,899	15,347	4,957	71,203
2015:				
External sales:				
■ France ⁽¹⁾	25,477	14,865	79	40,421
■ International and Other activities	29,787	148	4,650	34,585
SALES	55,264	15,013	4,729	75,006

(1) "France" comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 6.1).

Income statement

Note 7 Sales

Sales are comprised of:

<i>(in millions of Euros)</i>	2016	2015
Sales of energy and energy-related services	68,128	72,768
Other sales of goods and services	2,051	1,557
Trading	1,024	681
SALES	71,203	75,006

The decrease in sales observed in 2016 is principally attributable to lower sales in the United Kingdom and France.

In the United Kingdom, sales mainly decreased as a result of the downturn in market prices for electricity and the highly competitive environment. Sales in the United Kingdom were also affected by the fall in value of the pound sterling.

In France, the movement in sales observed in 2016 primarily reflects stiffer competition (with the end of the "yellow" and "green" regulated tariffs)

and lower market prices for electricity. The decrease in nuclear power output, principally related to requests by the Nuclear Safety Authority (ASN) for inspections, led to a substantially lower supply on the wholesale markets.

These sales decreases were partly offset in France by the effects of regularisation of regulated sales tariffs for the period 1 August 2014 to 31 July 2015, amounting to €1,030 million (see note 4.1), and a favourable weather effect, as well as a good performance by EDF Trading in Europe.

Note 8 Fuel and energy purchases

Fuel and energy purchases comprise:

<i>(in millions of Euros)</i>	2016	2015
Fuel purchases used – power generation	(12,639)	(13,572)
Energy purchases	(14,805)	(15,870)
Transmission and delivery expenses	(9,017)	(9,462)
Gain/loss on hedge accounting	(110)	(209)
(Increase)/decrease in provisions related to nuclear fuels and energy purchases	521	338
FUEL AND ENERGY PURCHASES	(36,050)	(38,775)

Fuel purchases used include costs relating to raw materials for energy generation (coal, biomass, oil, propane, fissile materials, nuclear fuels and gas), purchases of services related to the nuclear fuel cycle, and costs associated with environmental schemes (mainly greenhouse gas emission rights and renewable energy certificates).

Energy purchases include energy generated by third parties, incorporating energy derived from cogeneration intended for resale.

Note 9 Other external expenses

Other external expenses comprise:

<i>(in millions of Euros)</i>	2016	2015
External services	(11,177)	(11,631)
Other purchases (excluding external services, fuel and energy)	(2,486)	(2,617)
Change in inventories and capitalised production	4,728	4,509
(Increase)/decrease in provisions on other external expenses	33	213
OTHER EXTERNAL EXPENSES	(8,902)	(9,526)

After elimination of changes in foreign exchange rates and the scope of consolidation, other external expenses were down across all operating segments, showing an overall decrease of some (6)% from 2015.

Note 10 Personnel expenses**10.1 PERSONNEL EXPENSES**

Personnel expenses comprise:

<i>(in millions of Euros)</i>	2016	2015
Wages and salaries	(7,860)	(7,878)
Social contributions	(1,885)	(1,867)
Employee profit sharing	(218)	(274)
Other contributions related to personnel	(366)	(388)
Other expenses linked to short-term benefits	(242)	(236)
Short-term benefits	(10,571)	(10,643)
Expenses under defined-contribution plans	(939)	(952)
Expenses under defined-benefit plans	(839)	(949)
Post-employment benefits	(1,778)	(1,901)
Other long-term expenses	(190)	11
Termination payments	(4)	4
Other personnel expenses	(194)	15
PERSONNEL EXPENSES	(12,543)	(12,529)

10.2 AVERAGE WORKFORCE

	2016	2015
IEG status	103,275	104,186
Other	51,533	52,126
AVERAGE WORKFORCE	154,808	156,312

Average workforce numbers for the controlled entities and joint operations are reported on a full-time equivalent basis.

A more detailed presentation of workforce categories can be found in the "Environmental and Societal Information – Human Resources" section of the Reference Document in section 3.5.3 "Social indicators".

Note 11 Taxes other than income taxes

Taxes other than income taxes break down as follows:

<i>(in millions of Euros)</i>	2016	2015
Payroll taxes	(265)	(258)
Energy taxes	(1,566)	(1,505)
Other non-income taxes	(1,825)	(1,878)
TAXES OTHER THAN INCOME TAXES	(3,656)	(3,641)

Taxes other than income taxes mainly concern France and essentially comprise land tax and the French business taxes on land and value added.

Note 12 Other operating income and expenses

Other operating income and expenses comprise:

<i>(in millions of Euros)</i>	Notes	2016	2015
Operating subsidies	12.1	6,765	6,552
Net income on deconsolidation	12.2	290	319
Gains on disposal of fixed assets	12.2	108	138
Net increase in provisions on current assets		(17)	(10)
Net increase in provisions for operating contingencies and losses		41	(168)
Other items	12.3	(825)	235
OTHER OPERATING INCOME AND EXPENSES		6,362	7,066

12.1 OPERATING SUBSIDIES

This item mainly comprises the subsidy received or receivable by EDF in respect of the CSPE, reflected in the financial statements through recognition of income of €6,510 million for 2016 (€6,320 million for 2015). The difference is principally explained by the higher subsidy for purchase obligations due to an increase in volumes of wind power and photovoltaic energy purchased, and the decline in market prices for electricity.

12.2 NET INCOME ON DECONSOLIDATION AND GAINS ON DISPOSAL OF FIXED ASSETS

In 2016, net income on deconsolidation and gains on disposal of property, plant and equipment mainly include:

- gains on sales of EDF Énergies Nouvelles' generation assets as part of the Development and Sale of Structured Assets (DSSA) activities, amounting to €357 million (€340 million for 2015);
- gains on sales of real estate assets in France, amounting to €230 million (€236 million for 2015).

12.3 OTHER ITEMS

Other items notably include losses on non-recoverable operating receivables, and costs associated with the Energy Savings Certificates used or consumed over the year, which were higher than in 2015.

In 2015, another main component of other items was the prior-year effects of arbitration rulings in favour of Edison for the revision of long-term gas supply contract prices (see note 3.8.2).

Note 13 Impairment/reversals**13.1 IMPAIRMENT BY CATEGORY OF ASSET**

Details of impairment recognised and reversed are as follows:

<i>(in millions of Euros)</i>	Notes	2016	2015
Impairment of goodwill	18	–	(34)
Impairment of other intangible assets	19	(159)	(210)
Impairment of tangible assets and discontinued operations	21-22-46	(480)	(3,256)
IMPAIRMENT NET OF REVERSALS		(639)	(3,500)

In 2015, the €(3,500) million of impairment recorded mainly concerned:

- the Group's thermal assets (coal-fired and gas-fired plants and gas storage facilities) in Europe (principally located in the United Kingdom, Italy, Belgium, Poland and Germany): €(2,281) million;
- Edison's exploration and production assets: €(551) million.

In 2016, impairment amounts to €(639) million. Details are given below.

13.2 IMPAIRMENT TESTS ON GOODWILL, INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT

The following tables present the results of impairment tests carried out on the main goodwill, intangible assets with indefinite useful lives and other Group assets in 2016, and some of the key assumptions used.

IMPAIRMENT OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIVES

Operating segment	Cash-Generating Unit or asset	Net book value <i>(in millions of Euros)</i>	WACC after tax	Growth rate to infinity	Impairment 2016 <i>(in millions of Euros)</i>
United Kingdom	EDF Energy goodwill	7,819	6.4%	–	–
Italy	Edison brand	945	7.1 – 9.3%	2.0%	–
Other activities	Dalkia goodwill	496	4.7%	1.5%	–
	Dalkia Brand	130	5.2%	1.5%	–
Other impairment of goodwill		–	–	–	(37)

IMPAIRMENT OF GOODWILL AND INTANGIBLE ASSETS WITH INDEFINITE USEFUL LIVES (37)

IMPAIRMENT OF OTHER INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT

Operating segment	Cash-Generating Unit or asset	Impairment indicators	WACC after tax	Impairment 2016 <i>(in millions of Euros)</i>
United Kingdom	Gas storage	Persistently low price volatility	6.2%	(44)
Italy	Edison assets (Power and E&P)	Decline in forward electricity prices and lower volumes for E&P activities	6.1% – 9.7%	(160)
		Underperformance by certain activities and unfavourable regulatory context in Poland		
Other activities	EDF Énergies Nouvelles CGU	Operational reorganisation	4.0% – 12.8%	(127)
Other international	EDF Polska CGU	Operational reorganisation	7.6%	(197)
France – Generation and Supply		Closure of certain oil-fired units		(28)
Other impairment				(46)

IMPAIRMENT OF OTHER INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT (602)

General assumptions

Note 1.3.15 explains the methodology used by the Group for impairment testing.

The WACC in the benchmark countries was lower overall than at 31 December 2015 (by around 30 to 50 base points), consistent with the decline in risk-free rates. Test results are submitted to analyses of sensitivity to the discount rate, and the principal results are discussed below.

The market environment remained weak and volatile in 2016 as the trends observed in 2015 continued. Low market prices for electricity and commodities affected profitability on traditional generation assets (essentially fossil-fired plants), and the recent introduction of capacity mechanisms with different modalities in each country has not yet been able to re-establish sufficient returns for these generation facilities.

On the market horizon, forward prices were below the prices used in the previous MTP that formed the basis for the initial assessment of impairment at 31 December 2015. However, they were generally higher than the levels observed in mid-January 2016 which were used for sensitivity analyses and in some cases led to recognition of additional impairment in the 2015 financial statements (particularly concerning Edison's E&P assets).

Beyond the market horizon, a recovery in electricity prices is expected. In the medium term, the price trajectory nonetheless remains below (€5-10/MWh decrease depending on the country) the trajectory assumed in late 2015, essentially due to downward revision of price trends for gas and coal, which are the principal determinants of electricity prices. As these assumptions are crucial in determining recoverable value and thus for the results of impairment tests, sensitivity analyses were applied to long-term price curves.

At 31 December 2016, this macro-economic environment did not lead to any change from the accounting treatments used in 2015:

- impairment booked in 2015 in respect of fossil-fired plants and exploration assets remains justified in 2016;
- the downward revision between 2015 and 2016 of the benchmark scenario of an electricity price recovery affected the value of Group assets, which are mainly remunerated with base loaded prices, but this does not affect the positive difference between recoverable values as determined through the tests, and the book values.

United Kingdom – EDF Energy

The risks relating to thermal energy facilities (low price volatility on gas storage assets, and small spreads and low additional income from the capacity mechanism for other thermal assets) were incorporated into the review of asset values in 2015. At 31 December 2016, the recoverable value of the West Burton B CCGT plant and the coal-fired plants showed a small improvement in line with a slightly more favourable market environment (appreciation in clean spark spreads, introduction in the UK of an additional capacity auction in 2017/2018) and cost-cutting plans implemented by EDF Energy. Nonetheless, the market remained depressed overall and there are still uncertainties (e.g. the capacity market, Brexit, etc).

At 31 December 2016, additional impairment of €(44) million was booked on gas storage facilities as a result of mandatory investments and persistently low price volatility that cannot currently cover outlays.

The sensitivity analyses of margins on thermal assets, described in detail below, do not affect the conclusions of impairment tests at 31 December 2016:

- a 5% variation in clean dark spreads would have an impact of approximately 7% on the recoverable value of the coal-fired plants, with no effect on the positive difference between the recoverable value and the book value;
- a 5% variation in clean dark spreads would have an impact of approximately 5% on the recoverable value of the West Burton B combined-cycle gas plant, with no effect on the positive difference between the recoverable value and the book value;
- a 5% variation in price volatility would have a limited impact in terms of absolute value on the risk relating to gas storage.

The recoverable value of existing nuclear assets is estimated by discounting future cash flows over the assets' useful life, assuming a 20-year extension for the Sizewell B PWR plant (other, Advanced Gas-cooled Reactor (AGR) plants have already had their useful life extended by the British Nuclear Authority, which announced the most recent decisions in February 2016). The recoverable value of EDF Energy's nuclear fleet is sensitive to the downward revision between 2015 and 2016 of medium-term electricity price recovery trends, but is still higher than its book value. Sensitivity analyses of the benchmark price curve do not affect the positive difference, identified by the impairment test, between the recoverable value and the book value.

EDF Energy's goodwill amounted to €7,818 million (£6,694 million) at 31 December 2016 and mainly resulted from the takeover of British Energy in 2009.

The recoverable value of EDF Energy is estimated by discounting future cash flows, taking into consideration the plan to construct two EPRs with a 60-year useful life at the Hinkley Point site, a project that has now been confirmed with the signature of final contracts on 29 September 2016. Future cash flows relating to these plants are determined by reference to the Contract for Difference (CfD) between the Group and the UK government. The CfD sets stable, predictable prices for EDF Energy for a period of 35 years from the date the two EPRs are first commissioned: if market prices fall below the CfD exercise price, EDF Energy will receive an additional payment. The impairment test is based on a nominal project construction cost of £18 billion assuming a commissioning date of late 2025 for the first reactor, consistent with the final investment decision.

The sensitivity of EDF Energy's recoverable value to the assumptions used concerning Hinkley Point C was specifically tested as of December 31, 2016. The positive difference between the recoverable value and book value of EDF Energy remains substantial in the following examples:

- a £2.7 billion increase in the costs of the Hinkley Point C project (i.e. 15% of the total project cost) would reduce EDF Energy's test margin by 20%;
- a simulation with a 4-year delay in commissioning Hinkley Point C combined with a £4.4 billion cost overrun (around 25% of the total project cost) indicates a 53% reduction in EDF Energy's test margin.

The Brexit decision has no immediate impact on EDF Energy's financial statements since most cash flows (receipts, costs, investments) and assets are stated in pounds sterling. It is still difficult at this stage to anticipate the long-term consequences, given the uncertainties over the timing and terms of the UK's departure from the European Union. The Group will monitor movements in the rates of return demanded by investors and changes in fuel prices, CO₂ prices and macro-economic data such as GDP growth, which could affect price curves.

Italy – Edison

As an intangible asset with an indefinite useful life, the Edison brand, stated at €945 million, was subjected to an impairment test that did not lead to recognition of any impairment. This test used the relief-from-royalty method.

Impairment of €(1,419) million was booked in 2015 in respect of electricity generation assets (thermal and renewable plants) and Edison's exploration and production assets.

At 31 December 2016, the recoverable value of most assets was stable or showing a small improvement as the short-term market environment was slightly more favourable than in January 2016 (due to the effect of clean spark spreads and Brent prices), and also thanks to controlled cost and investment trajectories. However, additional risks were identified in 2016 concerning (i) certain exploration-production fields adversely affected by falling volumes, and (ii) hydropower assets negatively affected by forward prices. As a result, impairment of €(160) million was recognised at 31 December 2016.

- In the thermal power assets, sensitivity tests on clean spark spreads (more and less 1€ per megawatt-hour) do not affect the positive difference between recoverable value and book value.
- In the renewable energy generation assets, sensitivity tests on electricity prices (more and less 1€ per megawatt-hour) have a small impact on the level of impairment of hydropower assets and a non-significant impact on the recoverable value of wind power assets, without affecting the positive difference between recoverable value and book value.
- A 50 base point increase in the WACC used in the valuation of electricity generation assets would lead to an additional risk of around €(50) million.
- A 5% decrease in gas and oil prices would lead to a risk of additional impairment of about €(45) million on exploration-production assets. However, a 50 base point variation in the WACC would have a marginal impact on the risk assessment for the same assets.

Other international

EDF Polska

As part of the strategic review of its asset portfolio, the Group reorganised the management of its thermal plants in Poland, separating the cogeneration branches – which benefit from regulated heat tariffs – from branches that only produce electricity. The impairment test now covers two different Cash Generating Units (the Cogeneration CGU and the Electricity CGU) whereas previously EDF Polska was considered as a single unit. As a result, impairment of €(197) million was recognised in respect of the Electricity CGU, whose assets are fully exposed to market prices for electricity. This impairment was recorded at 30 June 2016. In the second half of 2016, the Group announced its decision to sell EDF Polska's assets, and reclassified them as non-current assets held for sale, in compliance with IFRS 5 (see notes 3.5.2 and 46).

EDF Luminus

The downward revision of the medium-term electricity price trajectory between 2015 and 2016 led to an impairment test at 31 December 2016. After updating the assumptions for 2016, the difference between discounted cash flows and the book value resulting from the test remains positive. Sensitivity analyses of the key assumptions (price scenario and discount rate) do not call these conclusions into question.

Other activities

EDF Énergies Nouvelles

In 2016, impairment of €(127) million was recorded in respect of the various CGUs of EDF Énergies Nouvelles. This impairment essentially concerns a biogas plant in the United States whose viability is currently in question, and Polish wind farms which were penalised by changes in legislation (increases in local taxes) and the declining price of green certificates.

Dalkia

Dalkia's goodwill amounted to €496 million at 31 December 2016, and mainly resulted from acquisition of the Dalkia group in France under the agreement of 25 March 2014 with Veolia Environnement.

The recoverable value of the Dalkia group is based on future cash flows projected over a long-term horizon, and a terminal value that represents cash flow projections to infinity. Using updated assumptions for 2016, the recoverable value remains higher than the book value. The key parameters of the test are the calculation method for the terminal value, and the discount rate: both were subjected to sensitivity analyses and the results did not affect the positive difference between the recoverable value and the book value.

The Dalkia brand, recognised as an asset when the Group took control of Dalkia in 2014 at the value of €130 million, is estimated by the relief-from-royalties method. An updated test at 31 December 2016 showed that this book value is justified.

France

The integrated management and interdependence of the different generation facilities that make up the French fleet (nuclear, thermal and hydropower plants), independently of their maximum technical capacities, have led the Group to consider the entire fleet as a single CGU. This CGU does not include any goodwill

The persistent decline in electricity prices over the market horizon and in the long term, in a context of increasing exposure to market prices following discontinuation of the "yellow" and "green" regulated tariffs from 1 January 2016, is an indication of impairment that led to a review of the French generation fleet's value at 31 December 2016.

The recoverable value of the generation fleet is estimated by discounting future cash flows under the Group's usual methodology, described in note 1.3.15, over the assets' useful life using an after-tax WACC of 5.4%. For nuclear assets, the Group's basic valuation assumes that the useful life will be extended to 50 years, in line with its industrial strategy. The nuclear capacity remains subject to a ceiling of 63.2GW under France's Energy Transition Law.

The assumption of stable returns on capacity of €10/kW (in 2015 prices) is applied from 2017. This assumption is consistent with the price set for the first French capacity mechanism auction, which was held on the EPEX Spot market on 15 December 2016.

The impairment test led to recognition of a significant positive difference between the recoverable value and the book value of the generation fleet in France.

The key assumptions used in the test are the useful life of nuclear assets, the medium and long-term price scenario, the discount rate, developments

in costs and investments, and the assumed capacity premium. Each of these assumptions has been subjected to a sensitivity analysis, which does not call into question the existence of a positive difference between the recoverable value and book value.

In view of decisions to phase out the oil-fired units, the book value of Pocheville unit 1 was entirely written off at 31 December 2016 through recognition of €(28) million of impairment.

Other impairment of assets

The Group also identified certain indications of loss of value on specific assets, leading to recognition of impairment of €(46) million.

Finally, impairment of €(481) million was booked in respect of associates at 31 December 2016. Details are given in note 23.

Note 14 Other income and expenses

Other income and expenses in 2016 mainly include income of €112 million resulting from the favourable outcome of a dispute with the Hungarian State. This corresponds to a payment ordered by the Hague Permanent Court of Arbitration in response to two applications filed by EDF International on the basis of the Energy Charter Treaty: one for compensation for loss of power purchase contracts (PPAs), and one in reimbursement of stranded costs arising from termination of PPAs.

Other income and expenses in 2015 mainly include:

- a €820 million increase to provisions following the ministerial order of 15 January 2016 concerning the cost of implementing long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project (see notes 3.8.1 and 29.1.2);
- a €590 million increase to provisions following updating of the industrial scenario and costs estimate for decommissioning nuclear power plants that are permanently shut down (see note 29.1.3), less a reversal of €332 million from the provision for long-term radioactive waste management resulting from updating of this scenario (see notes 29.1.2 and 29.1.3), giving a net effect of €258 million;
- income of €287 million in connection with the agreement signed on 30 June 2015 between EDF and Engie concerning the compensation system for employee benefits in kind in the form of energy (see note 31.1.2).
- income of €154 million associated with the change in EDF Energy's defined-benefit pension plans (see note 31.1.2).

Note 15 Financial result**15.1 COST OF GROSS FINANCIAL INDEBTEDNESS**

Details of the components of the cost of gross financial indebtedness are as follows:

<i>(in millions of Euros)</i>	2016	2015
Interest expenses on financing operations	(1,907)	(1,955)
Change in the fair value of derivatives and hedges of liabilities	(11)	(9)
Transfer to income of changes in the fair value of cash flow hedges	122	(57)
Net foreign exchange gain on indebtedness	(31)	27
COST OF GROSS FINANCIAL INDEBTEDNESS	(1,827)	(1,994)

15.2 DISCOUNT EFFECT

The cost of unwinding the discount primarily concerns provisions for the back-end of the nuclear cycle, decommissioning and last cores, and long-term and post-employment employee benefits.

This cost increased in 2016, in line with the lower real discount rate (see note 29.1.5.1).

Details of the final discount effect are as follows:

<i>(in millions of Euros)</i>	2016	2015
Provisions for long-term and post-employment employee benefits	(1,048)	(1,070)
Provisions for the back-end of the nuclear cycle, decommissioning and last cores ⁽¹⁾	(2,278)	(1,639)
Other provisions and advances	(91)	(103)
DISCOUNT EFFECT	(3,417)	(2,812)

(1) Including the effect of discounting the receivable corresponding to amounts reimbursable by the NLF – see note 36.3.

15.3 OTHER FINANCIAL INCOME AND EXPENSES

Other financial income and expenses comprise:

<i>(in millions of Euros)</i>	2016	2015
Financial income on cash and cash equivalents	20	13
Gains/(losses) on available-for-sale financial assets	775	1,174
Gains/(losses) on other financial assets	398	408
Changes in financial instruments carried at fair value with changes in fair value included in income	(46)	(96)
Other financial expenses	(263)	(491)
Foreign exchange gain/loss on financial items other than debts	43	132
Return on fund assets	547	538
Capitalised borrowing costs	437	540
Other financial income and expenses	1,911	2,218

Gains net of losses on available-for-sale financial assets include gains on disposals, interest income, and dividends.

In 2016, gains and losses on available-for-sale financial assets include net gains on sales of EDF's dedicated assets, amounting to €428 million (€972 million in 2015).

In 2015, Other financial expenses mainly include the financial interest in connection with the European Commission's decision of 22 July 2015, amounting to €(360) million (see note 3.8.3).

Note 16 Income taxes

16.1 BREAKDOWN OF TAX EXPENSE

Details are as follows:

<i>(in millions of Euros)</i>	2016	2015
Current tax expense	(1,886)	(1,028)
Deferred taxes	498	545
TOTAL	(1,388)	(483)

The increase in the Group's tax expense is mainly explained by the higher pre-tax income, resulting notably from impairment recorded in 2015.

In 2016, €(1,458) million of the current tax expense relates to EDF's tax consolidated group in France, and €(428) million relates to other subsidiaries (€(467) million and €(561) million respectively in 2015).

16.2 RECONCILIATION OF THE THEORETICAL AND EFFECTIVE TAX EXPENSE (TAX PROOF)

<i>(in millions of Euros)</i>	2016	2015
Income of consolidated companies before tax	4,181	1,692
Income tax rate applicable to the parent company	34.43%	38.00%
Theoretical tax expense	(1,440)	(643)
Differences in tax rate	119	229
Permanent differences	(163)	(266)
Taxes without basis	286	222
Unrecognised deferred tax assets	(189)	(24)
Other	(1)	(1)
ACTUAL TAX EXPENSE	(1,388)	(483)
EFFECTIVE TAX RATE	33.20%	28.55%

The increase in 2016 in the effective tax rate is mainly explained by the smaller reductions in the French and UK income tax rates compared to 2015.

The main factors explaining the difference between the theoretical tax rate and the effective rate are:

- 2016:
 - the positive impacts of income tax cuts from 2020 in France (from 34.43% to 28.92%) and the United Kingdom (from 18% to 17%), amounting to €69 million and €68 million respectively,
 - The favourable impact of deduction of payments made to bearers of perpetual subordinated loans, amounting to €200 million;
- 2015:
 - the positive impact of differences in tax rates applicable to foreign subsidiaries (€229 million, including €158 million relating to the 2-point decrease in the UK tax rate by 2020, and €142 million relating to cancellation of Italy's "Robin Hood" tax following the decision by the Constitutional Court),
 - the favourable impact of payments made to the bearers of perpetual subordinated bonds (€225 million).

16.3 CHANGE IN DEFERRED TAX ASSETS AND LIABILITIES

<i>(in millions of Euros)</i>	2016	2015
Deferred tax assets	2,713	2,590
Deferred tax liabilities	(4,122)	(4,315)
NET DEFERRED TAXES AT 1 JANUARY	(1,409)	(1,725)
Change in net income	498	547
Change in equity	33	(147)
Translation adjustments	185	(75)
Changes in scope of consolidation	60	(1)
Other movements	2	(8)
NET DEFERRED TAXES AT 31 DECEMBER	(631)	(1,409)
Deferred tax assets	1,641	2,713
Deferred tax liabilities	(2,272)	(4,122)

€(191) million of the change in 2016 in deferred tax assets included in equity results from actuarial gains and losses on post-employment benefits (€(152) million in 2015), and €224 million of this change concerns fair value movements on financial instruments and financial assets held for sale (€5 million in 2015).

The changes in deferred tax assets and liabilities principally relate to the net presentation of the French tax group's deferred tax position.

16.4 BREAKDOWN OF DEFERRED TAX ASSETS AND LIABILITIES BY NATURE

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Deferred taxes:		
Fixed assets	(5,344)	(6,458)
Provisions for employee benefits	6,051	7,292
Other provisions and impairment	377	395
Financial instruments	232	(58)
Tax loss carryforwards and unused tax credits	1,279	1,171
Other	48	46
Total deferred tax assets and liabilities	2,643	2,388
Unrecognised deferred tax assets	(3,274)	(3,797)
NET DEFERRED TAXES	(631)	(1,409)

At 31 December 2016, unrecognised deferred tax assets represent a potential tax saving of €3,274 million (€3,797 million at 31 December 2015), mainly relating to France and the United States.

In France, this potential tax saving, which amounts to €2,385 million at 31 December 2016 (€2,912 million at 31 December 2015), essentially concerns deferred tax assets on employee benefits. These deferred tax assets have no expiry date.

In the United States, this potential tax saving amounts to €734 million (€747 million in 2015) and mainly corresponds to losses carried forward, with expiry dates between 2029 and 2035.

Deferred tax assets on recognised tax loss carryforwards amount to €438 million (€370 million in 2015) and principally concern the United States (€135 million in 2016, €128 million in 2015), France (€111 million in 2016, €89 million in 2015), Canada and Italy. They have been recognised due to the existence of deferred tax liabilities on the same tax entities that will reverse over the same time horizon, or in view of prospects for taxable profits.

Note 17 Basic earnings per share and diluted earnings per share

The diluted earnings per share is calculated by dividing the Group's share of net income, corrected for dilutive instruments and the payments made during the year to bearers of perpetual subordinated bonds, by the weighted average number of potential shares outstanding over the period after elimination of treasury shares.

The following table shows the reconciliation of the basic and diluted earnings used to calculate earnings per share (basic and diluted), and the variation in the weighted average number of shares used in calculating basic and diluted earnings per share:

<i>(in millions of Euros)</i>	2016	2015
Net income attributable to ordinary shares	2,851	1,187
Payments on perpetual subordinated bonds	(582)	(591)
Effect of dilutive instruments	–	–
Net income used to calculate earnings per share	2,269	596
Average weighted number of ordinary shares outstanding during the year	1,980,632,028	1,859,988,148
Average weighted number of diluted shares outstanding during the year	1,980,632,028	1,859,988,148
Earnings per share (in Euros):		
EARNINGS PER SHARE	1.15	0.32
DILUTED EARNINGS PER SHARE	1.15	0.32

In 2016, payment of the outstanding scrip dividend for 2015 and the scrip interim dividend for 2016 led to an increase in the share capital and an issue premium totalling €1,862 million, corresponding to the issuance of 188,997,656 shares.

Operating assets and liabilities, equity

Note 18 Goodwill

18.1 CHANGES IN GOODWILL

Goodwill on consolidated entities comprises the following:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Net book value at opening date	10,236	9,694
Acquisitions	36	67
Disposals	–	(3)
Impairment (see note 13)	–	(34)
Translation adjustments	(1,298)	532
Other changes	(51)	(20)
NET BOOK VALUE AT CLOSING DATE	8,923	10,236
Gross value at closing date	9,709	11,122
Accumulated impairment at closing date	(786)	(886)

The changes in goodwill in 2016 primarily related to the translation adjustments of €(1,298) million, largely reflecting the pound sterling's decline against the Euro.

The changes in goodwill in 2015 primarily relate to:

- Dalkia's acquisition of CRAM and Cesbron for €57 million;
- impairment of €(34) million, including €(20) million for EDF Polska goodwill;
- translation adjustments of €532 million, largely due to the pound sterling's increase against the Euro.

18.2 GOODWILL BY OPERATING SEGMENT

The breakdown of goodwill between the new segments as presented in note 6.1 is as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
France – Regulated activities	223	223
United Kingdom (EDF Energy)	7,818	9,163
Italy	2	–
Other International	13	15
Dalkia	496	455
EDF Énergies Nouvelles	177	178
Other	194	202
Other activities	867	835
GROUP TOTAL	8,923	10,236

Note 19 Other intangible assets

The net value of other intangible assets breaks down as follows:

At 31 December 2016

<i>(in millions of Euros)</i>	31/12/2015	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2016
Software	3,577	617	(381)	(135)	(60)	6	3,624
Positive fair value of commodity contracts acquired in a business combination	810	–	–	–	–	–	810
Greenhouse gas emission rights – green certificates	690	935	(1,094)	(49)	(1)	(53)	428
Other intangible assets	5,936	341	(19)	(46)	(324)	87	5,975
Intangible assets in development ⁽¹⁾	1,976	87	–	(23)	(1)	(1,044)	995
Gross value	12,989	1,980	(1,494)	(253)	(386)	(1,004)	11,832
Accumulated amortisation and impairment	(4,100)	(992)	394	84	166	66	(4,382)
NET VALUE	8,889	988	(1,100)	(169)	(220)	(938)	7,450

(1) Increases in intangible assets in development are presented net of the effect of commissioning new assets. Other movements include the reclassification of certain costs relating to the Flamanville 3 EPR as property, plant and equipment in progress.

The gross value of other intangible assets at 31 December 2016 includes:

- the Edison brand and intangible assets related to Edison's hydropower concessions, for amounts of €945 million and €729 million respectively;
- the Dalkia brand and intangible assets related to Dalkia's concession agreements in France, for respective amounts of €130 million and €912 million.

Impairment of €(159) million was recorded in respect of other intangible assets in 2016.

EDF's research and development expenses recorded in the income statement total €572 million for 2016.

At 31 December 2015

<i>(in millions of Euros)</i>	31/12/2014	Acquisitions	Disposals	Translation adjustments	Changes in scope	Other movements	31/12/2015
Software	2,601	1,036	(116)	41	(4)	19	3,577
Positive fair value of commodity contracts acquired in a business combination	810	–	–	–	–	–	810
Greenhouse gas emission rights – green certificates	674	1,227	(1,230)	19	–	–	690
Other intangible assets	5,545	450	(45)	10	(24)	–	5,936
Intangible assets in development	2,220	(264)	–	17	–	3	1,976
Gross value	11,850	2,449	(1,391)	87	(28)	22	12,989
Accumulated amortisation and impairment	(2,966)	(1,263)	141	(6)	7	(13)	(4,100)
NET VALUE	8,884	1,186	(1,250)	81	(21)	9	8,889

The gross value of other intangible assets at 31 December 2015 included:

- the Edison brand and intangible assets related to Edison's hydropower concessions, for amounts of €945 million and €831 million respectively;
- the Dalkia brand and intangible assets related to Dalkia's concession agreements in France, for respective amounts of €130 million and €735 million.

Impairment of €(210) million was recorded in respect of other intangible assets in 2015.

EDF's research and development expenses recorded in the income statement total €555 million for 2015.

Note 20 Property, plant and equipment operated under French public electricity distribution concessions

20.1 NET VALUE OF PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Property, plant and equipment	51,489	50,093
Property, plant and equipment in progress	1,575	1,507
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS	53,064	51,600

20.2 MOVEMENTS IN PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSIONS (EXCLUDING ASSETS IN PROGRESS)

<i>(in millions of Euros)</i>	Land and buildings	Networks	Other installations, plant, machinery, equipment & other	Total
Gross value at 31/12/2015	2,468	84,021	3,756	90,245
Increases ⁽¹⁾	147	3,559	320	4,026
Decreases	(14)	(621)	(167)	(802)
Gross value at 31/12/2016	2,601	86,959	3,909	93,469
Depreciation and impairment at 31/12/2015	(1,291)	(36,463)	(2,398)	(40,152)
Net depreciation	(51)	(208)	(174)	(433)
Disposals	12	543	164	719
Other movements ⁽²⁾	(7)	(2,013)	(94)	(2,114)
Depreciation and impairment at 31/12/2016	(1,337)	(38,141)	(2,502)	(41,980)
Net value at 31/12/2015	1,177	47,558	1,358	50,093
NET VALUE AT 31/12/2016	1,264	48,818	1,407	51,489

(1) Increases also include facilities provided by the concession grantors.

(2) Other movements mainly concern depreciation of assets operated under concessions, booked against amortization recorded in the special concession liability accounts.

Note 21 Property, plant and equipment operated under concessions for other activities

21.1 NET VALUE OF PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES

The net value of property, plant and equipment operated under concessions for other activities breaks down as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Property, plant and equipment	6,010	6,142
Property, plant and equipment in progress	1,606	1,503
PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES	7,616	7,645

21.2 MOVEMENTS IN PROPERTY, PLANT AND EQUIPMENT OPERATED UNDER CONCESSIONS FOR OTHER ACTIVITIES (EXCLUDING ASSETS IN PROGRESS)

(in millions of Euros)	Land and buildings	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
Gross value at 31/12/2015	1,413	11,421	613	549	13,996
Increases	51	386	32	43	512
Decreases	(5)	(42)	(14)	(7)	(68)
Translation adjustments	(1)	(23)	4	–	(20)
Changes in the scope of consolidation ⁽¹⁾	(7)	29	(595)	(36)	(609)
Other movements	1	24	1	(3)	23
Gross value at 31/12/2016	1,452	11,795	41	546	13,834
Depreciation and impairment at 31/12/2015	(862)	(6,303)	(319)	(370)	(7,854)
Net depreciation	(28)	(351)	(21)	(4)	(404)
Impairment net of reversals	–	(48)	–	(26)	(74)
Disposals ⁽¹⁾	5	38	10	6	59
Translation adjustments	1	13	2	–	16
Changes in the scope of consolidation ⁽¹⁾	13	85	310	27	435
Other movements	(2)	(4)	–	4	(2)
Depreciation and impairment at 31/12/2016	(873)	(6,570)	(18)	(363)	(7,824)
Net value at 31/12/2015	551	5,118	294	179	6,142
NET VALUE AT 31/12/2016	579	5,225	23	183	6,010

(1) Changes in the scope of consolidation mainly concern the assets of EDF Démász, which have been reclassified as assets held for sale.

Property, plant and equipment operated under concessions for other activities comprise concession facilities mainly located in France (hydropower, excluding public electricity distribution) and Italy.

At 31 December 2016, impairment of property, plant and equipment in progress and other assets used in concessions for other activities amount to €(23) million and €(74) million respectively.

Note 22 Property, plant and equipment used in generation and other tangible assets owned by the Group**22.1 NET VALUE OF PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP**

The net value of property, plant and equipment used in generation and other tangible assets owned by the Group breaks down as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Property, plant and equipment	46,350	50,197
Property, plant and equipment in progress	24,059	20,688
Finance-leased property, plant and equipment	164	184
PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP	70,573	71,069

At 31 December 2016, property, plant and equipment in progress mainly concerns the EPR reactors at Flamanville 3 (€10,544 million, including capitalised borrowing costs of €1,932 million) and Hinkley Point C (€3,640 million), and the Dunkirk methane terminal which began commercial operations in early 2017 (€1,158 million).

The net book value of generation assets reflects the €(2,044) million impact of the extension to 50 years of the accounting depreciation period of the 900MW PWR plants at 1 January 2016 (see note 3.1).

The changes observed in generation assets in 2016 also include the €(1,470) million effect of reclassification of certain assets as assets held for sale, and a foreign exchange effect of €(1,965) million due to the pound sterling's decline against the Euro.

At 31 December 2016, impairment of property, plant and equipment in progress and other property, plant and equipment amounted to €(94) million and €(289) million respectively.

22.2 MOVEMENTS IN PROPERTY, PLANT AND EQUIPMENT USED IN GENERATION AND OTHER TANGIBLE ASSETS OWNED BY THE GROUP (EXCLUDING ASSETS IN PROGRESS AND FINANCE-LEASED ASSETS)

<i>(in millions of Euros)</i>	Land and buildings	Nuclear power plants	Fossil-fired & hydropower plants	Networks	Other installations, plant, machinery, equipment & other	Total
Gross value at 31/12/2015	13,281	66,095	21,991	17	17,073	118,457
Increases	555	2,562	1,132	–	1,738	5,987
Decreases	(247)	(807)	(350)	–	(556)	(1,960)
Translation adjustments	(163)	(1,733)	(637)	–	13	(2,520)
Changes in the scope of consolidation ⁽¹⁾	(865)	–	(2,125)	–	(1,412)	(4,402)
Other movements ⁽²⁾	(7)	841	(47)	–	24	811
Gross value at 31/12/2016	12,554	66,958	19,964	17	16,880	116,373
Depreciation and impairment at 31/12/2015	(7,123)	(41,412)	(13,089)	(8)	(6,628)	(68,260)
Net depreciation	(336)	(2,255)	(747)	(2)	(1,111)	(4,451)
Impairment net of reversals	(45)	1	(199)	–	(46)	(289)
Disposals	130	712	348	–	393	1,583
Translation adjustments	6	693	448	1	94	1,242
Changes in the scope of consolidation ⁽¹⁾	521	–	1,439	–	292	2,252
Other movements ⁽³⁾	(27)	(2,008)	(66)	–	1	(2,100)
Depreciation and impairment at 31/12/2016	(6,874)	(44,269)	(11,866)	(9)	(7,005)	(70,023)
Net value at 31/12/2015	6,158	24,683	8,902	9	10,445	50,197
NET VALUE AT 31/12/2016	5,680	22,689	8,098	8	9,875	46,350

(1) Changes in the scope of consolidation mainly concern the assets of Polish subsidiaries which have been reclassified as assets held for sale.

(2) Other movements include the effect on assets associated with provisions and underlying assets of the €615 million change in the real discount rate used to calculate provisions related to EDF's nuclear generation (see note 29.1).

(3) Other movements principally concern the extension of the depreciation periods of the thirty-two 900MW PWR reactors currently in operation (see note 3.1).

The net depreciation of €(7,966) million recorded in the income statement (€(9,009) million in 2015) reflects the extension to 50 years of the depreciation period for the 900MW PWR series nuclear power plants (except Fessenheim), amounting to €965 million at 31 December 2016 (see note 3.1).

22.3 FINANCE LEASE CONTRACTS

<i>(in millions of Euros)</i>	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1 - 5 years	> 5 years	
Future minimum lease payments receivable as lessor	46	12	28	6	53
Future minimum lease payments payable as lessee	482	61	212	209	511

The Group is the lessor in agreements classified as finance leases under IFRIC 4 and IAS 17.

The Group is bound as lessee by irrevocable finance lease contracts for premises, equipment and vehicles used in the course of its business. The corresponding payments are subject to renegotiation at intervals defined in the contracts.

Note 23 Investments in associates and joint ventures

Investments in associates and joint ventures are as follows:

(in millions of Euros)	Principal activity ⁽¹⁾	31/12/2016			31/12/2015	
		Ownership %	Share of net equity	Share of net income	Share of net equity	Share of net income
Principal investments in associates						
RTE ⁽²⁾	T	50.10	2,558	403	5,159	457
CENG	G	49.99	2,120	(485)	2,524	(284)
Alpiq ⁽³⁾	G, D, O, T	25.04	606	–	624	(192)
Other investments in associates and joint ventures			3,361	300	3,218	211
TOTAL			8,645	218	11,525	192

(1) G = generation, D = distribution, T = transmission, O = other.

(2) The investment in RTE presented at 31 December 2016 is the share that will be retained after the partial sale in 2017. The share to be sold (49.9%) has been reclassified as assets held for sale (see notes 3.5.1 and 46).

(3) As Alpiq publishes its consolidated financial statements after the Group, the figures above include an estimate for net income at 31 December 2016.

Other investments in associates and joint ventures principally concern Taishan (TNPJVC), Nam Theun Power Company (NTPC) and certain companies owned by EDF Énergies Nouvelles, EDF SA and Edison.

In 2016, €(481) million of impairment of investments in associates and joint ventures was booked, mainly concerning the assets of CENG (see note 23.2.3).

In 2015, €(549) million of impairment was booked in respect of investments in associates and joint ventures, including €(271) million on the assets of CENG (see note 23.2.3), €(196) million on the investment in Alpiq, corresponding to the Group's share of past impairment in the financial statements of Alpiq (see note 23.3.2) and €(68) million on investments in associates and joint ventures held by Edison.

23.1 RTE RÉSEAU DE TRANSPORT D'ÉLECTRICITÉ (RTE)**23.1.1 RTE – financial indicators**

The key financial indicators for RTE (on a 100% basis) are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
Non-current assets	16,627	15,805
Current assets	1,862	2,323
Total assets	18,489	18,128
Equity	5,106	5,159
Non-current liabilities	9,924	8,157
Current liabilities	3,459	4,812
Total equity and liabilities	18,489	18,128
Sales	4,446	4,593
Operating profit before depreciation and amortisation	1,711	1,913
Net income	403	457
Net indebtedness	8,539	8,260
Gains and losses recorded directly in equity	(328)	(230)
Dividends paid to the Group	129	177

At 31 December 2015, the value of the shares of RTE was affected by the European Commission's decision of 22 July 2015 (see note 3.8.3).

23.1.2 Transactions between the EDF group and RTE

At 31 December 2016 the main transactions between the EDF group and RTE are as follows:

Sales

Enedis uses RTE's high-voltage and very high-voltage networks to convey energy from its point of generation to the distribution network. This service generated €3,331 million in sales revenues for RTE from Enedis over 2016.

In executing its responsibility to ensure balance in the electricity system, during 2016 RTE also undertook:

- energy purchases and sales with EDF and Enedis, amounting to €85 million and €118 million respectively;
- system service purchases from EDF amounting to €281 million.

Other transactions

The EDF group contributed to financing of RTE through a loan amounting to a total of €670 million at 31 December 2015. RTE repaid this loan in October 2016. Interest expenses on this loan amount to €30 million in 2016 (€36 million in 2015).

23.2 CENG

23.2.1 CENG – financial indicators

The key financial indicators for CENG (on a 100% basis) are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Non-current assets	10,164	10,409
Current assets	1,020	1,019
Total assets	11,184	11,428
Equity	4,240	5,048
Non-current liabilities	6,521	6,016
Current liabilities	423	364
Total equity and liabilities	11,184	11,428
Sales	1,059	1,095
Operating profit before depreciation and amortisation	305	235
Net income	(971)	(568)
Gains and losses recorded directly in equity	169	434
Dividends paid to the Group	–	–

23.2.2 Transactions between the EDF group and CENG

At 31 December 2016 the main transactions between the EDF group and CENG concern the power purchase agreements between CENG and the Group (EDF Trading North America). These agreements provide for delivery to EDF Trading North America of 15% of the energy generated by CENG that is not sold to former owners of its power plants, in application of the pre-existing power purchase agreements that terminated in 2014. Since 1 January 2015, the Group has purchased 49.99% of the power output from CENG's two plants at market price.

These electricity sales by CENG to EDF Trading North America represented a volume of 14.2TWh in 2016.

23.2.3 Impairment

In 2015, impairment of €(271) million was recorded on the Group's investment in CENG as a result of lower forward prices and long-term electricity prices.

At 30 June 2016, the Group recognised additional impairment of €(462) million.

This impairment was determined under the Group's usual methodology. It results primarily from downward revision of long-term prices scenarios in line with the most recent publications of external entities (ABB, Cera, EIA) and the decline in short-term market prices due to the ongoing downturn in gas prices. Below-forecast results in the latest capacity auctions have also affected the recoverable values of one of CENG's nuclear power plants.

The Group did not identify any new risk on its investment in CENG during the second half of 2016. There was no significant change in market conditions. As a result of New York State's Zero Emission Credit (ZEC) programme of subsidies for nuclear power plants, contracts were signed on 18 November 2016 by two CENG power plants and the New York State Energy Research and Development Authority. The first payment under the ZEC programme should be made in April 2017, providing additional income for the Ginna and Nine Mile Point power plants over the MTP horizon. The introduction of this mechanism confirms the carbon price assumptions used so far by the Group. However, continuation of the mechanism is conditional on the outcome of legal proceedings that are already in process. The value of the investment in CENG could also be sensitive to changes in energy policies and their potential impacts on the long-term vision of price fundamentals and the rate of return demanded by investors.

23.3 ALPIQ

As Alpiq publishes its consolidated financial statements after the Group, the figures presented here include an estimate for net income at 31 December 2016 (see note 3 to the table in note 23).

23.3.1 Published financial indicators

The main published indicators by the Alpiq group were as follows:

<i>(in millions of Euros)</i>	31/12/2015	31/12/2014
Non-current assets	5,889	6,217
Current assets	3,239	3,248
Assets classified as held for sale	503	400
Total assets	9,631	9,865
Equity ⁽¹⁾	3,525	3,919
Non-current liabilities	4,148	3,984
Current liabilities	1,905	1,960
Liabilities related to assets classified as held for sale	53	2
Total equity and liabilities	9,631	9,865
Sales	6,289	6,644
Operating profit before depreciation and amortisation	47	257
Net income	(777)	(744)
Gains and losses recorded directly in equity	(160)	(95)
Dividends paid to the Group	11	11

(1) Including €939 million of hybrid bonds.

On 25 April 2013, the main Swiss shareholders of Alpiq subscribed a hybrid loan of CHF 366.5 million. Following this first step, on 2 May 2013 Alpiq placed a public hybrid bond amounting to CHF 650 million, with 5% coupon and a redemption option after five and a half years at the earliest.

Due to their characteristics, in compliance with IAS 32, these hybrid loan and bond were recorded in equity in Alpiq's consolidated financial statements. Since the EDF group did not subscribe to the operation, there was no impact on the value of the investment in Alpiq reported in "Investments in associates and joint ventures".

The difference between the shares of equity as published by Alpiq and as reported in the Group's consolidated financial statements largely results from this hybrid loan.

The value of the EDF group's investment in Alpiq, valued on the basis of the stock market price at 31 December 2016, is €549 million. The Group considers that this stock market value does not correspond to the value of the company, particularly as a result of the low level of floating stock.

23.3.2 Impairment

Impairment of €(196) million was booked on the Group's investment in Alpiq at 31 December 2015, corresponding to the Group's share of impairment recognised in Alpiq's half-year 2015 financial statements published in August 2015. That impairment was caused by persistently low prices on wholesale markets, and the discontinuation in January 2015 of the minimum Euro-Swiss franc exchange rate of 1.20 (this was unfavourable for Alpiq

which sells most of the electricity generated by its Swiss-located plants in Euros). In a particularly difficult market environment, Alpiq announced the launch of major structural measures involving the sale of up to 49% of its Swiss hydropower portfolio, in order to limit its dependence on wholesale prices and reduce net indebtedness.

Following publication by Alpiq of its half-year 2016 financial statements on 26 August 2016, the Group recorded impairment of €(19) million. This corresponded to its share of the impairment recognised in Alpiq's half-year 2016 financial statements, which essentially concerned the Swiss power plants with a high proportion of baseload power generation, that were penalised by the downward revision of long-term market prices.

When releasing its half-year financial results, Alpiq commented that in addition to the difficult market environment, the framework agreements in place were highly detrimental to the interests of electricity producers like Alpiq. They have no regulated network or captive final customers and this harms the profitability of Swiss-produced electricity on a deregulated market. Alpiq stated that implementation of the structural measures announced in March 2016, including opening up the hydropower portfolio and divestments for strategic streamlining of the portfolio, was still a priority for preserving the profitability of its generation assets in Switzerland.

The Group will nevertheless closely monitor the effective implementation of Alpiq's large-scale strategic plan. Should the Alpiq group recognise impairment in its annual 2016 consolidated financial statements in March 2017, the EDF group would reflect that in its half-year financial statements at 30 June 2017.

Note 24 Inventories

The carrying value of inventories, broken down by nature, is as follows:

<i>(in millions of Euros)</i>	31/12/2016			31/12/2015		
	Gross value	Provision	Net value	Gross value	Provision	Net value
Nuclear fuel	10,923	(19)	10,904	11,104	(17)	11,087
Other fuel	1,281	(5)	1,276	1,657	(5)	1,652
Other raw materials	1,413	(296)	1,117	1,500	(276)	1,224
Work-in-progress for production of goods and services	197	(46)	151	215	(53)	162
Other inventories	711	(58)	653	613	(24)	589
TOTAL INVENTORIES	14,525	(424)	14,101	15,089	(375)	14,714

The more-than-one-year portion mainly concerns nuclear fuel inventories amounting to €8,182 million at 31 December 2016 (€8,198 million at 31 December 2015).

The value of EDF Trading's inventories stated at market value is €492 million at 31 December 2016 (€458 million at 31 December 2015).

Note 25 Trade receivables

Details of net trade receivables are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Trade receivables, gross value – excluding EDF Trading	21,022	20,439
Trade receivables, gross value – EDF Trading	3,331	2,974
Impairment	(1,057)	(1,154)
TRADE RECEIVABLES, NET VALUE	23,296	22,259

Most trade receivables mature within one year.

25.1 TRADE RECEIVABLES DUE AND NOT YET DUE

<i>(in millions of Euros)</i>	31/12/2016			31/12/2015		
	Gross value	Provision	Net value	Gross value	Provision	Net value
TRADE RECEIVABLES	24,353	(1,057)	23,296	23,413	(1,154)	22,259
overdue by up to 6 months	1,214	(186)	1,028	1,443	(279)	1,164
overdue by 6-12 months	491	(152)	339	572	(220)	352
overdue by more than 12 months	1,105	(595)	510	1,207	(573)	634
Trade receivables due	2,810	(933)	1,877	3,222	(1,072)	2,150
Trade receivables not yet due	21,543	(124)	21,419	20,191	(82)	20,109

25.2 ASSIGNMENT OF RECEIVABLES

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Trade receivables assigned and wholly retained in the balance sheet	–	–
Trade receivables assigned and partly retained in the balance sheet	33	39
Trade receivables assigned and wholly derecognised	1,304	1,544

The Group assigned trade receivables for a total of €1,304 million at 31 December 2016, including €665 million by the Edison group (€1,544 million at 31 December 2015, including €911 million by the Edison group).

As most assignment operations are carried out on a recurrent, without-recourse basis, the corresponding receivables are not carried in the Group's consolidated balance sheet.

Note 26 Other receivables

Details of other receivables are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Prepaid expenses	1,567	1,532
Contribution to the Public Electricity Service (CSPE)	1,647	1,643
VAT receivables	2,862	2,795
Other tax receivables	1,754	845
Other operating receivables	5,090	3,822
OTHER RECEIVABLES	12,920	10,637
Non-current portion	2,268	1,830
Current portion	10,652	8,807
Gross value	13,135	10,832
Impairment	(215)	(195)

At 31 December 2016, other receivables include an amount of €1,647 million corresponding to the CSPE receivable (€1,643 million at 31 December 2015). The rest of the CSPE receivable is reported in "Loans and financial receivables" (see note 36.3).

Note 27 Equity**27.1 SHARE CAPITAL**

At 31 December 2016, the share capital amounted to €1,054,568,341.50, comprising 2,109,136,683 fully subscribed and paid-up shares with nominal value of €0.50 each, owned 85.62% by the French State, 12.68% by the public (institutional and private investors) and 1.57% by current and retired Group employees, with 0.13% held by EDF as treasury shares.

In June 2016, payment of part of the outstanding dividend for 2015 in the form of a scrip dividend led to a €47 million increase in the share capital and an issue premium of €892 million following the issuance of 93,112,364 new shares.

In October 2016, payment of part of the interim dividend for 2016 in the form of a scrip dividend led to a €48 million increase in the share capital and an issue premium of €875 million following the issuance of 95,885,292 new shares.

Under Article L. 111-67 of the French Energy Code, the French State must hold more than 70% of the capital of EDF at all times.

27.2 TREASURY SHARES

A share repurchase programme authorised by the General Shareholders' Meeting of 9 June 2006 was implemented by the Board of Directors, within the limit of 10% of the total number of shares making up the Company's capital. The initial duration of the programme was 18 months, renewed for 12 months then by tacit agreement every year.

A liquidity contract exists for this programme, as required by the French market regulator AMF (*Autorité des marchés financiers*).

At 31 December 2016, treasury shares deducted from consolidated equity represent 2,669,215 shares with total value of €29 million.

27.3 DIVIDENDS

The General Shareholders' Meeting of 12 May 2016 decided to distribute an ordinary dividend of €1.10 per share in respect of 2015, offering the choice of receiving this dividend in cash, or in the form of shares (scrip option).

In application of Article 24 of EDF's articles of association, shareholders who have held their shares continuously for at least two years at the year-end and still hold them at the dividend distribution date benefit from a 10% bonus on their dividends. The number of shares carrying an entitlement to the bonus dividend cannot exceed 0.5% of the company's capital for a single shareholder. The bonus dividend amounts to €1.21 per share.

As interim dividends of €0.57 per share had been paid out on 18 December 2015, the balance payable for 2015 amounted to €0.53 per share benefiting from the ordinary dividend and €0.64 per share benefiting from the bonus dividend. The balance of the dividend was paid out on 30 June 2016.

The French government opted for the scrip dividend for this distribution.

The amount of the cash dividend paid to shareholders who did not opt for the scrip dividend amounted to €82 million.

On 30 September 2016, EDF's Board of Directors decided to distribute an interim dividend of €0.50 per share in respect of 2016. This interim dividend amounting to a total of €1,006 million was paid out in the form of new shares (scrip option) or cash on 31 October 2016.

The French government opted for the scrip interim dividend.

The amount of the cash dividend paid to shareholders who did not opt for the scrip interim dividend for 2016 amounted to €83 million.

27.4 EQUITY INSTRUMENTS

At 31 December 2016, perpetual subordinated bonds are carried in equity at the amount of €10,095 million (net of transaction costs).

Interest paid by EDF to the bearers of perpetual subordinated bonds issued in January 2013 and January 2014 totalled €582 million in 2016 and €591 million in 2015.

In January 2017, EDF paid interest of £60 million, US\$121 million and €211 million (or a total of around €394 million) to the bearers of perpetual subordinated bonds. In application of IAS 32, an amount corresponding to the cash paid out will be charged to Group equity in the first half of 2017.

Perpetual subordinated bonds in the accounts of EDF

(in millions of currencies)

Entity	Issue	Issue amount	Currency	Repayment option	Rate
EDF	01/2013	1,250	EUR	7 years	4.25%
EDF	01/2013	1,250	EUR	12 years	5.38%
EDF	01/2013	1,250	GBP	13 years	6.00%
EDF	01/2013	3,000	USD	10 years	5.25%
EDF	01/2014	1,500	USD	10 years	5.63%
EDF	01/2014	1,000	EUR	8 years	4.13%
EDF	01/2014	1,000	EUR	12 years	5.00%
EDF	01/2014	750	GBP	15 years	5.88%

Other equity instruments

Other equity instruments are financial instruments issued by the Group that qualify as equity instruments under IAS 32.

In December 2016, the Dalkia group's Cogestar entities issued an instrument consisting of convertible bonds. At 31 December 2016, the total amount of the instrument recorded in equity is €86 million (see note 5.1).

27.5 NON-CONTROLLING INTERESTS (MINORITY INTERESTS)**27.5.1 Details of non-controlling interests**

<i>(in millions of Euros)</i>	31/12/2016			31/12/2015	
	Ownership %	Equity (non-controlling interests)	Net income attributable to non-controlling interests	Equity (non-controlling interests)	Net income attributable to non-controlling interests
Principal non-controlling interests:					
EDF Energy Nuclear Generation Ltd.	20.0	2,773	111	3,174	231
NNB Holding Ltd.	33.5	1,718	–	–	–
EDF Investissements Groupe SA	6.1	516	13	526	30
EDF Luminus SA	31.4	390	3	391	(74)
Other non-controlling interests ⁽¹⁾		1,527	33	1,400	27
TOTAL		6,924	160	5,491	214

(1) Including Sizewell C Holding Co.

Non-controlling interests in EDF Energy Nuclear Generation Ltd. (formerly British Energy), which is owned 80% by the Group via EDF Energy, correspond to Centrica's share.

Non-controlling interests in NNB Holding Limited, the holding company for the Hinkley Point C project, which is owned 66.5% by the Group via EDF Energy, correspond to CGN's share (see note 3.2).

Non-controlling interests in EDF Luminus correspond to the investments held by Belgian local authorities (see note 5.2.3).

Non-controlling interests in EDF Investissements Groupe correspond to the investment held by Natixis Belgique Investissements.

Other non-controlling interests principally correspond to the investments held by Total and Fluxys in Dunkerque LNG, and minority interests in subsidiaries of the Edison subgroup.

27.5.2 Non-controlling interests in EDF Energy

The key financial indicators (100% basis) for EDF Energy Nuclear Generation Ltd. are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Non-current assets	21,877	24,750
Current assets	3,325	3,710
Total assets	25,202	28,460
Equity	13,870	15,877
Non-current liabilities	11,058	11,465
Current liabilities	274	1,118
Total equity and liabilities	25,202	28,460
Sales	3,805	4,434
Net income	653	1,155
Gains and losses recorded directly in equity	(1,804)	758
Net cash flow from operating activities	1,296	1,655
Net cash flow from investing activities	(516)	(566)
Net cash flow from financing activities	(672)	(1,143)
Cash and cash equivalents – opening balance	422	466
Net increase/(decrease) in cash and cash equivalents	107	(54)
Effect of currency fluctuations	(62)	10
Other	–	–
Cash and cash equivalents – closing balance	468	422
Dividends paid to shares of non-controlling interests	151	(207)

Note 28 Provisions

The breakdown between current and non-current provisions is as follows:

<i>(in millions of Euros)</i>	Notes	31/12/2016			31/12/2015		
		Current	Non-current	Total	Current	Non-current	Total
Provisions for the back-end of the nuclear cycle		1,463	20,823	22,286	1,733	20,179	21,912
Provisions for decommissioning and last cores		208	24,020	24,228	251	24,646	24,897
Provisions related to nuclear generation	29	1,671	44,843	46,514	1,984	44,825	46,809
Provisions for decommissioning of non-nuclear facilities	30	63	1,506	1,569	75	1,447	1,522
Provisions for employee benefits	31	1,100	21,234	22,334	1,033	21,511	22,544
Other provisions	32	2,394	2,155	4,549	2,262	2,190	4,452
TOTAL PROVISIONS		5,228	69,738	74,966	5,354	69,973	75,327

Note 29 Provisions related to nuclear generation – back-end of the nuclear cycle, plant decommissioning and last cores

Provisions related to nuclear generation comprise provisions for back-end nuclear cycle expenses (management of spent fuel and radioactive waste), provisions for plant decommissioning and provisions for last cores.

Provisions are estimated under the principles presented in note 1.3.2.1.

Obligations can vary noticeably depending on each country's legislation and regulations, and the technologies and industrial practices used in each company.

The movement in provisions for the back-end of the nuclear cycle, provisions for decommissioning and provisions for last cores breaks down as follows:

<i>(in millions of Euros)</i>	31/12/2015	Increases	Decreases	Discount effect	Translation adjustments	Other movements	31/12/2016
Provisions for spent fuel management	12,369	397	(1,596)	738	(286)	807	12,429
Provisions for long-term radioactive waste management	9,543	181	(233)	773	(174)	(233)	9,857
Provisions for the back-end of the nuclear cycle	21,912	578	(1,829)	1,511	(460)	574	22,286
Provisions for nuclear plant decommissioning	21,025	156	(175)	996	(893)	(541)	20,568
Provisions for last cores	3,872	–	–	160	(199)	(173)	3,660
Provisions for decommissioning and last cores	24,897	156	(175)	1,156	(1,092)	(714)	24,228
PROVISIONS RELATED TO NUCLEAR GENERATION	46,809	734	(2,004)	2,667	(1,552)	(140)	46,514

The breakdown of provisions by company is shown below:

(in millions of Euros)	EDF	EDF Energy	Belgium	Total
	Note 29.1	Note 29.2		
Provisions for spent fuel management	10,658	1,771	–	12,429
Provisions for long-term radioactive waste management	8,966	888	3	9,857
PROVISIONS FOR THE BACK-END OF THE NUCLEAR CYCLE AT 31/12/2016	19,624	2,659	3	22,286
Provisions for the back-end of the nuclear cycle at 31/12/2015	18,645	3,267	–	21,912
Provisions for nuclear plant decommissioning	14,122	6,190	256	20,568
Provisions for last cores	2,287	1,373	–	3,660
PROVISIONS FOR DECOMMISSIONING AND LAST CORES AT 31/12/2016	16,409	7,563	256	24,228
Provisions for decommissioning and last cores at 31/12/2015	17,485	7,207	205	24,897

29.1 NUCLEAR PROVISIONS IN FRANCE

In France, the provisions established by EDF for the nuclear generation fleet result from the Law of 28 June 2006 on long-term management of radioactive materials and waste, and the associated implementing provisions concerning secure financing of nuclear expenses.

In compliance with the accounting principles described in note 1.3.21:

- EDF books provisions to cover all obligations related to the nuclear facilities it operates;
- EDF holds dedicated assets for secure financing of long-term obligations (see note 47).

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs carries uncertainty factors such as:

- changes in legislation, particularly regarding safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la Gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in view of the regulatory limits, inflation rates, or changes in the contractual terms of spent fuel management.

Details of changes in provisions for the back-end of the nuclear cycle, decommissioning and last cores are as follows:

(in millions of Euros)	Notes	31/12/2015	Increases	Decreases ⁽¹⁾	Discount effect ⁽²⁾	Other movements ⁽³⁾	31/12/2016
Provisions for spent fuel management	29.1.1	10,391	389	(1,282)	637	523	10,658
Provisions for long-term radioactive waste management	29.1.2	8,254	173	(233)	729	43	8,966
Provisions for the back-end of the nuclear cycle		18,645	562	(1,515)	1,366	566	19,624
Provisions for nuclear plant decommissioning	29.1.3	14,930	156	(159)	723	(1,528)	14,122
Provisions for last cores	29.1.4	2,555	–	–	93	(361)	2,287
Provisions for decommissioning and last cores		17,485	156	(159)	816	(1,889)	16,409
PROVISIONS RELATED TO NUCLEAR GENERATION		36,130	718	(1,674)	2,182	(1,323)	36,033

(1) Following an update to the industrial scenario, services associated with additional interim storage of spent fuel do not longer need to be accrued for provisions. The decrease in provisions for spent fuel includes an amount of €491 million reversed from the provision for this reason.

(2) The discount effect comprises the €1,502 million cost of unwinding the discount, and the effects of the change of real discount rate in 2016 via the income statement for provisions with no related assets (€680 million).

(3) Other movements include changes in provisions with related assets (assets associated with provisions and underlying assets), resulting from the following in 2016:

- the consequences of extending the accounting depreciation period of the 900MW PWR series (see note 3.1), i.e. a €(2,044) million decrease in these provisions comprising €(1,465) million on provisions for decommissioning, €(470) million on provisions for last cores, and €(109) million on provisions for long-term radioactive waste management concerning waste resulting from decommissioning;
- the effects of the change in real discount rate at 31 December 2016 on the same provisions, which amounts to €662 million;
- revision of the decommissioning costs for the PWR plants currently in operation, amounting to €(451) million (see note 29.1.3).

Other movements also include a reclassification of €465 million from provisions for long-term radioactive waste management to provisions for spent fuel management.

29.1.1 Provisions for spent fuel management

EDF's currently adopted strategy with regards to the fuel cycle, in agreement with the French State, is to process spent fuel and to recycle the separated plutonium in the form of MOX fuel (Mixed OXyde of plutonium and uranium).

The quantities processed, totalling approximately 1,100 tonnes per year, are determined based on the quantity of recyclable plutonium in the reactors that are authorised to load MOX fuel.

Consequently, provisions for spent fuel cover services associated with the following:

- removal of spent fuel from EDF's generation centres, as well as reception and interim storage;
- processing, including conditioning and storage of recyclable matter and waste resulting from this processing.

The processing expenses included in the provision exclusively concern spent fuel that can be recycled in existing facilities, including the portion in reactors but not yet irradiated.

Expenses are measured based on forecast physical flows at the year-end, with reference to the contracts currently in effect with AREVA following the framework agreement for the period 2008-2040, which has given rise to the following contracts:

- an implementation contract signed in July 2010, setting the prices and quantities of services for the period 2008-2012;
- an implementation contract signed in May 2015 defining the conditions for processing and recycling over the period 2013-2015;

The provision for long-term radioactive waste management breaks down as follows:

(in millions of Euros)

	31/12/2016	31/12/2015
Very low-level and low and medium-level waste	1,066	988
Long-lived low-level waste	256	252
Long-lived medium and high-level waste ⁽¹⁾	7,644	7,014
PROVISIONS FOR LONG-TERM RADIOACTIVE WASTE MANAGEMENT	8,966	8,254

(1) Including provisions for retrieval and conditioning of waste.

Very low-level and low and medium-level waste

Very low-level waste mainly comes from nuclear plant decommissioning, and generally takes the form of rubble (concrete, scrap metal, insulating materials and piping). This type of waste is stored at surface level at the Morvilliers storage centre managed by ANDRA.

Low and medium-level waste comes from nuclear facilities (gloves, filters, resins). This type of waste is stored at surface level at the Soulaines storage centre managed by ANDRA.

The cost of removing and storing short-lived waste (very low-level and low and medium-level) is assessed on the basis of current contracts with transporters and contracts with ANDRA for operation of the existing storage centres.

Long-lived low-level waste

Long-lived low-level waste belonging to EDF essentially consists of graphite waste from the ongoing decommissioning of the former UNGG (natural uranium graphite gas-cooled) reactors.

As this waste has a long lifetime, but is lower-level than long-lived medium and high-level waste, specific subsurface storage requirements apply under the French Law of 28 June 2006.

- an amendment signed on 5 February 2016 laying down the terms of implementation for the period 2016-2023, which was previously covered by an agreement of December 2015, presented to the Board of Directors on 27 January 2016.

The provision also covers long-term storage of spent fuel that cannot currently be recycled in existing installations: plutonium fuel (MOX) or uranium fuel derived from enriched processing, and fuel from Creys-Malville and Brennilis.

29.1.2 Provisions for long-term radioactive waste management

These provisions concern future expenses for:

- removal and storage of radioactive waste resulting from decommissioning of nuclear installations operated by EDF;
- removal and storage of radioactive waste packages resulting from spent fuel processing;
- EDF's share of the costs of studies, construction, operation and maintenance, shutdown and surveillance of existing and future storage centres.

The volumes of waste concerned by provisions include existing packages of waste and all waste to be conditioned, resulting from plant decommissioning or spent fuel processing at La Hague (comprising all fuel in reactors at 31 December, irradiated or otherwise). These volumes are regularly reviewed, in keeping with the data declared for the purposes of the national waste inventory undertaken by ANDRA.

An initial site search launched by ANDRA in 2008 was unsuccessful. ANDRA resumed this search in 2013 and is currently continuing feasibility studies in liaison with the authorities. Other alternative management scenarios are also being examined, including new specifications for a broader range of potential management solutions.

The benchmark scenario for dismantling the UNGG plants, established in 2015 (see note 29.1.3), sets out a sequence for dismantling operations. In particular, the aim is to consolidate experience acquired from dismantling the first caisson (UNGG reactor building) before beginning work on the other five. The new schedule also defers the dates for removal of waste (graphite and long-lived medium-level waste). In 2015 this change led to a reversal of €292 million from the provision for long-lived low-level waste, and a smaller €40 million reversal from the provision for very low-level and low and medium-level waste resulting from decommissioning of the UNGG plants, giving a total reversal of €332 million from the provision for long-term waste management.

Long-lived medium and high-level waste

Long-lived medium and high-level waste essentially comes from processing of spent fuel, and to a lesser extent waste resulting from nuclear plant decommissioning (metallic components that have been inside the reactor).

The French Law of 28 June 2006 requires reversible storage in deep geological layers for this type of waste.

The provision established for long-lived medium and high-level waste is the largest component of provisions for long-term radioactive waste management.

From 2005, the gross value and disbursement schedules for forecast expenses were based on a scenario of industrial geological waste storage, following conclusions presented in the first half of 2005 by a working group formed under supervision of the State involving representatives of the administrations concerned, ANDRA and the producers of waste (EDF, AREVA, CEA). EDF applied a reasonable approach to information supplied by this working group, leading to a benchmark cost, for storage of waste from all producers, of €14.1 billion under the economic conditions of 2003 (€20.8 billion under 2011 economic conditions).

In the partnership set up in 2011 between ANDRA and waste producers to contribute to the success of the geological storage project (the Cigéo project), ANDRA carried out preliminary conceptual studies from 2012, and analysed the technical optimisations proposed by the producers. The cooperation between ANDRA and producers provided a forum for formal technical discussions that resulted in optimisation of the waste storage design (for example new sizing for the above-ground installations, a significant reduction in the length of underground structures, thinner coatings, etc) and operating conditions (such as new timetables for package transfer, leading to a substantial reduction in the numbers of operating staff).

On this basis, ANDRA drew up provisional figures in a report sent to EDF on 18 July 2014. In compliance with the Law of 28 June 2006, a consultation process was started by the French Department for Energy and Climate (*Direction Générale de l'Énergie et du Climat* or DGEC) on 18 December 2014, when ANDRA's consolidated figures were submitted to the waste producers for their comments. The consultation focused mainly on methods for incorporating risks, opportunities and uncertainties, and on unit costs, which are still a point of significant divergence between ANDRA and the producers. EDF and the other producers sent their comments on ANDRA's report to the DGEC in February 2015 and a joint estimation of the target Cigéo storage cost in April 2015. All this information was included in the report submitted to the Minister for Ecology, Sustainable Development and Energy, who will set the new benchmark cost for storage of long-lived medium and high-level waste after consulting the Nuclear Safety Authority (ASN).

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued a Ministerial Order setting the cost associated with the implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation is required by Article L. 542-12 of France's Energy Code.

The cost as defined constitutes an objective to be met by ANDRA, in compliance with safety standards set by the ASN, working in close liaison with the operators of nuclear installations.

Publication of this Order entailed an €820 million adjustment to the provision shown in the Group's financial statements at 31 December 2015. The cost of the Cigéo project defined in the Order has replaced the estimated benchmark cost of €20.8 billion previously used by EDF for its consolidated financial statements.

In application of this Ministerial Order, the cost of the Cigéo project will be regularly updated, at least at each key milestone in the course of the project's development (authorisation to create the facility, commissioning, end of the "pilot industrial phase", safety reviews) in accordance with the opinion of the ASN.

Design studies for future facilities are currently in process with ANDRA, with a view to filing an application to build a new basic nuclear facility by 2018. The Law of 11 July 2016 which defines the terms for creation of a reversible deep geological storage facility, is an important step towards issuance of the authorisation. Under the timetable set by ANDRA, authorisation to create the facility should be given in 2021 and the first waste should arrive in 2030.

The provision for long-lived medium and high-level waste also includes provisions for retrieval and conditioning of waste, amounting to €581 million (of which €452 million were booked in 2016, notably for long-lived medium-level radioactive waste from operations).

29.1.3 Decommissioning provisions for nuclear power plants

EDF bears full technical and financial responsibility for decommissioning of the nuclear plants it operates. The decommissioning process is governed by French Law of 13 June 2006, Decree 2007-1557 of 2 November 2007, and the French Environment Code (Articles L. 593-25 and following). It involves the following operations for each site:

- a shutdown declaration, to be made at least two years prior to the planned shutdown date:
 - since the Energy Transition Law of 17 August 2015, the final shutdown, which takes place during the operating phase of the basic nuclear facility, is considered separately from dismantling, as a notable change of lesser importance (simply requiring a declaration by the operator to the Minister and the ASN);
- an application for decommissioning, which after examination by the authorities and a public inquiry, leads to a single decree authorising the decommissioning;
- key progress reviews with the ASN, included in a formal safety procedure specific to dismantling operations;
- an internal authorisation procedure for the operator, independent of operational personnel and audited by the ASN, allowing some specific work to be started ahead of the authorised safety procedure;
- finally, once these operations are complete, declassification of the facility to remove it from the legal regime governing basic nuclear facilities.

The decommissioning scenario adopted by EDF complies with France's Environmental Code, which requires as short a period as possible to elapse between final shutdown and dismantling in economically acceptable conditions and in compliance with the principles laid down in Article L. 1333-1 of the Public Health Code (radioprotection) and section II of Article L. 110-1 of the Environmental Code (protection of the environment). The intended end-state is industrial use: the sites will be restored to their original condition and will be reusable for industrial facilities.

The decommissioning provisions cover future decommissioning expenses as described above (excluding the cost of removing and storing waste, which is covered by the provision for long-term waste management).

Details of changes in decommissioning provisions for nuclear power plants are as follows:

<i>(in millions of Euros)</i>	31/12/2015	Increases	Decreases	Discount effect	Other movements	31/12/2016
Provisions for decommissioning nuclear plants in operation	11,944	–	(23)	472	(1,494)	10,899
Provisions for decommissioning permanently shut-down nuclear plants	2,986	156	(136)	251	(34)	3,223
DECOMMISSIONING PROVISIONS FOR NUCLEAR POWER PLANTS	14,930	156	(159)	723	(1,528)	14,122

For nuclear power plants currently in operation (PWR pressurized water reactor plants with 900MW, 1,300MW and N4 reactors)

Until 2013, provisions were estimated based on a 1991 study by the French Ministry of Trade and Industry, which set an estimated benchmark cost for decommissioning expressed in €/MW, confirming the assumptions defined in 1979 by the PEON commission.

In 2009, EDF carried out a detailed study of decommissioning costs, using Dampierre (four 900MW units) as a representative site. This study involved the following steps:

- measurement of the decommissioning cost for the Dampierre site, taking into consideration the most recent developments in regulations, past experience in decommissioning of shut-down plants and recommendations issued by the ASN;
- a review of the timeline for decommissioning operations (the total duration of decommissioning for one reactor was estimated at 15 years following shutdown);
- determination of the rules for extrapolation of cost estimates for the entire fleet of PWR plants in operation.

An intercomparison with the study carried out by consultants La Guardia, based mainly on the Maine Yankee reactor in the US which is comparable in terms of technology and capacity, subsequently corroborated the results of EDF's study.

In 2014 the Dampierre study was reviewed by EDF to make sure that the previous calculations were still valid in view of recent developments and experience, both internationally and internally. This review reinforced the amounts of decommissioning provisions for plants in operation based on costs resulting from the Dampierre study, incorporating best estimates and feedback in and outside France. This change of estimate had no significant impact on the level of provisions at 31 December 2014.

Between June 2014 and July 2015, an audit of dismantling costs for EDF's nuclear fleet currently in operation was conducted by specialised consulting firms, at the request of the French Department for Energy and Climate (*Direction Générale de l'Énergie et du Climat* or DGEC). On 15 January 2016 the DGEC published a summary of the audit report. It stated that although estimating the cost of decommissioning nuclear reactors is a demanding exercise due to relatively limited past experience, the prospects of changes in techniques, and the distant timing of the expenditure, overall, the audit confirmed EDF's estimate of decommissioning costs for its nuclear fleet currently in operation. The DGEC also made a number of recommendations to EDF following this audit.

In 2016, EDF revised the decommissioning estimate, in order to incorporate the audit recommendations and past experience gained from dismantling operations for first-generation reactors (particularly Chooz A).

A detailed analytical approach was used to revise this estimate, identifying all costs for the engineering, construction work, operation and waste processing relating to future dismantling of reactors currently in operation.

This led to figures based on detailed timetables for plant decommissioning. The approach adopted made it possible to explore more thoroughly the assessment of costs specific to the initial units of each series and the series and mutualisation effects, as these costs and effects are inherent to the fleet's size and configuration.

The Group considers that the work done to revise the estimate answers the recommendations issued after the audit. The approach adopted and its results have been presented to the administrative authority and are currently the subject of further questions and discussion.

EDF is also continuing to support its analyses through an international comparison, making it sure it takes into consideration a number of factors that could distort direct comparisons, for example differences in the scope concerned by costs estimate, or national and regulatory contexts.

The results of the work accomplished this year lead overall to limited changes in the costs estimate and the associated provisions at 31 December 2016, apart from the consequences of the change in the depreciation period for 900MW series plants (excluding Fessenheim) at 1 January 2016, and the effect of changes in discount rates at 31 December 2016.

To note for the limited changes:

- an increase of €321 million in the estimated decommissioning costs and an increase of €334 million in the estimated cost of long-term management of long-lived medium-level waste; and
- a decrease of €(451) million in the provision for plant decommissioning, and an increase of €162 million in the provision for long-term management of long-lived medium-level waste, with corresponding changes in the underlying assets.

For permanently shut-down nuclear power plants

Unlike the PWR fleet currently in operation, the first-generation reactors now shut down used a range of different technologies: a PWR reactor at Chooz A, UNGG (natural uranium graphite gas-cooled) reactors at Bugey, St-Laurent and Chinon, a heavy water reactor at Brennilis, and a sodium-cooled fast neutron reactor at Creys-Malville.

The decommissioning costs are based on contractor quotes, which take account of accumulated industrial experience, unforeseen and regulatory developments, and the latest available figures.

In 2015 the industrial strategy for UNGG plants was totally revised. The previously selected strategy was based on a scenario involving "underwater" dismantling of caissons (UNGG reactor buildings) for four of the reactors, with direct graphite storage in a centre currently under examination by ANDRA (see Long-lived low-level waste, note 29.1.2). This scenario was re-examined in view of several new technical factors (new technical information indicating industrial difficulties in underwater dismantling in this specific case, lower visibility on the availability of graphite storage, etc). The new information also brought out an alternative "in-air" dismantling solution for the caissons, which facilitates industrial control of operations and would be more favourable in terms of safety, radioprotection and environmental impact. The company has therefore selected a new "in-air" dismantling scenario as the benchmark strategy for all six caissons.

The amended scenario was presented to the ASN's commissioners on 29 March 2016, and shared with local stakeholders in the Local Information Commissions for the sites concerned. A further presentation to the ASN is scheduled for mid-2017. For both scenarios, the studies to update contractor quotes have led to a significant increase in forecast decommissioning costs for these caissons. The selected scenario includes a consolidation phase, building on experience acquired from dismantling the first caisson before beginning work on the other five. Under this scenario, the decommissioning phase will ultimately be longer than previously planned, leading to higher contractor quotes due to the induced operating costs.

Updating the industrial decommissioning scenario for first-generation power plants, particularly UNGs, led to a €590 million increase in the provision at 31 December 2015.

After the revision of the estimated cost in 2015, the decision was made that it should be reviewed annually. In 2016 this review gave rise to adjustments that were non-significant except for one specific installation (the Irradiated Materials Workshop at Chinon), for which the provision was increased by €125 million.

29.1.4 Provisions for last cores

These provisions cover the future expenses resulting from scrapping fuel that will only be partially irradiated when the reactor is shut down. It is measured based on:

- the cost of the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints;
- the cost of fuel processing, and waste removal and storage operations. These costs are valued in a similar way to provisions for spent fuel management and long-term radioactive waste management.

These unavoidable costs are components of the cost of nuclear reactor shutdown and decommissioning. As such, they are fully covered by provision from the commissioning date and an asset associated with the provision is recognised.

29.1.5 Discounting of provisions related to nuclear generation and sensitivity analyses

29.1.5.1 Discount rate

Calculation of the discount rate

The discount rate is determined based on long-series data for a sample of bonds with maturities as close as possible to that of the liability. However, some expenses covered by these provisions will be disbursed over periods significantly longer than the duration of instruments generally traded on the financial markets.

The benchmark used to determine the discount rate is the sliding 10-year average of the return on French OAT 2055 treasury bonds, which have a similar duration to the obligations, plus the spread of corporate bonds rated A to AA, which include EDF.

The methodology used to determine the discount rate, particularly the reference to sliding 10-year averages, is able to prioritise long-term trends in rates, in keeping with the long-term horizon for disbursements. The discount rate is therefore revised in response to structural developments in the economy leading to medium and long-term changes.

The assumed inflation rate is determined in line with the forecasts provided by consensus and expected inflation based on the returns on inflation-linked bonds.

The discount rate determined in this way is 4.2% at 31 December 2016, assuming inflation of 1.5% (4.5% and 1.6% respectively at 31 December 2015), giving a real discount rate of 2.7% at 31 December 2016 (2.9% at 31 December 2015).

Regulatory discount rate limit

The discount rate applied must also comply with two regulatory limits. Since the ministerial order of 24 March 2015, the discount rate must be lower than:

- a regulatory maximum "equal to the arithmetic average over the 120 most recent months of the constant 30-year rate (TEC 30 years), observed on the last date of the period concerned, plus one point"; and
- the expected rate of return on assets covering the liability (dedicated assets).

The ceiling rate based on the TEC 30-year rate is 4.3% at 31 December 2016 (4.6% at 31 December 2015).

In a letter dated 10 February 2017, the Minister for the Economy and Finance and the Minister for the Environment, Energy and the Sea announced their decision to change the calculation formula for the regulatory limit on discount rates with effect from 2017. This decision will be set out in an amendment to the ministerial order of 21 March 2007, itself modified by the order of 24 March 2015. This amendment comes after joint work by the nuclear operators and public authorities to establish a formula for a maximum discount rate, taking into account the long time horizons of nuclear liabilities and prudential objectives for secure financing of long-term nuclear expenses.

Under the new formula, the regulatory limit will gradually migrate from its level at 31 December 2016 (4.3%) until by 2026 it is equal to the average constant 30-year rate (TEC 30 years) over the four most recent years, plus 100 base points.

Considering past and anticipated changes in rates, the new formula, which will progressively incorporate the move from the regulatory 4.3% to a four-year average including a 100 base point spread, should mean that future years see smoother changes in the regulatory limit than under the previous formula.

29.1.5.2 Analyses of sensitivity to macro-economic assumptions

Sensitivity to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules can be estimated through comparison of the gross amount estimated under year-end economic conditions with the present value of the amount.

(in millions of Euros)	31/12/2016		31/12/2015	
	Costs based on year-end economic conditions ⁽¹⁾	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
Spent fuel management ⁽²⁾	18,460	10,658	16,843	10,391
Long-term radioactive waste management ⁽³⁾	29,631	8,966	28,890	8,254
BACK-END NUCLEAR CYCLE EXPENSES	48,091	19,624	45,733	18,645
Decommissioning provisions for nuclear power plants ⁽⁴⁾	26,616	14,122	26,067	14,930
Provisions for last cores	4,344	2,287	4,113	2,555
DECOMMISSIONING AND LAST CORE EXPENSES	30,960	16,409	30,180	17,485

(1) An amount of €1,368 million has been reclassified from provisions for long-term radioactive waste management to provisions for spent fuel management.

(2) Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of spent fuel management, based on year-end economic conditions, includes an amount of €(540) million related to the lower cost estimate for additional interim spent fuel storage services, which are no longer covered by a provision. Other changes notably concern updating of the contractor quote for processing of spent fuel loaded in the reactors in 2016.

(3) Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of long-term radioactive waste management, based on year-end economic conditions, includes an amount of €729 million for retrieval and conditioning of waste, particularly the long-lived medium-level waste resulting from operations and decommissioning of plants in operation. Other changes mainly concern adjustment of the Cigéo estimate for processing of spent fuel loaded in the reactors in 2016.

(4) The increase between 2015 and 2016 of the cost of nuclear plant decommissioning based on year-end economic conditions includes an amount of €321 million resulting from revision of the cost estimate for decommissioning of plants currently in operation.

This approach can be complemented by estimating the impact of a change in the discount rate on the present value.

In application of Article 11 of the Decree of 23 February 2007, the following table reports these details for the main components of provisions for the back-end of the nuclear cycle, decommissioning of nuclear plants and last cores:

At 31 December 2016

(in millions of Euros)	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provision		Pre-tax net income	
		+0.20%	-0.20%	+0.20%	-0.20%
Back-end nuclear cycle expenses:					
■ spent fuel management	10,658	(211)	227	182	(195)
■ long-term radioactive waste management	8,966	(475)	534	381	(432)
Decommissioning and last cores:					
■ decommissioning of nuclear power plants	14,122	(586)	619	127	(138)
■ last cores	2,287	(85)	90	–	–
TOTAL	36,033	(1,357)	1,470	690	(765)

At 31 December 2015

(in millions of Euros)	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provision		Pre-tax net income	
		+0.20%	-0.20%	+0.20%	-0.20%
Back-end nuclear cycle expenses:					
■ spent fuel management	10,391	(168)	177	140	(149)
■ long-term radioactive waste management	8,254	(400)	448	337	(376)
Decommissioning and last cores:					
■ decommissioning of nuclear power plants	14,930	(496)	522	122	(131)
■ last cores	2,555	(62)	65	–	–
TOTAL	36,130	(1,126)	1,212	599	(656)

29.2 EDF ENERGY'S NUCLEAR PROVISIONS

The specific financing terms for long-term nuclear obligations related to EDF Energy are reflected as follows in the EDF group's financial statements:

- the obligations are reported in liabilities in the form of provisions amounting to €10,222 million at 31 December 2016;

- in the assets, EDF Energy reports receivables corresponding to the amounts payable under the restructuring agreements by the NLF, for non-contracted obligations or decommissioning obligations, and by the British Government for contracted obligations (or historical liabilities).

These receivables are discounted at the same real rate as the obligations they are intended to finance. They are included in "Financial assets" in the consolidated balance sheet (see note 36.3) at the amount of €8,743 million at 31 December 2016 (€9,061 million at 31 December 2015).

Details of changes in provisions for the back-end of the nuclear cycle and provisions for decommissioning and last cores are as follows:

(in millions of Euros)	31/12/2015	Increases	Decreases	Discount effect	Translation adjustments	Other movements ⁽¹⁾	31/12/2016
Provisions for spent fuel management	1,978	8	(314)	101	(286)	284	1,771
Provisions for long-term radioactive waste management	1,289	4	–	44	(174)	(275)	888
Provisions for the back-end of the nuclear cycle	3,267	12	(314)	145	(460)	9	2,659
Provisions for nuclear plant decommissioning	5,890	–	(16)	263	(893)	946	6,190
Provisions for last cores	1,317	–	–	67	(199)	188	1,373
Provisions for decommissioning and last cores	7,207	–	(16)	330	(1,092)	1,134	7,563
PROVISIONS RELATED TO NUCLEAR GENERATION	10,474	12	(330)	475	(1,552)	1,143	10,222

(1) Other movements include a €955 million change in nuclear liabilities, with a corresponding change in the receivable representing reimbursements due from the NLF (Nuclear Liabilities Fund) and the British government. This change resulted from the 3-yearly revision in 2016 of assumptions used in calculating nuclear liabilities.

29.2.1 Regulatory and contractual framework

Amendments signed with the Nuclear Liabilities Fund (NLF – an independent trust set up by the UK Government as part of the restructuring of British Energy) following the EDF group's acquisition of British Energy have a limited impact on the contractual financing commitments made to British Energy by the UK Secretary of State and the NLF under the "Restructuring Agreements". These agreements were entered into by British Energy on 14 January 2005 as part of the restructuring led by the UK Government from 2005 in order to stabilise British Energy's financial position. British Energy Generation Limited changed its name to EDF Energy Nuclear Generation Limited on 1 July 2011 and replaced British Energy in these agreements and amendments.

Under the terms of the Restructuring Agreements:

- the NLF agreed to fund, to the extent of its assets: (i) qualifying contingent and/or latent nuclear liabilities (including liabilities for management of spent fuel from the Sizewell B power station); and (ii) qualifying decommissioning costs for EDF Energy's existing nuclear power stations;
- the Secretary of State agreed to fund: (i) qualifying contingent and/or latent nuclear liabilities (including liabilities for the management of spent fuel from the Sizewell B power station) and qualifying decommissioning costs related to EDF Energy's existing nuclear power stations, to the extent that they exceed the assets of the NLF; and (ii) subject to a cap of £2,185 million (in December 2002 monetary values, adjusted accordingly), qualifying known existing liabilities for EDF Energy's spent fuel (including

liabilities for management of spent fuel from plants other than Sizewell B loaded in reactors prior to 15 January 2005);

- EDF Energy is responsible for funding certain excluded or disqualified liabilities (e.g. those defined as EDF Energy liabilities), and additional liabilities which could be created as a result of failure by EDF Energy to meet minimum performance standards under applicable law. The obligations of EDF Energy to the NLF and the Secretary of State are guaranteed by the assets of the principal members of EDF Energy.

EDF Energy has also undertaken commitments to pay:

- annual decommissioning contributions for a period limited to the useful life of the plants as at the date of the "restructuring agreements"; the corresponding provision amounts to €131 million at 31 December 2016;
- £150,000 (indexed to inflation) per tonne of uranium loaded in the Sizewell B reactor after the date of the "restructuring agreements".

Furthermore, EDF Energy has entered into a separate contract with the Nuclear Decommissioning Authority (NDA) for management of AGR spent fuel and associated radioactive waste resulting from operation of power plants other than Sizewell B after 15 January 2005, and bears no

responsibility for this fuel and waste once it is transferred to the processing site at Sellafield. The corresponding costs of £150,000 (indexed to inflation) per tonne of loaded uranium – plus a rebate or surcharge dependent on market electricity price and electricity generated in the year – are included in inventories (see note 1.3.17.1).

29.2.2 Provisions for the back-end of the nuclear cycle

Spent fuel from the Sizewell B PWR (pressurised water reactor) plant is stored on site. Spent fuel from other plants is transferred to Sellafield for storage and reprocessing.

EDF Energy's provisions for the back-end of the nuclear cycle concern obligations for reprocessing and storage of spent fuel and long-term storage of radioactive waste, required by the existing regulations in the UK approved by the Nuclear Decommissioning Authority (NDA). Their amount is based on contractual agreements or if this is not possible, on the most recent technical estimates.

	31/12/2016		31/12/2015	
	Costs based on year-end economic conditions	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
Spent fuel management	3,101	1,771	3,037	1,978
Long-term radioactive waste management	5,326	888	8,178	1,289
BACK-END NUCLEAR CYCLE EXPENSES	8,427	2,659	11,215	3,267

29.2.3 Decommissioning provisions

Provisions for decommissioning of nuclear plants result from management's best estimates. They cover the full cost of decommissioning and are measured on the basis of existing techniques and methods that are most likely to be

used for application of current regulations. The current costs are based on Baseline Decommissioning Plans produced in 2012 and approved in 2013 and assume that plants will be decommissioned and the land will ultimately be reused.

	31/12/2016		31/12/2015	
	Costs based on year-end economic conditions	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
PLANT DECOMMISSIONING EXPENSES	15,803	6,059	16,997	5,732

The table above concerns decommissioning obligations excluding the present value of decommissioning contributions payable to the NLF, which is €131 million at 31 December 2016 (see note 29.2.1).

spread of UK Corporate bonds rated A to AA, again over the longest-term duration. The implicit inflation rate used in determining a discount rate is based on long-term forecast of adjusted retail prices (the UK's RPI index).

At 31 December 2016, EDF Energy applied a real discount rate of 2.7% to nuclear liabilities in the United Kingdom (3.0% at 31 December 2015).

29.2.4 Discounting of provisions related to nuclear generation

The discount rate has been calculated using an average series of data for a sample of UK Government gilts over the longest available durations plus the

Note 30 Provisions for decommissioning of non-nuclear facilities

The breakdown by company is as follows:

<i>(in millions of Euros)</i>	EDF	EDF Energy	Edison	Other entities	Total
PROVISIONS FOR DECOMMISSIONING OF NON-NUCLEAR FACILITIES AT 31/12/2016	617	90	667	195	1,569
Provisions for decommissioning of non-nuclear facilities at 31/12/2015	597	99	688	138	1,522

Provisions for decommissioning of non-nuclear facilities principally concern fossil-fired power plants and hydrocarbon production assets.

The costs of decommissioning fossil-fired power plants are calculated using regularly updated studies based on estimated future costs, measured by

reference to the charges recorded on past operations and the most recent estimates for plants still in operation.

The provision recorded at 31 December 2016 reflects the most recent known contractor quotes and commissioning of new generation assets.

Note 31 Provisions for employee benefits**31.1 EDF GROUP**

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Provisions for employee benefits – current portion	1,100	1,033
Provisions for employee benefits – non-current portion	21,234	21,511
PROVISIONS FOR EMPLOYEE BENEFITS	22,334	22,544

31.1.1 Breakdown of the change in the net liability

<i>(in millions of Euros)</i>	Obligations	Fund assets	Net Liability
Balance at 31/12/2015 ⁽¹⁾	41,567	(19,075)	22,492
Net expense for 2016	2,077	(547)	1,530
Actuarial gains and losses	2,041	(2,602)	(561)
Employer's contributions to funds	–	(694)	(694)
Employees' contributions to funds	11	(11)	–
Benefits paid	(1,701)	709	(992)
Translation adjustment	(1,298)	1,303	5
Changes in scope of consolidation	(11)	–	(11)
Other movements	(3)	–	(3)
BALANCE AT 31/12/2016	42,683	(20,917)	21,766

Including:

Provision for employee benefits	22,334
Non-current financial assets	(568)

(1) The net liability at 31 December 2015 comprised €22,544 million for the provision for employee benefits and €(52) million of non-current financial assets, giving a net liability amount of €22,492 million.

Actuarial gains and losses on obligations amount to €2,041 million for 2016, essentially comprising €1,349 million in the United Kingdom associated with changes in the discount and inflation rates (see note 31.3.6) and €643 million in France, mainly related to the effect of changes in financial assumptions:

- change in discount and inflation rate assumptions: €2,322 million;

- changes concerning the valuation of employee benefits in kind in the form of energy, particularly following the CSPE reform: €(1,742) million.

Actuarial gains and losses on assets amount to €(2,602) million for 2016 and reflect the rise in the value of fund assets, which is notably associated with the valuation of long-term obligations after a decrease in interest rates.

31.1.2 Post-employment and long-term employee benefit expenses

<i>(in millions of Euros)</i>	2016	2015
Current service cost	(890)	(1,032)
Past service cost	38	511
Actuarial gains and losses – long-term benefits	(177)	22
Net expenses recorded as operating expenses	(1,029)	(499)
Interest expense (discount effect)	(1,048)	(1,070)
Return on fund assets	547	538
Net interest expense included in financial result	(501)	(532)
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(1,530)	(1,031)
Actuarial gains and losses – post-employment benefits	(2,041)	1,490
Actuarial gains and losses on fund assets	2,602	(490)
Actuarial gains and losses	561	1,000
Translation adjustments	(5)	(18)
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	556	982

The past service cost in 2015 includes:

- income of €287 million resulting from the signature on 30 June 2015 by EDF and Engie of an agreement concerning the compensation system for employee benefits in kind in the form of energy. This agreement led to a contractual change in the number of beneficiaries covered by the Group;
- income of €154 million recognised by EDF Energy following a change of benefit plan. EDF Energy's defined-benefit pension plans now have a ceiling on pensionable pay over a threshold;

- a €67 million decrease in the Group's obligations related to a cap on the death benefit for retired employees. Law no. 2014-1544 of 22 December 2014 on social security financing for 2015 and Decree 2015-209 of 24 February 2015 introduced a fixed scale for death benefits in the normal French system. This was extended to the IEG sector by Decree 2015-1536 of 25 November 2015.

31.1.3 Net employee benefit liability by geographical area

<i>(in millions of Euros)</i>	France ⁽¹⁾	United Kingdom	Other	Total
Obligations at 31/12/2015	32,575	8,614	378	41,567
Net expense for 2016	1,575	486	16	2,077
Actuarial gains and losses	643	1,349	49	2,041
Employees' contributions to funds	–	11	–	11
Benefits paid	(1,420)	(270)	(11)	(1,701)
Translation adjustment	–	(1,299)	1	(1,298)
Changes in scope of consolidation	–	–	(11)	(11)
Other movements	–	–	(3)	(3)
OBLIGATIONS AT 31/12/2016	33,373	8,891	419	42,683
Fair value of fund assets	(11,566)	(9,248)	(103)	(20,917)
NET EMPLOYEE BENEFIT LIABILITY AT 31/12/2016	21,807	(357)	316	21,766
including:				
Provision for employee benefits	21,807	211	316	22,334
Non-current financial assets ⁽²⁾	–	(568)	–	(568)

(1) France comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 31.2).

(2) At 31 December 2016, EDF Energy recognised surplus funding on its EEGSG and BEGG pension schemes (see note 31.3.1).

<i>(in millions of Euros)</i>	France ⁽¹⁾	United Kingdom	Other	Total
Obligations au 31/12/2015	32,575	8,614	378	41,567
Fair value of fund assets	(10,499)	(8,505)	(71)	(19,075)
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2015	22,076	109	307	22,492
Including:				
Provision for employee benefits	22,076	161	307	22,544
Non-current financial assets	–	(52)	–	(52)

(1) France comprises the two operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 31.2).

31.2 FRANCE (REGULATED ACTIVITIES, AND GENERATION AND SUPPLY)

Given the strong similarities between their pension schemes, the two new operating segments "France – Generation and Supply" and "France – Regulated activities" (see note 6.1) are combined here into a single subtotal, France, which primarily includes EDF and Enedis. Almost all of these companies' employees have IEG status, including the special IEG pension and other IEG benefits.

These benefits are described in note 1.3.22.

31.2.1 Details of changes in the provision

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
Balances at 31/12/2015	32,575	(10,499)	22,076
Net expense for 2016	1,575	(252)	1,323
Actuarial gains and losses	643	(854)	(211)
Contributions to funds	–	(396)	(396)
Benefits paid	(1,420)	435	(985)
BALANCES AT 31/12/2016	33,373	(11,566)	21,807

31.2.2 Post-employment and long-term employee benefit expenses

<i>(in millions of Euros)</i>	2016	2015
Current service cost	(659)	(732)
Past service cost ⁽¹⁾	–	356
Actuarial gains and losses – long-term benefits	(177)	22
Net expenses recorded as operating expenses	(836)	(354)
Interest expense (discount effect)	(739)	(742)
Return on fund assets	252	229
Net interest expense included in financial result	(487)	(513)
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(1,323)	(867)
Actuarial gains and losses – post-employment benefits	(643)	1,136
Actuarial gains and losses on fund assets	854	(157)
Actuarial gains and losses	211	979
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	211	979

(1) In 2015, the past service cost includes €287 million relating to the EDF/Engie agreement of 30 June 2015 and €67 million relating to introduction of a fixed scale for death benefits (see note 31.1.2).

Actuarial gains and losses on post-employment benefits break down as follows:

<i>(In millions of Euros)</i>	2016	2015
Experience adjustments	(165)	360
Changes in demographic assumptions	23	35
Changes in financial assumptions ⁽¹⁾	(678)	763
ACTUARIAL GAINS AND LOSSES ON OBLIGATIONS	(820)	1,158
Including:		
Actuarial gains and losses on post-employment benefits	(643)	1,136
Actuarial gains and losses on long-term benefits	(177)	22

(1) Financial assumptions mainly concern the discount rate, inflation rate and wage increase rate, and in 2016, changes in assumptions regarding the value of benefits in kind (electricity/gas).

The actuarial gains and losses on obligations generated over 2016 amount to €(820) million, and are mainly attributable to revisions of financial assumptions (particularly the change in discount and inflation rates).

In 2015, actuarial gains and losses on obligations amounted to €1,158 million, mainly related to the effect of revised financial assumptions (including the changes in assumptions for the discount rate, and the AGIRC-ARRCO agreement of 30 October 2015 which led to a rise of €1 billion in the Group's employee benefit obligations).

31.2.3 Provisions for employee benefits by nature**At 31 December 2016**

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2016	31,876	(11,566)	20,310
Comprising:			
Pensions	24,976	(10,810)	14,166
Benefits in kind (electricity/gas)	4,695	–	4,695
Retirement gratuities	913	(741)	172
Other	1,292	(15)	1,277
Provisions for other long-term employee benefits at 31/12/2016	1,497	–	1,497
Comprising:			
Annuities following work-related accident and illness, and invalidity	1,252	–	1,252
Long service awards	213	–	213
Other	32	–	32
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2016	33,373	(11,566)	21,807

At 31 December 2015

<i>(in millions of Euros)</i>	Obligations	Fund assets	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2015	31,175	(10,499)	20,676
Comprising:			
Pensions	22,999	(9,753)	13,246
Benefits in kind (electricity/gas)	6,124	–	6,124
Retirement gratuities	888	(731)	157
Other	1,164	(15)	1,149
Provisions for other long-term employee benefits at 31/12/2015	1,400	–	1,400
Comprising:			
Annuities following work-related accident and illness, and invalidity	1,200	–	1,200
Long service awards	170	–	170
Other	30	–	30
PROVISIONS FOR EMPLOYEE BENEFITS AT 31/12/2015	32,575	(10,499)	22,076

31.2.4 Breakdown of obligations by type of beneficiary

<i>(In millions of Euros)</i>	31/12/2016	31/12/2015
Current employees	19,918	19,425
Retirees	13,455	13,150
OBLIGATIONS	33,373	32,575

31.2.5 Fund assets

For France, fund assets, managed under an Asset/Liability model, amount to €11,566 million at 31 December 2016 (€10,499 million at 31 December 2015) and concern the coverage of retirement gratuities (with target coverage of 100%) and the specific benefits of the special pension system.

Fund assets break down as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
FUND ASSETS	11,566	10,499
<i>Assets funding special pension benefits</i>	<i>10,810</i>	<i>9,753</i>
Comprising (%)		
Listed equity instruments (shares)	31%	29%
Listed debt instruments (bonds)	69%	71%
<i>Assets funding retirement gratuities</i>	<i>741</i>	<i>731</i>
Comprising (%)		
Listed equity instruments (shares)	33%	32%
Listed debt instruments (bonds)	67%	68%
<i>Other fund assets</i>	<i>15</i>	<i>15</i>

At 31 December 2016, the equities held as part of fund assets are distributed as follows:

- approximately 55% of the total are shares in North American companies;
- approximately 21% of the total are shares in European companies;
- approximately 24% of the total are shares in companies in the Asia-Pacific zone and emerging countries.

This distribution is relatively stable compared to the distribution at 31 December 2015.

They consist of insurance contracts with the following risk profile:

- 69% in a hedging pocket consisting of bonds, designed to replicate variations in the obligation caused by changes in interest rates;
- 31% in a growth asset pocket consisting of international equities.

At 31 December 2016, the bonds held as part of fund assets are distributed as follows:

- approximately 86% of the total are AAA and AA-rated bonds;
- approximately 14% of the total are bonds with A, BBB and other ratings.

Around 81% of bonds are sovereign bonds issued by Euro zone countries, and the balance mainly consists of bonds issued by financial and non-financial firms.

This distribution is stable compared to the distribution at 31 December 2015.

The performance of pension fund assets in France is +10.9% in 2016.

31.2.6 Future Cash Flows

Cash flows related to future employee benefits are as follows:

<i>(in millions of Euros)</i>	Cash flow in year-end economic conditions	Amount covered by provision (present value)
Less than one year	1,642	1,426
One to five years	5,771	5,435
Five to ten years	5,799	4,978
More than ten years	41,006	21,534
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	54,218	33,373

At 31 December 2016, the average duration of employee benefit commitments in France is 18.7 years.

31.2.7 Actuarial assumptions

(in %)	31/12/2016	31/12/2015
Discount rate/rate of return on assets ⁽¹⁾	1.90%	2.40%
Inflation rate	1.50%	1.60%
Wage increase rate ⁽²⁾	1.70%	1.70%

(1) The interest income generated by assets is calculated using the discount rate. The difference between this interest income and the return on assets is recorded in equity.

(2) Excluding inflation.

In France, the discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

Changes at 31 December 2016 in the economic and market parameters used have led the Group to set the discount rate at 1.90% at 31 December 2016 (versus 2.40% at 31 December 2015).

The inflation rate used to calculate provisions for employee benefits is derived from an internally-determined inflation curve by maturity which is used in the Group as a benchmark for Euro zone countries. The inflation rate determined in this way at 31 December 2016 is an average 1.50% (versus 1.60% at 31 December 2015).

31.2.8 Sensitivity analysis

Sensitivity analyses on the amount of the obligation are as follows:

(in %)	31/12/2016
Impact of a 25bp increase or decrease in the discount rate	-4.5%/+4.9%
Impact of a 25bp increase or decrease in the wage increase rate	+3.6%/-3.6%
Impact of a 25bp increase or decrease in the inflation rate	+4.7%/-4.3%

31.3 UNITED KINGDOM

The United Kingdom segment chiefly comprises EDF Energy, whose principal employee benefits are described in note 1.3.22.

31.3.1 Details of the change in the net liability

(in millions of Euros)	Obligations	Fund assets	Net liability
Balances at 31/12/2015	8,614	(8,505)	109
Net expense for 2016	486	(294)	192
Actuarial gains and losses	1,349	(1,717)	(368)
Employer's contributions to funds	–	(295)	(295)
Employees' contributions to funds	11	(11)	–
Benefits paid	(270)	270	–
Translation adjustment	(1,299)	1,304	5
BALANCES AT 31/12/2016	8,891	(9,248)	(357)
Including:			
Provision for employee benefits			211
Non-current financial assets			(568)

At 31 December 2016, EDF Energy's EEGSG and BEGG pension schemes (see note 1.3.22.2.2) were overfunded to the extent of €568 million compared to €52 million at 31 December 2015. This overfunding results from the favourable effect of the three-yearly negotiation, and the good performance by fund assets, and is recognised in balance sheet assets as "non-current financial assets".

31.3.2 Post-employment benefit and long-term employee benefit expenses

<i>(in millions of Euros)</i>	2016	2015
Current service cost	(224)	(290)
Past service cost ⁽¹⁾	40	154
Actuarial gains and losses – long-term benefits	–	–
Net expenses recorded as operating expenses	(184)	(136)
Interest expense (discount effect)	(302)	(322)
Return on fund assets	294	307
Net interest expense included in financial result	(8)	(15)
EMPLOYEE BENEFIT EXPENSES RECORDED IN THE INCOME STATEMENT	(192)	(151)
Actuarial gains and losses – post-employment benefits	(1,349)	332
Actuarial gains and losses on fund assets	1,717	(336)
Actuarial gains and losses	368	(4)
Translation adjustments	(5)	(17)
GAINS AND LOSSES ON EMPLOYEE BENEFITS RECORDED DIRECTLY IN EQUITY	363	(21)

(1) Including €154 million in 2015 relating to the ceiling on pensionable pay introduced at EDF Energy (see note 31.1.2).

31.3.3 Breakdown of obligations by type of beneficiary

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Current employees	5,195	5,443
Retirees	3,696	3,171
OBLIGATIONS	8,891	8,614

31.3.4 Fund assets

Pension obligations in the United Kingdom are partly covered by external funds with a present value of €9,248 million at 31 December 2016 (€8,505 million at 31 December 2015).

The investment strategy applied in these funds is a liability driven investment strategy. The allocation between growth and back-to-back is regularly reviewed by the trustees, at least after every actuarial valuation, to ensure that the funds' overall investment strategy remains coherent in order to achieve the target coverage level required.

These assets break down as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
BEGG pension fund	7,454	6,853
EEGSG pension fund	1,059	982
EEPS pension fund	735	670
FUND ASSETS	9,248	8,505
Comprising (%)		
Listed equity instruments (shares)	27%	34%
Listed debt instruments (bonds)	52%	42%
Real estate properties	6%	7%
Cash and cash equivalents	3%	2%
Other	12%	15%

At 31 December 2016, the equities held as part of fund assets are distributed as follows:

- approximately 32% of the total are shares in North American companies;
- approximately 41% of the total are shares in European companies;
- approximately 27% of the total are shares in companies in the Asia-Pacific zone and emerging countries.

This distribution is stable compared to the distribution at 31 December 2015.

At 31 December 2016, the bonds held as part of fund assets are distributed as follows:

- approximately 68% of the total are AAA and AA-rated bonds;
- approximately 32% of the total are bonds with A, BBB and other ratings.

Around 62% of all these bonds are sovereign bonds, mainly issued by the United Kingdom. The balance mainly consists of bonds issued by financial and non-financial firms.

The portion of sovereign bonds issued by the United Kingdom was 11% higher than at 31 December 2015.

31.3.5 Future cash flows

Cash flows related to future employee benefits are as follows:

<i>(in millions of Euros)</i>	Cash flow under year-end economic conditions	Amount covered by provision (present value)
Less than one year	253	249
One to five years	1,037	999
Five to ten years	1,494	1,293
More than ten years	14,444	6,350
CASH FLOWS RELATED TO EMPLOYEE BENEFITS	17,228	8,891

The contribution to funds for 2017 is estimated at approximately €280 million (€267 million contributed by the employer and €13 million by the employees). The average weighted duration of funds in the United Kingdom is 20.8 years at 31 December 2016.

31.3.6 Actuarial assumptions

<i>(in %)</i>	31/12/2016	31/12/2015
Discount rate/rate of return on assets ⁽¹⁾	2.76 %	3.85%
Inflation rate	3.05 %	3.10%
Wage increase rate	2.45 %	3.10%

(1) The interest income generated by assets is calculated using the discount rate. The difference between this interest income and the return on assets is recorded in equity.

In the United Kingdom, the discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality non-financial corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

31.3.7 Sensitivity analyses

Sensitivity analyses on the amount of the obligations are as follows:

<i>(in %)</i>	31/12/2016
Impact of a 25bp increase or decrease in the discount rate	-4.9%/+5.3%
Impact of a 25bp increase or decrease in the wage increase rate	+0.4%/-0.4%
Impact of a 25bp increase or decrease in the inflation rate	+4.1%/-3.8%

Note 32 Other provisions

Details of changes in other provisions are as follows:

<i>(in millions of Euros)</i>	31/12/2015	Increases	Decreases		Changes in scope	Other Changes ⁽³⁾	31/12/2016
			Utilisations	Reversals			
Provisions for contingencies related to subsidiaries and investments	431	217	(47)	(27)	1	462	1,037
Provisions for tax liabilities	484	81	(47)	(1)	(2)	3	518
Provisions for litigation	551	131	(31)	(127)	–	8	532
Provisions for onerous contracts	284	151	(72)	(19)	–	(2)	342
Provisions related to environmental schemes ⁽¹⁾	917	1,004	(902)	(2)	(88)	(95)	834
Other provisions for risks and liabilities ⁽²⁾	1,785	583	(484)	(57)	(36)	(505)	1,286
TOTAL	4,452	2,167	(1,583)	(233)	(125)	(129)	4,549

(1) Provisions related to environmental schemes include provisions for greenhouse gas emission rights and renewable energy certificates (see note 49).

(2) These provisions cover various contingencies and expenses related to operations (employers' matching contributions to employee profit sharing, contractual maintenance obligations, etc). No individual provision is significant.

(3) Other changes include a €450 million reclassification from other provisions for risks and liabilities to provisions for contingencies related to subsidiaries and investments.

Note 33 Special French public electricity distribution concession liabilities

The changes in special concession liabilities for existing assets and assets to be replaced are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Value in kind of assets	46,497	45,346
Unamortised financing by the operator	(23,160)	(22,287)
Rights in existing assets – net value	23,337	23,059
Amortisation of financing by the grantor	12,613	12,047
Provisions for renewal	9,742	9,976
Rights in assets to be replaced	22,355	22,023
SPECIAL FRENCH PUBLIC ELECTRICITY DISTRIBUTION CONCESSION LIABILITIES	45,692	45,082

Note 34 Trade payables

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Trade payables – excluding EDF Trading	9,770	10,428
Trade payables – EDF Trading	3,261	2,856
TRADE PAYABLES	13,031	13,284

The Group has a reverse factoring programme allowing suppliers to transfer their receivables on EDF to a factoring company, at their own initiative.

For the Group, this programme does not cause any change in the substance and features of the receivables held by suppliers on EDF. In particular it does not affect the sequences of operating cash flows. The associated liabilities are therefore included in "trade payables" in the Group's financial statements.

Note 35 Other liabilities

Details of other liabilities are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Advances and progress payments received	7,793	7,618
Liabilities related to property, plant and equipment	3,247	3,331
Tax liabilities	7,098	6,316
Social charges	4,010	3,795
Deferred income on long-term contracts	3,438	3,586
Other deferred income	729	735
Other	2,909	3,367
OTHER LIABILITIES	29,224	28,748
Non-current portion	4,810	5,126
Current portion	24,414	23,622

35.1 ADVANCES AND PROGRESS PAYMENTS RECEIVED

At 31 December 2016 advances and progress payments received include monthly standing order payments by EDF's residential and business customers amounting to €6,828 million (€6,682 million at 31 December 2015). The increase over 2016 is mainly explained by customers opting to pay their bills this way.

35.2 TAX LIABILITIES

At 31 December 2016 tax liabilities mainly include an amount of €1,633 million for the CSPE income to be collected by EDF on energy supplied but not yet billed (€1,258 million at 31 December 2015).

35.3 DEFERRED INCOME ON LONG-TERM CONTRACTS

EDF's deferred income on long-term contracts at 31 December 2016 comprises €1,822 million (€1,874 million at 31 December 2015) of partner advances made to EDF under the nuclear plant financing plans.

Deferred income on long-term contracts also includes an advance paid to the EDF group in 2010 under the agreement with the Exeltium consortium. This advance is transferred to the income statement progressively over the term of the contract.

Financial assets and liabilities

Note 36 Current and non-current financial assets

36.1 BREAKDOWN BETWEEN CURRENT AND NON-CURRENT FINANCIAL ASSETS

Current and non-current financial assets break down as follows:

(in millions of Euros)	31/12/2016			31/12/2015		
	Current	Non-current	Total	Current	Non-current	Total
Financial assets at fair value through profit or loss	3,813	–	3,813	4,973	–	4,973
Available-for-sale financial assets	22,402	17,888	40,290	18,374	15,959	34,333
Positive fair value of hedging derivatives	2,157	3,899	6,056	1,716	4,322	6,038
Loans and financial receivables	1,614	13,342	14,956	1,956	14,957	16,913
CURRENT AND NON-CURRENT FINANCIAL ASSETS ⁽¹⁾	29,986	35,129	65,115	27,019	35,238	62,257

(1) Including impairment of €(566) million at 31 December 2016 (€(558) million at 31 December 2015).

36.2 DETAILS OF FINANCIAL ASSETS

36.2.1 Financial assets carried at fair value with changes in fair value included in income

(in millions of Euros)	31/12/2016	31/12/2015
Positive fair value of trading derivatives	3,813	4,973
Fair value of financial assets held for trading	–	–
FINANCIAL ASSETS CARRIED AT FAIR VALUE WITH CHANGES IN FAIR VALUE INCLUDED IN INCOME	3,813	4,973

Financial assets carried at fair value with changes in fair value included in income mainly concern EDF Trading.

36.2.2 Available-for-sale financial assets

(in millions of Euros)	31/12/2016			31/12/2015		
	Equities ⁽¹⁾	Debt securities	Total	Equities ⁽¹⁾	Debt securities	Total
EDF dedicated assets	9,201	7,766	16,967	8,227	6,976	15,203
Liquid assets	4,507	17,759	22,266	3,942	14,199	18,141
Other securities	944	113	1,057	941	48	989
AVAILABLE-FOR-SALE FINANCIAL ASSETS	14,652	25,638	40,290	13,110	21,223	34,333

(1) Equities or Undertaking for Collective Investments in Transferable Securities (UCITS).

Changes in the fair value of available-for-sale financial assets were recorded in equity (EDF share) over the period as follows:

(in millions of Euros)	2016		2015	
	Gross changes in fair value recorded in equity ⁽¹⁾	Gross changes in fair value transferred to income ⁽²⁾	Gross changes in fair value recorded in equity ⁽¹⁾	Gross changes in fair value transferred to income ⁽²⁾
EDF dedicated assets	760	488	530	1,118
Liquid assets	63	12	(108)	44
Other securities	(5)	–	(40)	(77)
AVAILABLE-FOR-SALE FINANCIAL ASSETS⁽³⁾	818	500	382	1,085

(1) +/(-): increase/(decrease) in equity (EDF share).

(2) +/(-): increase/(decrease) in net income (EDF share).

(3) Excluding associates and joint ventures.

Gross changes in fair value included in equity (EDF share) in 2016 and 2015 principally concern EDF.

No significant impairment was recorded in 2016.

36.2.2.1 Dedicated assets

Diversified bond investments and equities included in EDF's dedicated assets are recorded as "available-for-sale financial assets". The general management policy for dedicated assets is presented in note 47.

36.2.2.2 Liquid assets

Liquid assets are financial assets consisting of funds or interest rate instruments with initial maturity of over three months that are readily convertible into cash, and are managed according to a liquidity-oriented policy.

EDF's monetary UCITS, included in liquid assets, amount to €3,955 million at 31 December 2016 (€3,490 million at 31 December 2015).

36.3 LOANS AND FINANCIAL RECEIVABLES

Loans and financial receivables are recorded at amortised cost.

(in millions of Euros)	31/12/2016	31/12/2015
Loans and financial receivables – amounts receivable from the NLF	8,743	9,061
Loans and financial receivables – CSPE ⁽¹⁾	4,185	5,875
Loans and financial receivables – other	2,028	1,977
LOANS AND FINANCIAL RECEIVABLES	14,956	16,913

(1) Including €4,185 million allocated to dedicated assets at 31 December 2016 (€5,232 million at 31 December 2015).

Loans and financial receivables include:

- amounts representing reimbursements receivable from the NLF and the British Government for coverage of long-term nuclear obligations, totalling €8,743 million at 31 December 2016 (€9,061 million at 31 December 2015), discounted at the same rate as the provisions they finance;
- the receivable corresponding to the accumulated shortfall in the Contribution to the Public Electricity Service (CSPE) at 31 December 2015 and the costs of bearing that shortfall. Reimbursements received during 2016 amounted to €293 million, in line with the schedule

published in the ministerial orders of 13 May 2016 and 2 December 2016, made in application of Article R. 121-31 of the French Energy Code.

The change in the CSPE receivable also reflects the assignment by EDF of part of the receivable relating to the shortfall in compensation up to 31 December 2015 and the associated interest, amounting to €1,501 million, of which €872 million was classified as dedicated assets (see note 3.6);

- EDF's loan to RTE was repaid in October 2016 (€670 million at 31 December 2015).

36.4 CHANGE IN FINANCIAL ASSETS OTHER THAN DERIVATIVES

The variation in financial assets is as follows:

36.4.1 At 31 December 2016

<i>(in millions of Euros)</i>	31/12/2015	Net increases	Changes in fair value	Discount effect	Changes in scope	Translation adjustments	Other	31/12/2016
Available-for-sale financial assets	34,333	5,079	894	–	12	110	(138)	40,290
Loans and financial receivables	16,913	(2,908)	–	403	221	(1,387)	1,714	14,956

“Net increases” in loans and financial receivables include the €(629) million effect of assignment of part of the CSPE receivable (see note 36.3).

Other changes in loans and financial receivables reflect the change in the amounts receivable from the NLF and the British government in connection

with coverage of long-term nuclear obligations (€955 million), and the change in financial assets reflecting the overfunding of EDF Energy’s EEGSG and BEGG pension plans (€568 million at 31 December 2016, compared to €52 million at 31 December 2015).

36.4.2 At 31 December 2015

<i>(in millions of Euros)</i>	31/12/2014	Net increases	Changes in fair value	Discount effect	Changes in scope	Translation adjustments	Other	31/12/2015
Available-for-sale financial assets	29,427	4,436	475	–	(4)	8	(9)	34,333
Loans and financial receivables	15,748	(364)	–	252	64	563	650	16,913

Note 37 Cash and cash equivalents

Cash and cash equivalents comprise cash in hand and at bank and investments in money market instruments. Cash and cash equivalents as stated in the cash flow statements include the following amounts recorded in the balance sheet:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Cash	2,651	3,263
Cash equivalents ⁽¹⁾	242	904
Financial current accounts	–	15
CASH AND CASH EQUIVALENTS	2,893	4,182

(1) Items stated at fair value amount to €235 million at 31 December 2016 (€896 million at 31 December 2015).

Cash restrictions

Cash and cash equivalents include €243 million of cash subject to restrictions at 31 December 2016 (see note 1.3.27).

Note 38 Current and non-current financial liabilities**38.1 BREAKDOWN BETWEEN CURRENT AND NON-CURRENT FINANCIAL LIABILITIES**

Current and non-current financial liabilities break down as follows:

(in millions of Euros)	31/12/2016			31/12/2015		
	Non-current	Current	Total	Non-current	Current	Total
Loans and other financial liabilities	52,992	12,203	65,195	52,684	11,499	64,183
Negative fair value of derivatives held for trading	–	4,485	4,485	–	4,001	4,001
Negative fair value of hedging derivatives	1,284	1,601	2,885	1,475	1,973	3,448
FINANCIAL LIABILITIES	54,276	18,289	72,565	54,159	17,473	71,632

38.2 LOANS AND OTHER FINANCIAL LIABILITIES**38.2.1 Changes in loans and other financial liabilities**

(in millions of Euros)	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Balances at 31/12/2015	48,538	3,586	10,314	445	1,300	64,183
Increases	5,385	3,665	1,412	–	117	10,579
Decreases	(1,485)	(1,444)	(4,364)	(55)	(60)	(7,408)
Translation adjustments	(968)	(43)	126	–	–	(885)
Changes in scope of consolidation ⁽¹⁾	–	(1,585)	(139)	20	(3)	(1,707)
Changes in fair value	392	–	45	2	–	439
Other changes	2	1	(14)	8	(3)	(6)
BALANCES AT 31/12/2016	51,864	4,180	7,380	420	1,351	65,195

(1) Changes in scope of consolidation principally concern the borrowings of C25 (the company owning RTE's shares) that have been reclassified as assets held for sale.

Loans and other financial liabilities of the Group's main entities are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF and other affiliated subsidiaries ⁽¹⁾	52,811	52,351
EDF Energy ⁽²⁾	5,268	4,983
EDF Énergies Nouvelles	4,642	4,396
Edison ⁽³⁾	1,214	1,568
Other	1,260	885
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	64,183

(1) Enedis, EDF PEI, EDF International, EDF Holding SAS, C3, C25 and EDF Investissements Groupe.

(2) Including holding companies.

(3) Edison excluding TdE SpA.

At 31 December 2016, none of these entities had defaulted on any borrowing.

The Group's principal borrowings at 31 December 2016 are as follows:

Type of borrowing <i>(in millions of currencies)</i>	Entity	Issue ⁽¹⁾	Maturity	Issue amount	Currency	Rate
Bond	EDF	01/2014	01/2017	1,000	USD	1.15%
Euro MTN	EDF	02/2008	02/2018	1,500	EUR	5.00%
Bond	EDF	01/2009	01/2019	2,000	USD	6.50%
Bond	EDF	01/2014	01/2019	1,250	USD	2.15%
Bond	EDF	01/2010	01/2020	1,400	USD	4.60%
Euro MTN	EDF	05/2008	05/2020	1,200	EUR	5.38%
Bond	EDF	10/2015	10/2020	1,500	USD	2.35%
Euro MTN	EDF	01/2009	01/2021	2,000	EUR	6.25%
Euro MTN (green bond)	EDF	11/2013	04/2021	1,400	EUR	2.25%
Euro MTN	EDF	01/2012	01/2022	2,000	EUR	3.88%
Euro MTN	EDF	09/2012	03/2023	2,000	EUR	2.75%
Euro MTN	EDF	09/2009	09/2024	2,500	EUR	4.63%
Bond (green bond)	EDF	10/2015	10/2025	1,250	USD	3.63%
Euro MTN	EDF	11/2010	11/2025	750	EUR	4.00%
Euro MTN (green bond)	EDF	10/2016	10/2026	1,750	EUR	1.00%
Euro MTN	EDF	03/2012	03/2027	1,000	EUR	4.13%
Euro MTN	EDF	04/2010	04/2030	1,500	EUR	4.63%
Euro MTN	EDF	07/2001	07/2031	650	GBP	5.88%
Euro MTN	EDF	02/2003	02/2033	850	EUR	5.63%
Euro MTN	EDF	06/2009	06/2034	1,500	GBP	6.13%
Euro MTN	EDF	10/2016	10/2036	750	EUR	1.88%
Bond	EDF	01/2009	01/2039	1,750	USD	6.95%
Euro MTN	EDF	11/2010	11/2040	750	EUR	4.50%
Euro MTN	EDF	10/2011	10/2041	1,250	GBP	5.50%
Bond	EDF	01/2014	01/2044	1,000	USD	4.88%
Bond	EDF	10/2015	10/2045	1,500	USD	4.75%
Bond	EDF	10/2015	10/2045	1,150	USD	4.95%
Euro MTN	EDF	09/2010	09/2050	1,000	GBP	5.13%
Euro MTN	EDF	10/2016	10/2056	2,164	USD	4.99%
Bond	EDF	01/2014	01/2114	1,350	GBP	6.00%

(1) Date funds were received.

The €2,820 million loan issued by C25 matures in December 2017 and has a variable rate based on 3month Euribor. 50.1% of the value of this loan is included in "Financial liabilities" and 49.9% in "Assets held for sale" (see note 3.5.1).

On 6 October 2016 EDF launched a senior bond in several tranches, in Euros and Swiss francs, and a senior Formosa bond in two tranches on the Taiwanese market (see note 3.3).

At 31 December 2016, the total ceiling on EDF's EMTN (Euro Medium Term Notes) programme, allowing issuance of borrowings under the programme, is €45 billion.

38.2.2 Maturity of loans and other financial liabilities**At 31 December 2016**

<i>(in millions of Euros)</i>	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Less than one year	2,913	1,780	6,332	51	1,127	12,203
From one to five years	12,386	526	109	168	52	13,241
More than five years	36,565	1,874	939	201	172	39,751
LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2016	51,864	4,180	7,380	420	1,351	65,195

At 31 December 2015

<i>(in millions of Euros)</i>	Bonds	Loans from financial institutions	Other financial liabilities	Loans related to finance-leased assets	Accrued Interest	Total
Less than one year	1,455	1,546	7,329	53	1,116	11,499
From one to five years	11,577	679	1,904	180	42	14,382
More than five years	35,506	1,361	1,081	212	142	38,302
LOANS AND OTHER FINANCIAL LIABILITIES AT 31/12/2015	48,538	3,586	10,314	445	1,300	64,183

38.2.3 Breakdown of loans and other financial liabilities by currency

<i>(in millions of Euros)</i>	31/12/2016			31/12/2015		
	Initial debt structure	Impact of hedging instruments ⁽¹⁾	Debt structure after hedging	Initial debt structure	Impact of hedging instruments ⁽¹⁾	Debt structure after hedging
Euro (EUR)	31,204	20,220	51,424	31,731	16,731	48,462
American dollar (USD)	22,239	(19,314)	2,925	19,137	(17,250)	1,887
Pound sterling (GBP)	9,824	(827)	8,997	11,677	382	12,059
Other	1,928	(79)	1,849	1,638	137	1,775
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	–	65,195	64,183	–	64,183

(1) Hedges of liabilities and net assets of foreign subsidiaries.

38.2.4 Breakdown of loans and other financial liabilities by type of interest rate

(in millions of Euros)	31/12/2016			31/12/2015		
	Initial debt structure	Impact of derivatives	Final debt structure	Initial debt structure	Impact of derivatives	Final debt structure
Fixed rates	58,650	(23,710)	34,940	56,840	(22,261)	34,579
Floating rates	6,545	23,710	30,255	7,343	22,261	29,604
LOANS AND OTHER FINANCIAL LIABILITIES	65,195	–	65,195	64,183	–	64,183

The breakdown of loans and financial liabilities by interest rate includes the impact of all derivatives classified as hedges in accordance with IAS 39. A large portion of the EDF group's fixed-rate loans is swapped to variable rates.

38.2.5 Credit lines

At 31 December 2016, the Group has unused credit lines with various banks totalling €11,709 million (€11,380 million at 31 December 2015).

(in millions of Euros)	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1-5 years	> 5 years	
CONFIRMED CREDIT LINES	11,709	2,205	9,504	–	11,380

38.2.6 Early repayment clauses

Project financing loans to EDF Énergies Nouvelles from non-Group parties generally include early repayment clauses, mainly applicable when the borrower fails to maintain a minimum Debt Service Coverage Ratio (DSCR). In general, early repayment clauses are activated when this ratio falls below 1.

In other Group entities, certain clauses contained in contracts for financing or other commitments may make reference to Group ratings, but are not classified as covenants.

However, two borrowings with a combined total of €725 million contain a Rating Trigger that does not lead to mandatory early repayment but is a signal for renegotiation of the terms of the borrowing and subsequent voluntary withdrawal by the borrower.

No early repayment took place in 2016 as a result of any Group entity's failure to comply with contractual clauses concerning loans.

38.3 NET INDEBTEDNESS

Net indebtedness is not defined in the accounting standards and is not directly presented in the consolidated balance sheet. It comprises total loans and financial liabilities, less cash and cash equivalents and liquid assets. Liquid assets are financial assets consisting of funds or interest rate instruments with initial maturity of over three months that are readily convertible into cash and are managed according to a liquidity-oriented policy.

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Loans and other financial liabilities	38.2.1	65,195	64,183
Derivatives used to hedge liabilities	41	(3,965)	(3,795)
Cash and cash equivalents	37	(2,893)	(4,182)
Available-for-sale financial assets – liquid assets	36.2.2	(22,266)	(18,141)
Loan to RTE	36.3	–	(670)
Net indebtedness of assets held for sale		1,354	–
NET INDEBTEDNESS		37,425	37,395

The net indebtedness of assets held for sale in 2016 principally concerns C25 (the company owning RTE's shares) (see note 46).

Note 39 Other information on financial assets and liabilities**39.1 FAIR VALUE OF FINANCIAL INSTRUMENTS**

The following tables show the breakdown of financial assets and liabilities in the balance sheet, by level.

39.1.1 At 31 December 2016

<i>(in millions of Euros)</i>	Balance sheet value	Fair value	Level 1 Unadjusted quoted prices	Level 2 Observable data	Level 3 Non-observable data
Financial assets carried at fair value with changes in fair value included in income ⁽¹⁾	3,813	3,813	220	3,337	256
Available-for-sale financial assets	40,290	40,290	1,799	37,895	596
Positive fair value of hedging derivatives	6,056	6,056	7	6,049	–
Cash equivalents carried at fair value	235	235	141	94	–
Financial assets carried at fair value in the balance sheet	50,394	50,394	2,167	47,375	852
Loans and financial receivables – assets receivable from the NLF	8,743	8,743	–	8,743	–
Loans and financial receivables – CSPE	4,185	4,288	–	4,288	–
Other loans and financial receivables	2,028	2,028	–	2,028	–
Financial assets recorded at amortised cost	14,956	15,059	–	15,059	–
Negative fair value of hedging derivatives	2,885	2,885	105	2,775	5
Negative fair value of trading derivatives	4,485	4,485	216	4,046	223
Financial liabilities carried at fair value in the balance sheet	7,370	7,370	321	6,821	228
Loans and other financial liabilities ⁽²⁾	65,195	70,682	–	70,682	–
Financial liabilities recorded at amortised cost	65,195	70,682	–	70,682	–

(1) Including €3,813 million for the positive fair value of trading derivatives.

(2) Loans and other financial liabilities are carried in the balance sheet at amortised cost, adjusted for changes in the fair value of risks covered by a fair value hedge.

Level 3 available-for-sale financial assets are principally non-consolidated investments carried at historical value.

Cash equivalents, which principally take the form of negotiable debt instruments and short-term investments, are generally valued using yield curves, and therefore observable market data.

39.1.2 At 31 December 2015

<i>(in millions of Euros)</i>	Balance sheet value	Fair value	Level 1 Unadjusted quoted prices	Level 2 Observable data	Level 3 Non-observable data
Financial assets carried at fair value with changes in fair value included in income ⁽¹⁾	4,973	4,973	427	4,439	107
Available-for-sale financial assets	34,333	34,333	1,676	32,032	625
Positive fair value of hedging derivatives	6,038	6,038	31	6,007	–
Cash equivalents carried at fair value	896	896	113	783	–
Financial assets carried at fair value in the balance sheet	46,240	46,240	2,247	43,261	732
Loans and financial receivables – assets receivable from the NLF	9,061	9,061	–	9,061	–
Loans and financial receivables – CSPE	5,875	5,875	–	5,875	–
Other loans and financial receivables	1,977	2,008	–	2,008	–
Financial assets recorded at amortised cost	16,913	16,944	–	16,944	–
Negative fair value of hedging derivatives	3,448	3,448	161	3,285	2
Negative fair value of trading derivatives	4,001	4,001	390	3,516	95
Financial liabilities carried at fair value in the balance sheet	7,449	7,449	551	6,801	97
Loans and other financial liabilities ⁽²⁾	64,183	69,815	–	69,815	–
Financial liabilities recorded at amortised cost	64,183	69,815	–	69,815	–

(1) Including €4,973 million for the positive fair value of trading derivatives.

(2) Loans and other financial liabilities are carried in the balance sheet at amortised cost, adjusted for changes in the fair value of risks covered by a fair value hedge.

39.2 OFFSETTING OF FINANCIAL ASSETS AND LIABILITIES

39.2.1 At 31 December 2016

<i>(in millions of Euros)</i>	As reported in balance sheet	Balance without offsetting	Balance with offsetting under IAS 32			Amounts covered by a general offsetting agreement but not offset under IAS 32		
			Gross amount recognised (before offsetting)	Gross amount offset under IAS 32	Net amount recognised after offsetting under IAS 32	Financial instruments	Fair value of financial collateral	Net amount
Fair value of derivatives – assets	9,869	5,043	10,741	(5,915)	4,826	(1,689)	(2,303)	834
Fair value of derivatives – liabilities	(7,370)	(5,240)	(8,045)	5,915	(2,130)	1,689	56	(385)

39.2.2 At 31 December 2015

	As reported in balance sheet	Balance without offsetting	Balance with offsetting under IAS 32			Amounts covered by a general offsetting agreement but not offset under IAS 32		
			Gross amount recognised (before offsetting)	Gross amount offset under IAS 32	Net amount recognised after offsetting under IAS 32	Financial instruments	Fair value of financial collateral	Net amount
<i>(in millions of Euros)</i>								
Fair value of derivatives – assets	11,011	2,925	13,290	(5,204)	8,086	(1,695)	(2,142)	4,249
Fair value of derivatives – liabilities	(7,449)	(2,391)	(10,262)	5,204	(5,058)	1,695	58	(3,305)

Note 40 Management of market and counterparty risks

As an operator in the energy sector worldwide, the EDF group is exposed to financial market risks, energy market risks and counterparty risks. All these risks could generate volatility in the financial statements.

- **Financial market risks**

The main financial market risks to which the Group is exposed are the liquidity risk, the foreign exchange risk, the interest rate risk and the equity risk.

The objective of the Group's liquidity risk management is to seek resources at optimum cost and ensure their constant accessibility.

The foreign exchange risk relates to the diversification of the Group's businesses and geographical locations, and results from exposure to the risk of exchange rate fluctuations. These fluctuations can affect the Group's translation differences, balance sheet items, financial expenses, equity and net income.

The interest rate risk results from exposure to the risk of fluctuations in interest rates that can affect the value of assets invested by the Group, the value of the liabilities covered by provision, or its financial expenses.

The Group is exposed to equity risks, particularly through its dedicated asset portfolio held for secure financing of long-term nuclear commitments, through external pension funds, and to a lesser extent through its cash assets and directly-held investments.

A more detailed description of these risks can be found in section 5.1.6.1 of the Reference Document, "Financial Information – Management and control of financial risks".

- **Energy market risks**

With the opening of the final customer market, development of the wholesale markets and international business expansion, the EDF group operates on deregulated energy markets, mainly in Europe, through its generation and supply activities. This exposes the Group to price variations on the wholesale markets for energy (electricity, gas, coal, oil products) and the CO2 emissions quota market, with a potentially significant impact on the financial statements.

A more detailed description of these risks can be found in section 5.1.6.2 of the Reference Document, "Financial Information – Management and control of energy market risks".

- **Counterparty risks**

Counterparty risk is defined as the total loss that the EDF group would sustain on its business and market transactions if a counterparty defaulted and failed to perform its contractual obligations.

A more detailed description of these risks can be found in section 5.1.6.1.7 of the Reference Document, "Financial Information – Management and control of counterparty/credit risks".

Regarding the customer risk, which is another component of the counterparty risk, a statement of receivables not yet due and overdue is shown in note 25.

The sensitivity analyses required by IFRS 7 are presented in section 5.1.6.1 of the Reference Document, "Financial Information – Management and control of financial risks":

- foreign exchange risks: section 5.1.6.1.3;
- interest rate risks: section 5.1.6.1.4;
- equity risk on financial assets: sections 5.1.6.1.5 and 5.1.6.1.6.

The principal information on financial assets and liabilities is described by theme in the following notes and sections:

- Liquidity risks:
 - maturity of loans and other financial liabilities: note 38.2.2 to the consolidated financial statements;
 - credit lines: note 38.2.5 to the consolidated financial statements;
 - early repayment clauses for borrowings: note 38.2.6 to the consolidated financial statements;
 - off-balance sheet commitments: note 44 to the consolidated financial statements.
- Foreign exchange risks:
 - breakdown of loans by currency and type of interest rate: notes 38.2.3 and 38.2.4 to the consolidated financial statements.
- Equity risks (sections 5.1.6.1.5 and 5.1.6.1.6 of the Reference Document, "Financial Information – Management of equity risks/Management of financial risk on EDF's dedicated asset portfolio"):
 - coverage of nuclear obligations: notes 47 and 29.1.5 to the consolidated financial statements;
 - coverage of social obligations: notes 31.2.5 and 31.3.4 to the consolidated financial statements;
 - long-term cash management;
 - direct investments.

- Interest rate risks:
 - discount rate for nuclear provisions: calculation method and sensitivity: note 29.1.5.1 to the consolidated financial statements;
 - discount rate used for employee benefits: notes 31.2.7 and 31.3.6 to the consolidated financial statements;
 - breakdown of loans by currency and interest rate: notes 38.2.3 and 38.2.4 to the consolidated financial statements.
- Balance sheet treatment of financial and market risks:
 - derivatives and hedge accounting: note 41 to the consolidated financial statements, and the statement of changes in equity;
 - derivatives not classified as hedges: note 42 to the consolidated financial statements.

Note 41 Derivatives and hedge accounting

Hedge accounting is applied in compliance with IAS 39, and concerns interest rate derivatives used to hedge long-term indebtedness, currency derivatives

used to hedge net foreign investments and debts in foreign currencies, and currency and commodity derivatives used to hedge future cash flows.

The fair value of hedging derivatives reported in the balance sheet breaks down as follows:

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/2015
Positive fair value of hedging derivatives	36.1	6,056	6,038
Negative fair value of hedging derivatives	38.1	(2,885)	(3,448)
FAIR VALUE OF HEDGING DERIVATIVES		3,171	2,590
Interest rate hedging derivatives	41.4.1	2,023	2,033
Exchange rate hedging derivatives	41.4.2	2,122	1,472
Commodity-related cash flow hedges	41.4.3	(995)	(913)
Commodity-related fair value hedges	41.5	21	(2)

An alternative breakdown of hedging derivatives is shown below:

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/2015
Fair value of derivatives hedging liabilities	38.3	3,965	3,795
Fair value of derivatives hedging net foreign investments		14	(420)
Fair value of other hedging derivatives (commodities)		(808)	(785)
FAIR VALUE OF HEDGING DERIVATIVES		3,171	2,590

41.1 FAIR VALUE HEDGES

The EDF group hedges the exposure to changes in the fair value of fixed-rate debts. The derivatives used for this hedging are fixed/floating interest rate swaps and cross currency swaps, with changes in fair value recorded in the income statement. Fair value hedges also include currency hedging instruments on certain firm purchase commitments.

In 2016, the ineffective portion of fair value hedges represents a loss of €(11) million (loss of €(9) million in 2015), included in the financial result.

41.2 CASH FLOW HEDGES

The EDF group uses cash flow hedging principally for the following purposes:

- to hedge its floating-rate debt, using interest-rate swaps (floating/ fixed rate);
- to hedge the exchange rate risk related to debts contracted in foreign currencies, using cross currency swaps;

- to hedge future cash flows related to expected sales and purchases of electricity, gas, and coal, using futures, forwards and swaps.

The EDF group also hedges the currency risk associated with fuel and commodity purchases.

The ineffective portion of cash flow hedges recorded in 2016 is nil (also nil in 2015).

41.3 HEDGES OF NET INVESTMENTS IN FOREIGN ENTITIES

Hedging of net foreign investments is used for protection against exposure to the exchange rate risk related to net investments in the Group's foreign entities.

This risk is hedged at Group level either by contracting debts for investments in the same currency, or through the markets, in which case the Group uses currency swaps and forward exchange contracts.

41.4 IMPACT OF HEDGING DERIVATIVES ON EQUITY

Changes during the period in the fair value of hedging instruments included in equity (EDF share) are detailed below:

	2016			2015		
	Gross changes in fair value recorded in equity ⁽¹⁾	Gross changes in fair value transferred to income – Recycling ⁽²⁾	Gross changes in fair value transferred to income – Ineffectiveness	Gross changes in fair value recorded in equity ⁽¹⁾	Gross changes in fair value transferred to income – Recycling ⁽²⁾	Gross changes in fair value transferred to income – Ineffectiveness
<i>(in millions of Euros)</i>						
Interest rate hedging	6	–	1	(19)	–	–
Exchange rate hedging	70	288	(4)	702	656	(19)
Net foreign investment hedging	1,352	–	–	(1,038)	–	–
Commodity hedging	(489)	361	31	(59)	(470)	(10)
HEDGING DERIVATIVES ⁽³⁾	939	649	28	(414)	186	(29)

(1) +/(-): increase/(decrease) in equity (EDF share).

(2) +/(-): increase/(decrease) in net income (EDF share).

(3) Excluding associates and joint ventures.

41.4.1 Interest rate hedging derivatives

Interest rate hedging derivatives break down as follows:

	Notional at 31/12/2016				Notional at 31/12/2015	Fair value	
	< 1 year	1-5 years	> 5 years	Total	Total	31/12/2016	31/12/2015
<i>(in millions of Euros)</i>							
Fixed rate payer/floating rate receiver	294	668	380	1,342	1,683	(62)	(121)
Floating rate payer/fixed rate receiver	600	3,430	20,876	24,906	23,523	2,299	2,178
Floating rate/floating rate	712	–	1,310	2,022	2,767	4	(3)
Fixed rate/fixed rate	1,044	5,830	3,453	10,327	8,248	(218)	(21)
Interest rate swaps	2,650	9,928	26,019	38,597	36,221	2,023	2,033
INTEREST RATE HEDGING DERIVATIVES	2,650	9,928	26,019	38,597	36,221	2,023	2,033

The fair value of interest rate/exchange rate cross-currency swaps comprises the interest rate effect only.

The notional value of cross-currency swaps is included both in this note and the note on Exchange rate hedging derivatives (see note 41.4.2).

A large portion of the EDF group's fixed-rate loans is swapped to variable rates.

41.4.2 Exchange rate hedging derivatives

Exchange rate hedging derivatives break down as follows:

At 31 December 2016

<i>(in millions of Euros)</i>	Notional amount to be received at 31/12/2016				Notional amount to be given at 31/12/2016				Fair value
	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2016
Forward exchange transactions	1,600	730	–	2,330	1,589	718	–	2,307	26
Swaps	15,030	11,027	13,703	39,760	14,304	10,107	12,782	37,193	2,096
EXCHANGE RATE HEDGING DERIVATIVES	16,630	11,757	13,703	42,090	15,893	10,825	12,782	39,500	2,122

At 31 December 2015

<i>(in millions of Euros)</i>	Notional amount to be received at 31/12/2015				Notional amount to be given at 31/12/2015				Fair value
	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2015
Forward exchange transactions	4,477	843	–	5,320	4,434	847	–	5,281	39
Swaps	13,101	13,858	10,335	37,294	12,820	13,090	9,826	35,736	1,433
EXCHANGE RATE HEDGING DERIVATIVES	17,578	14,701	10,335	42,614	17,254	13,937	9,826	41,017	1,472

The notional value of cross-currency swaps shown in this note is also included in the note on interest rate hedging derivatives (see note 41.4.1).

41.4.3 Commodity-related cash flow hedges

For commodities, changes in fair value are mainly explained by:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Electricity hedging contracts	(2,610)	182
Gas hedging contracts	(316)	35
Coal hedging contracts	9	(142)
Oil product hedging contracts	2,007	(86)
CO ₂ emission rights hedging contracts	421	(48)
CHANGES IN FAIR VALUE BEFORE TAXES	(489)	(59)

The main components of the amount transferred to income in respect of commodity hedges terminated during the year are:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Electricity hedging contracts	1,276	(113)
Gas hedging contracts	(943)	(200)
Coal hedging contracts	(72)	(353)
Oil product hedging contracts	86	161
CO ₂ emission rights hedging contracts	14	35
CHANGES IN FAIR VALUE BEFORE TAXES	361	(470)

Details of commodity-related cash flow hedges are as follows:

<i>(in millions of Euros)</i>	Units of measure	31/12/2016				Fair value	31/12/2015	
		Net notional					Net notional	Fair value
		< 1 year	1-5 years	> 5 years	Total			
Swaps		5	–	–	5	(3)	2	–
Forwards/futures		(36)	(53)	–	(89)	(1,174)	(119)	784
Electricity	TWh	(31)	(53)	–	(84)	(1,177)	(117)	784
Swaps		(411)	(120)	–	(531)	(4)	(952)	181
Forwards/futures		1,039	646	–	1,685	109	1,621	(364)
Gas	Millions of therms	628	526	–	1,154	105	669	(183)
Swaps		19,219	5,939	–	25,158	69	69,044	(1,605)
Oil products	Thousands of barrels	19,219	5,939	–	25,158	69	69,044	(1,605)
Swaps		–	–	–	–	–	(1)	69
Coal	Millions of tonnes	–	–	–	–	–	(1)	69
Swaps		–	–	–	–	–	–	–
Forwards/futures		17,400	4,302	–	21,702	8	20,606	22
CO₂	Thousands of tonnes	17,400	4,302	–	21,702	8	20,606	22
COMMODITY-RELATED CASH FLOW HEDGES						(995)	(913)	

41.5 COMMODITY-RELATED FAIR VALUE HEDGES

Details of commodity-related fair value hedges are as follows:

<i>(in millions of Euros)</i>	Units of measure	31/12/2016		31/12/2015	
		Net notional	Fair value	Net notional	Fair value
Coal and freight	Millions of tonnes	4	3	8	(2)
Gas	Millions of therms	(307)	18	–	–
COMMODITY-RELATED FAIR VALUE HEDGES			21	(2)	

Note 42 Non-hedging derivatives

Details of the fair value of trading derivatives reported in the balance sheet are as follows:

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/2015
Positive fair value of trading derivatives	36.2.1	3,813	4,973
Negative fair value of trading derivatives	38.1	(4,485)	(4,001)
FAIR VALUE OF TRADING DERIVATIVES		(672)	972
Interest rate derivatives held for trading	42.1	(55)	(52)
Currency derivatives held for trading	42.2	(179)	98
Non-hedging commodity derivatives	42.3	(438)	926

42.1 INTEREST RATE DERIVATIVES HELD FOR TRADING

Interest rate derivatives held for trading break down as follows:

<i>(in millions of Euros)</i>	Notional at 31/12/2016				Notional at 31/12/2015	Fair value	
	< 1 year	1-5 years	> 5 years	Total	Total	31/12/2016	31/12/2015
Purchases of options	–	–	517	517	525	22	26
Interest rate operations	–	–	517	517	525	22	26
Fixed rate payer/floating rate receiver	18	288	436	742	2,680	(77)	(123)
Floating rate payer/fixed rate receiver	4	245	157	406	1,493	(2)	43
Floating rate/floating rate	–	910	–	910	–	1	1
Fixed rate/fixed rate	61	357	–	418	301	1	1
Interest rate swaps	83	1,800	593	2,476	4,474	(77)	(78)
INTEREST RATE DERIVATIVES HELD FOR TRADING	83	1,800	1,110	2,993	4,999	(55)	(52)

42.2 CURRENCY DERIVATIVES HELD FOR TRADING

Currency derivatives held for trading break down as follows:

At 31 December 2016

<i>(in millions of Euros)</i>	Notional amount to be received at 31/12/2016				Notional amount to be given at 31/12/2016				Fair value
	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2016
Forward transactions	2,230	603	–	2,833	2,138	629	–	2,767	3
Swaps	11,279	5,094	–	16,373	11,264	5,368	–	16,632	(182)
CURRENCY DERIVATIVES HELD FOR TRADING	13,509	5,697	–	19,206	13,402	5,997	–	19,399	(179)

At 31 December 2015

<i>(in millions of Euros)</i>	Notional amount to be received at 31/12/2015				Notional amount to be given at 31/12/2015				Fair value
	< 1 year	1-5 years	> 5 years	Total	< 1 year	1-5 years	> 5 years	Total	31/12/2015
Forward transactions	849	242	15	1,106	851	247	20	1,118	(9)
Swaps	8,738	802	–	9,540	8,651	793	–	9,444	107
CURRENCY DERIVATIVES HELD FOR TRADING	9,587	1,044	15	10,646	9,502	1,040	20	10,562	98

42.3 NON-HEDGING COMMODITY DERIVATIVES

Details of commodity derivatives not classified as hedges are as follows:

<i>(in millions of Euros)</i>	Unit of measure	31/12/2016		31/12/2015	
		Net notional	Fair value	Net notional	Fair value
Swaps		(18)	52	(19)	70
Options		4	118	83	(30)
Forwards/futures		(45)	(406)	(6)	589
Electricity	TWh	(59)	(236)	58	629
Swaps		8,253	114	4,174	287
Options		338	38	4,076	54
Forwards/futures		(4,169)	(205)	(2,463)	21
Gas	Millions of therms	4,422	(53)	5,787	362
Swaps		11,159	27	4,278	(27)
Options		(247)	(14)	207	–
Forwards/futures		(10)	(2)	(29)	1
Oil products	Thousands of barrels	10,902	11	4,456	(26)
Swaps		–	(205)	(1)	(203)
Options		–	–	(16)	(3)
Forwards/futures		45	105	66	252
Freight		7	31	(8)	90
Coal and freight	Millions of tonnes	52	(69)	41	136
Swaps		113	–	–	–
Options		–	–	600	–
Forwards/futures		2,906	(42)	12,673	(20)
CO₂	Thousands of tonnes	3,019	(42)	13,273	(20)
Swaps/options			258		194
Forwards/futures			(308)		(352)
Other commodities			(50)		(158)
Embedded commodity derivatives			1		3
NON-HEDGING COMMODITY DERIVATIVES			(438)		926

These mainly include contracts included in EDF Trading's portfolio.

Cash flows and other information

Note 43 Cash flows

43.1 CHANGE IN WORKING CAPITAL

<i>(in millions of Euros)</i>	2016	2015
Change in inventories	6	129
Change in the receivable for Contribution to the Public Electricity Service (CSPE)	(9)	(230)
Change in trade receivables	(1,487)	896
Change in trade payables	91	(967)
Change in other receivables and payables (excluding CSPE)	(536)	304
CHANGE IN WORKING CAPITAL	(1,935)	132

43.2 INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS

<i>(in millions of Euros)</i>	2016	2015
Acquisitions of intangible assets	(1,038)	(1,224)
Acquisitions of tangible assets	(13,217)	(13,249)
Change in payables to suppliers of fixed assets	(142)	(316)
INVESTMENTS IN INTANGIBLE AND TANGIBLE ASSETS	(14,397)	(14,789)

Note 44 Off-balance sheet commitments

This note presents off-balance sheet commitments given and received by the Group at 31 December 2016. The amounts of commitments correspond to non-discounted contractual values.

44.1 COMMITMENTS GIVEN

The table below shows off-balance sheet commitments given by the Group that have been valued. Other commitments are described separately in the detailed notes.

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/2015
Operating commitments given	44.1.1	46,560	42,060
Investment commitments given	44.1.2	18,605	13,262
Financing commitments given	44.1.3	5,535	6,390
TOTAL COMMITMENTS GIVEN		70,700	61,712

In almost all cases, these are reciprocal commitments, and the third parties concerned are under a contractual obligation to supply the Group with assets or services related to operating, investment and financing activities.

44.1.1 Operating commitments given

Operating commitments given by the Group at 31 December 2016 are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Fuel and energy purchase commitments ⁽¹⁾	32,669	29,909
Operating contract performance commitments given	10,260	8,317
Operating lease commitments as lessee	3,631	3,834
TOTAL OPERATING COMMITMENTS GIVEN	46,560	42,060

(1) Excluding gas purchases and related services

44.1.1.1 Fuel and energy purchase commitments

In the course of its ordinary generation and supply activities, the Group has entered into long-term contracts for purchases of electricity, gas, other energies and commodities and nuclear fuel, for periods of up to 20 years.

The Group has also entered into long-term purchase contracts with a certain number of electricity producers, by contributing to the financing of power plants.

At 31 December 2016, fuel and energy purchase commitments mature as follows:

<i>(in millions of Euros)</i>	Total	31/12/2016				31/12/2015
		Maturity				Total
		< 1 year	1-5 years	5-10 years	> 10 years	
Electricity purchases and related services ⁽¹⁾	9,267	1,586	2,739	2,136	2,806	9,401
Other energy and commodity purchases ⁽²⁾	662	171	364	127	–	740
Nuclear fuel purchases	22,740	1,888	8,538	7,150	5,164	19,768
FUEL AND ENERGY PURCHASE COMMITMENTS	32,669	3,645	11,641	9,413	7,970	29,909

(1) Including commitments given by controlled entities to joint ventures, amounting to €643 million at 31 December 2016 (€669 million at 31 December 2015).

(2) Excluding gas purchases and related services – see note 44.1.1.1.4.

The changes in fuel and energy purchase commitments mainly relate to the significant rise in EDF's nuclear fuel purchase commitments.

44.1.1.1.1 Electricity purchases and related services

Electricity purchase commitments mainly concern EDF and EDF Energy. In the case of EDF many of these commitments are borne by the Island Energy Systems (SEI), which have made commitments to purchase the electricity generated using bagasse and coal.

In addition to the obligations reported above and under Article 10 of the Law of 10 February 2000, in mainland France EDF is obliged, at the producer's request and subject to compliance with certain technical features, to purchase the power produced by co-generation plants and renewable energy generation units (wind turbines, small hydro-electric plants, photovoltaic power, etc). The additional costs generated by this obligation are offset, after validation by the CRE, by the CSPE. These purchase obligations total 43TWh for 2016 (41TWh for 2015), including 6TWh for co-generation (5TWh for 2015), 20TWh for wind power (20TWh for 2015), 8TWh for photovoltaic power (7TWh for 2015) and 3TWh for hydropower (3TWh for 2015).

44.1.1.1.2 Other energy and commodity purchases

Purchase commitments for other energies and commodities mainly concern coal and oil used to operate the fossil-fired plants, and purchases of biomass fuel used by Dalkia in the course of its business.

44.1.1.1.3 Nuclear fuel purchases

Commitments for purchases of nuclear fuel arise from supply contracts for the nuclear plants intended to cover the EDF group's needs for uranium and fluorination, enrichment and fuel assembly production services.

The rise in these commitments is mainly explained by the signature of new contracts with AREVA in 2016 for purchases of natural uranium, fluorination services and enrichment services. These contracts notably relate to fuel supplies for the two EPRs at the Hinkley Point site in the United Kingdom.

44.1.1.1.4 Gas purchases and related services

Gas purchase commitments are principally undertaken by Edison and EDF. The volumes concerned for both entities at 31 December 2016 are as follows:

(in billions of m ³)	31/12/2016				31/12/2015
	Total	Maturity			Total
		< 1 year	1-5 years	> 5 years	
Edison	167	13	47	107	180
EDF	26	2	6	18	88

Edison has entered into agreements to import natural gas from Russia, Libya, Algeria and Qatar, for a total maximum volume of 14.4 billion m³ per year. The terms of these contracts vary between 3 and 18 years. A memorandum of understanding was signed with Sonatrach in November 2016 for future imports of natural gas from Algeria once the Galsi pipeline project is operational.

Under the contract with Terminale GNL Adriatico, a gas liquefaction unit in which Edison has a 7.3% holding, Edison also benefits from approximately 80% of the terminal's regasification capacities until 2034, for an annual premium of approximately €100 million.

44.1.1.2 Operating contract performance commitments given

At 31 December 2016, these commitments mature as follows:

(in millions of Euros)	31/12/2016				31/12/2015
	Total	Maturity			Total
		< 1 year	1-5 years	> 5 years	
Operating guarantees given	5,883	3,488	1,833	562	4,055
Operating purchase commitments ⁽¹⁾	4,212	2,509	1,392	311	4,084
Other operating commitments	165	80	70	15	178
OPERATING CONTRACT PERFORMANCE COMMITMENTS GIVEN⁽²⁾	10,260	6,077	3,295	888	8,317

(1) Excluding fuel and energy.

(2) Including commitments given by controlled entities to joint ventures, amounting to €1,121 million at 31 December 2016 (€126 million at 31 December 2015).

44.1.1.2.1 Operating guarantees given

Operating guarantees given are as follows:

(in millions of Euros)	31/12/2016	31/12/2015
EDF	1,612	1,443
EDF Énergies Nouvelles	1,617	340
Edison	1,432	1,193
EDF Energy	630	428
Other entities	592	651
TOTAL	5,883	4,055

The change since 31 December 2015 in operating guarantees given is mainly explained by new guarantees provided to joint ventures by EDF Énergies Nouvelles in connection with projects in Canada, France and India.

44.1.1.2.2 Operating purchase commitments

Operating purchase commitments are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
EDF	2,434	2,343
EDF Energy	608	715
Enedis	598	413
Other entities	572	613
TOTAL	4,212	4,084

44.1.1.3 Operating lease commitments as lessee

At 31 December 2016, operating lease commitments as lessee break down as follows:

<i>(in millions of Euros)</i>	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1-5 years	> 5 years	
OPERATING LEASE COMMITMENTS AS LESSEE	3,631	646	1,719	1,266	3,834

The Group is bound as lessee by irrevocable operating lease contracts, principally for premises, equipment, land and vehicles used in the course of its business and maritime freight contracts for trading activities. The corresponding rents are subject to renegotiation at intervals defined in the contracts. Operating leases mainly concern EDF, EDF Énergies Nouvelles and Enedis.

44.1.2 Investment commitments given

At 31 December 2016, details of investment commitments are as follows:

<i>(in millions of Euros)</i>	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1-5 years	> 5 years	
Commitments related to acquisition of tangible and intangible assets	17,351	7,040	8,735	1,576	12,294
Commitments related to acquisition of financial assets	406	315	91	–	270
Other commitments related to investments	848	287	561	–	698
TOTAL INVESTMENT COMMITMENTS GIVEN ⁽¹⁾	18,605	7,642	9,387	1,576	13,262

(1) Including commitments given by controlled entities to joint ventures, amounting to €548 million at 31 December 2016 (€326 million at 31 December 2015).

44.1.2.1 Commitments related to acquisition of tangible and intangible fixed assets

The commitments related to acquisition of tangible and intangible fixed assets are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
EDF	7,556	8,426
EDF Energy	5,837	529
Enedis	2,621	1,771
EDF Énergies Nouvelles	977	1,066
Other entities	360	502
TOTAL	17,351	12,294

The increase in these commitments is mainly attributable to the signature by EDF Energy of new contracts related to the construction of the Hinkley Point C plant, and the rollout of Linky meters by Enedis.

The decrease in EDF's commitments for acquisition of tangible and intangible assets is explained by progress on the FLA3 EPR project.

44.1.2.2 Commitments related to acquisition of financial assets

The Group's off-balance sheet commitments contain no significant commitment for acquisition of financial assets at 31 December 2016.

To be noted, on 15 November 2016, EDF embarked on a process to purchase New AREVA NP, a subsidiary of AREVA NP (see note 3.4).

The main share purchase commitments that cannot be valued concern EDF Luminus.

EDF Luminus signed an amendment to the shareholder pact on 26 October 2015 defining a liquidity clause for the investments held by its minority shareholders, which could, in certain conditions under the control of EDF, result in sale of their shares through an IPO, or purchase of their shares by the Group at market value. This liquidity clause is valid at all times from 1 July 2018 to 31 December 2025.

Regarding the investment in EDF Investissements Groupe (EIG), C3 (a fully-owned EDF subsidiary) and NBI (Natixis Belgique Investissement, a subsidiary of the Natixis group) amended the agreements for their investment in EIG on 12 February 2014.

C3 now has a call option to buy EIG shares held by NBI at a fixed price, exercisable at any time until May 2021. Meanwhile, NBI has a put option to sell EDF all of its EIG shares for a fixed amount of cash, exercisable subject to certain conditions between February 2019 and May 2020.

Due to their features, in compliance with IAS 39, NBI's put option and C3's call option are considered as derivatives and their net value is included in the positive or negative fair value of trading derivatives. At 31 December 2016, the fair value of these trading derivatives is not significant.

44.1.2.3 Other commitments related to investments

Other commitments given related to investments at 31 December 2016 mainly comprise guarantees given by EDF Norte Fluminense in connection with its 51% investment in CES, the company in charge of constructing and operating a hydroelectric dam on the Teles Pires river in Brazil, and a parent company guarantee given as part of a real estate investment project.

44.1.3 Financing commitments given

Financing commitments given by the Group at 31 December 2016 comprise the following:

		31/12/2016			31/12/2015
		Total	Maturity		Total
(in millions of Euros)		< 1 year	1-5 years	> 5 years	
Security interests in real property	4,637	104	694	3,839	5,075
Guarantees related to borrowings	644	259	250	135	1,050
Other financing commitments	254	236	13	5	265
TOTAL FINANCING COMMITMENTS GIVEN ⁽¹⁾	5,535	599	957	3,979	6,390

(1) Including commitments given by controlled entities to joint ventures, amounting to €673 million at 31 December 2016 (€847 million at 31 December 2015). These financing commitments to joint ventures mainly concern EDF Énergies Nouvelles.

Security interests and assets provided as guarantees mainly concern pledges or mortgages of tangible assets and shares representing investments in consolidated subsidiaries which own property, plant and equipment, for EDF Énergies Nouvelles.

44.2 COMMITMENTS RECEIVED

The table below shows off-balance sheet commitments received by the Group that have been valued. Other commitments received are described separately in the detailed notes.

(in millions of Euros)	Notes	31/12/2016	31/12/2015
Operating commitments received ⁽¹⁾	44.2.1	3,430	2,633
Investment commitments received	44.2.2	3,663	80
Financing commitments received	44.2.3	24	29
TOTAL COMMITMENTS RECEIVED ⁽²⁾		7,117	2,742

(1) Excluding commitments related to supplies of energy and related services (see notes 44.2.1.4 and 44.2.1.5).

(2) Excluding commitments related to credit lines, which are described in note 38.2.5.

44.2.1 Operating commitments received

Operating commitments received by the Group at 31 December 2016 comprise the following:

<i>(in millions of Euros)</i>	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1-5 years	> 5 years	
Operating lease commitments as lessor	911	121	471	319	1,021
Operating sale commitments	829	325	267	237	520
Operating guarantees received	1,637	1,082	344	211	1,030
Other operating commitments received	53	16	27	10	62
OPERATING COMMITMENTS RECEIVED	3,430	1,544	1,109	777	2,633

44.2.1.1 Operating lease commitments as lessor

The Group benefits from commitments as lessor in operating leases amounting to €911 million.

Most of these commitments derive from contracts classified as operating leases under IFRIC 4, "Determining whether an arrangement contains a lease". They mainly concern the Asian Independent Power Projects (IPPs) and real estate leases.

44.2.1.2 Operating sale commitments

Operating sale commitments received principally concern EDF Énergies Nouvelles and relate to agreements for operation services, maintenance services, and development and sale of structured assets.

44.2.1.3 Operating guarantees received

Operating guarantees received primarily concern EDF and relate to guarantees received from suppliers, particularly in connection with deliveries under the ARENH system.

44.2.1.4 Electricity supply commitments

In the course of its business, the EDF group has signed long-term contracts to supply electricity as follows:

- long-term contracts with a number of European electricity operators, for a specific plant or for a defined group of plants in the French nuclear generation fleet, corresponding to installed power capacity of 3.5GW;
- in execution of France's NOME Law on organisation of the French electricity market, EDF has a commitment to sell some of the energy generated by its existing nuclear power plants to other suppliers. This covers volumes of up to 100TWh each year until 31 December 2025;
- in the United Kingdom, EDF made a commitment in 2009 to supply 18TWh of electricity to Centrica at market price for a 5-year period starting in 2011. This commitment terminated in 2016.

44.2.1.5 Sale commitments for regasification capacities and related services

The Dunkirk methane terminal began commercial operations in early 2017. It has an annual regasification capacity of some 13 billion cubic metres.

The Total group has subscribed a liquefied natural gas (LNG) regasification capacity from Dunkerque LNG, covering a total fixed volume of 40 billion cubic metres over a 20-year period. 8.5 billion cubic metres of this volume could, subject to certain restrictive conditions, be transferred to EDF.

44.2.2 Investment commitments received

<i>(in millions of Euros)</i>	Total	31/12/2016			31/12/2015
		Maturity			Total
		< 1 year	1-5 years	> 5 years	
INVESTMENT COMMITMENTS RECEIVED	3,663	3,323	99	241	80

At 31 December 2016, investment commitments received mainly include a commitment of €2,566 million relating to the future sale of 49.9% of its subsidiary RTE via the new company C25 (see note 3.5.1).

Other notable investment commitments received concern the future sale of EDF Démász Zrt and EDF Trading's coal trading and freight businesses (see notes 3.5.3. and 3.5.4).

Under the terms of the agreement signed with Exelon on 29 July 2013 and finalised on 1 April 2014, EDF has an option to sell its share in CENG to Exelon at fair value, which can be exercised between January 2016 and June 2022. Due to its features, this commitment has nil value at 31 December 2016.

44.2.3 Financing commitments received

(in millions of Euros)	31/12/2016				31/12/2015
	Total	Maturity			Total
		< 1 year	1-5 years	> 5 years	
FINANCING COMMITMENTS RECEIVED	24	1	2	21	29

Note 45 Contingent liabilities

45.1 PROCEEDINGS BY THE BADEN-WÜRTTEMBERG REGION/ENBW

In February 2012 EDF International received a request for arbitration filed with the International Chamber of Commerce by the German company Neckarpri GmbH, the vehicle for the Baden-Württemberg region's acquisition of the EDF group's stake in EnBW, which was agreed on 6 December 2010 and completed on 17 February 2011.

Neckarpri claims that the price paid for the EDF group's investment in EnBW was excessive and therefore constitutes illegal State aid. On those grounds, it is claiming reimbursement of the allegedly excess portion of the price. This was initially estimated at €2 billion in the request for arbitration, but was re-estimated at €834 million in July 2012 in an independent report on the valuation of EnBW commissioned by Baden-Württemberg. In September 2012, Neckarpri confirmed the reduction of its main claim to this amount. As an alternative, Neckarpri is seeking cancellation of the sale of the EDF group's stake in EnBW.

EDF International made a counterpetition for compensation for the prejudice suffered as a result of the proceedings, which EDF considers unfounded and a misuse of law.

The Court of Arbitration ruled in favour of EDF International on 6 May 2016, rejecting all claims made against EDF International by Neckarpri. EDF International's counterpetition was not deemed admissible.

45.2 TAX INSPECTIONS

EDF

Following inspections of previous years' accounts, the French tax authorities are challenging the tax-deductibility of the provision for annuities following work-related accidents and illness paid by the Company. As this is an issue that relates to the special gas and electricity (IEG) statutes, it also concerns RTE, Enedis and Électricité de Strasbourg. The Group is contesting the tax authorities' position on this question. The National Commission of direct taxes and sales taxes issued several opinions that were favourable to RTE and EDF. EDF and its subsidiaries RTE and Électricité de Strasbourg also received favourable rulings from Montreuil Administrative Court which were all upheld by the Versailles Administrative Appeal Court. The authorities filed appeals against these decisions before the Council of State. If the outcome of this dispute is unfavourable, the financial risk for the Group (payment of back income taxes) could amount to some €250 million.

EDF was notified in late 2011 of a proposed rectification for 2008 particularly concerning the tax-deductibility of certain long-term liabilities. This rectification, which may apply each year, represents a financial risk of some €500 million in income taxes at 31 December 2016.

The tax authorities also issued notice of a reassessment concerning an interest-free advance made by EDF to its indirect subsidiary Lake Acquisitions Ltd. in connection with the acquisition of British Energy. The out-of-court negotiations initiated by EDF had a favourable outcome for the Group during 2016.

In late 2015 the tax authorities issued notice to the Company of the recurring reassessments stated above for the years 2012 and 2013, and challenged the deductibility of certain long-term provisions.

EDF International

The tax inspection of EDF International for the years 2008 to 2011 led to proposed rectifications received in late 2011 and late 2013. Two main reassessments amounting to some €265 million concerned the loss on the contribution of CEG shares to the American subsidiary EDF Inc., which arose in late 2009 and was deducted from EDF International's income, and the valuation of the bond convertible into shares issued to refinance the acquisition of British Energy. In 2012 EDF International contested these reassessments, considering it has good chances of winning the dispute. In 2015, an out-of-court discussion between France and the United States initiated by EDF International concerning the valuation of the CEG shares ended in withdrawal of the tax reassessment notified to the Company.

The tax authorities upheld the reassessments concerning valuation of the convertible bond for 2012 and 2013.

45.3 LABOUR LITIGATION

EDF is party to a number of labour lawsuits with employees, primarily regarding working hours. EDF estimates that none of these lawsuits, individually, is likely to have a significant impact on its financial results or financial position. However, because they relate to situations that could concern a large number of EDF's employees in France, any increase in such litigations could have a potentially negative impact on the Group's financial position.

45.4 ENEDIS – LITIGATION WITH PHOTOVOLTAIC PRODUCERS

The French authorities' announcement in autumn 2010 of a forthcoming downward revision to photovoltaic electricity purchase prices triggered an upsurge in applications for purchase contracts which was likely to generate a very significant increase in costs to be compensated by the CSPE. Several successive ministerial orders were issued reducing purchase prices.

As these price decreases were not sufficient to stem the flow of contract applications, by a decree of 9 December 2010 the Government provisionally and retroactively suspended EDF's obligation to purchase photovoltaic electricity, and reduced the purchase prices for producers that had not finalised their connection requests by 2 December 2010.

A certain number of producers who, as a result of these circumstances, lost their entitlement to the pre-moratorium purchase obligation price brought legal proceedings against EDF as operator of the distribution network in the non-interconnected zones, and against Enedis as network operator for mainland France, claiming that the electricity network operator did not issue the technical and financial connection proposals in time for them to benefit from more advantageous electricity purchase terms.

Certain first instance rulings rejected all the plaintiffs' claims, while others awarded compensation.

EDF and Enedis sought to apply their Civil Liability insurance policy, but the insurers refused their claims. The Court of Cassation ruling of 9 June 2015 for the Green Yellow case found that Enedis was liable and that the insurance payment was due. However, the insurers are still refusing to make any payouts on the other pending cases.

EDF and Enedis dispute their liability, and:

- are filing appeals for the most unfavourable first-instance judgments issued against them;
- are routinely applying for suspension of proceedings following the preliminary question put to the Court of Justice of the European Union on 20 September 2016 by Versailles Appeal Court, concerning the compliance of the 2006 and 2010 pricing orders with European State aid laws. Many courts and appeal courts have granted this application.

On 21 June 2012, SUN'R filed a complaint against EDF and Enedis, along with an application for interim measures, with France's Competition Authority, the ADLC. SUN'R accused Enedis of delays in the procedure for the connecting its photovoltaic facilities and EDF of delays in the implementation of the purchase obligation contracts and payment of the related invoices. SUN'R also

claimed that EDF ENR had benefited from special treatment from Enedis for the connection of its facilities and from EDF for the payment of its invoices.

In a decision of 14 February 2013, the ADLC rejected all the applications made by SUN'R for interim measures but decided to continue the investigation on the merits of the case. This decision is no indication of the outcome of the proceedings. If the ADLC's investigation leads to a finding that anti-competitive practices have taken place, it could notably impose a financial sanction under Article L. 464-2 of the French Commercial Code. Any sanction would be proportionate to the seriousness of the alleged offences, the significance of the damage caused to the economy, and the company's situation, with a maximum of 10% of the company's global sales before taxes.

At the same time, on 29 August 2012 SUN'R filed a petition at an urgent applications hearing for expert assessment and provision for costs before the Paris Administrative Court, including a claim for provisional compensation of €1 million from EDF and €2.5 million from Enedis. By order of 27 November 2012, the urgent applications judge (*juge des référés*) at the Administrative Court of Paris dismissed this petition.

On 30 April 2015, SUN'R issued proceedings against Enedis and EDF SA before the Paris Commercial Court, seeking compensation for the loss allegedly caused to it by the delays in the procedure for the connecting its solar energy plant projects to the electricity distribution network. It has asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case, and is claiming a provisional amount of €10 million to be applied against future compensation for its loss. In a ruling of 7 November 2016 the Paris Commercial Court dismissed SUN'R's claim for provisional compensation and suspended proceedings until the ADLC issues a decision on the merits of the case.

On 24 November 2015, Sun West, Azimut 56 and JB Solar issued proceedings against Enedis and EDF SA before the Paris Commercial Court on the same grounds. They are currently claiming almost €4 million for the alleged prejudice, but have asked the Court to suspend proceedings pending the ADLC's decision on the merits of the case.

Note 46 Assets held for sale and related liabilities

(in millions of Euros)

	31/12/2016	31/12/2015
ASSETS HELD FOR SALE	5,220	–
LIABILITIES RELATED TO ASSETS HELD FOR SALE	2,109	–

The Group reclassified the balance sheet items concerned by the following operations as assets held for sale and related liabilities at 31 December 2016:

- sale to Caisse des Dépôts and CNP Assurances of 49.9% of the balance sheet items of C25 (principally comprising RTE shares and a bond) (see note 3.5.1);
- sale of EDF Polska's assets (see note 3.5.2);
- sale of EDF Démász's assets (see note 3.5.3);
- sale of EDF Trading's coal trading and freight business (see note 3.5.4).

Note 47 EDF's dedicated assets

47.1 REGULATIONS

Article L. 594 of France's Environment Code and its implementing regulations require assets (dedicated assets) to be set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste. The regulations govern the way dedicated assets are built up, and the management and governance of the funds themselves. These assets are clearly identified and managed separately from the company's other financial assets and investments. They are also subject to specific monitoring and control by the Board of Directors and the administrative authorities.

The law requires the realisable value of these dedicated assets to be higher than the value of the provisions corresponding to the present value of the long-term nuclear expenses defined above.

The Decree of 29 December 2010 made RTE shares eligible for inclusion in dedicated assets subject to certain conditions and administrative authorisation. The Decree of 24 July 2013 revised the list of eligible assets by reference to the insurance code, and unlisted securities are also now eligible subject to certain conditions.

The Decree of 24 March 2015 contains two measures concerning dedicated assets:

- the annual allocation to dedicated assets, net of any increases to provisions, must be positive or zero as long as their realisable value is below 110% of the amount of the provisions concerned;
- subject to certain conditions, real estate property owned by the operators of nuclear facilities may be allocated to coverage of these provisions.

Subject to certain conditions, the Decree of 19 December 2016 allows allocation of the shares of C25, which holds 100% of the capital of RTE, to the portfolio of dedicated assets at 31 December 2016 (see note 47.2.2 below).

47.2 PORTFOLIO CONTENTS AND MEASUREMENT

Given the applicable regulations, these dedicated assets are a highly specific category of assets.

Dedicated assets are structured and managed according to a strategic allocation defined by the Board of Directors and reported to the administrative authorities. The strategic allocation is designed to meet the overall objective of long-term coverage of obligations, and determines the structure and management of the portfolio as a whole. It takes into account regulatory constraints concerning the nature and liquidity of the dedicated assets, the financial outlook for the equity and bond markets, and the diversifying contribution of unlisted assets.

As part of the strategic allocation review process and in order to pursue the diversification into unlisted assets begun in 2010 with the shares in RTE, in 2013 the Board of Directors approved the introduction of an unlisted asset portfolio alongside the diversified equity and bond investments. This portfolio is managed by the EDF Invest Division, which was formed following the Decree of 24 July 2013 on securing the funding for nuclear expenses. EDF Invest has three target asset classes: principally infrastructures, and also real estate and private equity funds.

Following the French government's authorisation issued on 8 February 2013, and the approval of the Nuclear Commitments Monitoring Committee and the Board of Directors' decision of 13 February 2013, EDF allocated the entire receivable recognised by the French State, representing the accumulated shortfall in CSPE financing at 31 December 2012, to its dedicated assets.

This financial receivable was increased in the financial statements at 31 December 2015 by an additional amount estimated at €644 million that was not allocated to dedicated assets, corresponding to the shortfalls in compensation that arose between the beginning of 2013 and the end of 2015, as acknowledged by the State in a ministerial letter of 26 January 2016. In accordance with this letter, the total financial receivable bears interest at 1.72% and will be repaid under a revised schedule ending in late 2020. This schedule was laid down in a Ministerial Order of 2 December 2016, based on the CRE's confirmation of the shortfall for 2015.

On 22 December 2016, EDF assigned a 26.4% portion of this financial receivable, including the additional receivable corresponding to the shortfalls in compensation between 2013 and 2015, to a pool of investors.

Consequently, the realisable value of the non-assigned portion of the receivable, which is totally allocated to dedicated assets, is calculated based on the assignment value at that date.

The amount received for assignment of the part of the CSPE receivable that was allocated to dedicated assets (€894 million) has been reinvested in dedicated assets (currently, in the "Cash portfolio") (see note 3.6).

47.2.1 Diversified equity and bond investments

Certain dedicated assets take the form of bonds held directly by EDF. The rest comprise specialised collective investment funds on leading international markets, managed by independent asset management companies. They take the form of open-end funds and "reserved" funds established solely for the use of the Group (which does not participate in the fund management).

These investments are structured and managed in line with the strategic allocation, which takes into consideration international stock market cycles, for which the statistical inversion generally observed between equity market cycles and bond market cycles – as well as between geographical areas – has led the Group to define an overall composite benchmark indicator that guarantees continuation of the long-term investment policy.

As a result, for accounting purposes the portfolio is evaluated as a whole, all funds combined, treating the cash flows generated as a group of financial assets. This ensures consistency with the specificities of the dedicated asset portfolio, in particular the legal matching with the liability and the distant timing of significant payments, as disbursements are spread over a period extending beyond 2150.

At the year-end, dedicated assets are presented in available-for-sale financial assets in the balance sheet, at their liquidation value. In view of the specific financial characteristics of the dedicated asset portfolio, the Group exercises judgment in determining whether indicators of impairment appropriate to the structure of the portfolio should be taken into consideration.

The Group thus takes a 5-year period as the basis for assessment of prolonged decline compared to historical value. This period is at the low end of the range of statistical estimates concerning stock markets. Also, based on statistical observations of the asset/liability management model used for this portfolio, the Group considers impairment of dedicated assets to be significant when the value is 40% or more below the portfolio's historical value.

In parallel to these general criteria for impairment, in the course of operational asset monitoring the Group exercises judgment through long-term, specific management rules defined and supervised by its governance bodies (maximum investment ratios, volatility analyses and assessment of individual fund manager quality).

47.2.2 Unlisted assets (EDF Invest)

The assets managed by EDF Invest consist of unlisted securities related to investments in infrastructures, real estate, and private equity funds.

At 31 December 2016, the assets managed by EDF Invest represent a realisable value of €5,633 million, particularly including:

- 75.93% of the Group's shares in C25, the company that owns RTE, in compliance with Decree 2016-1781 of 19 December 2016 amending the Decree of 23 February 2007. These shares amount to €3,905 million

at 31 December 2016 (€2,580 million for 50% of the shares in RTE, at 31 December 2015) (see note 3.5.1);

- the Group's investment in TIGF, Porterbrook, Thyssengas and Aéroports de la Côte d'Azur presented in available-for-sale financial assets in the consolidated balance sheet;
- the Group's investments in Madrileña Red de Gas (MRG) and Géosel, presented in investments in associates in the consolidated balance sheet.

47.3 VALUATION OF EDF'S DEDICATED ASSETS

The following table shows a breakdown of dedicated assets by nature:

(in millions of Euros)	Consolidated balance sheet presentation	31/12/2016		31/12/2015	
		Book value	Realisable value	Book value	Realisable value
Equities		8,010	8,010	7,298	7,298
Debt instruments		6,866	6,866	6,674	6,674
Cash portfolio		900	900	282	282
<i>Dedicated assets – equities and debt instruments</i>	Available-for-sale financial assets	15,776	15,776	14,254	14,254
Derivatives	Fair value of derivatives	(18)	(18)	6	6
Other	Available-for-sale financial assets	–	–	20	20
Diversified equity and bond investments		15,758	15,758	14,280	14,280
CSPE receivable ⁽¹⁾	Loans and financial receivables	4,185	4,288	5,232	5,232
Derivatives	Fair value of derivatives	(2)	(2)	(7)	(7)
CSPE receivable after derivatives		4,183	4,286	5,225	5,225
C25 (the company owning RTE's shares ⁽²⁾)	Investments in associates ⁽³⁾	1,852	3,905	2,580	2,580
Other associates	Investments in associates ⁽³⁾	487	537	466	466
Other assets	Available-for-sale financial assets	1,191	1,191	929	929
Unlisted assets (EDF Invest)		3,530	5,633	3,975	3,975
TOTAL DEDICATED ASSETS⁽⁴⁾		23,471	25,677	23,480	23,480

(1) The receivable consisting of shortfalls in compensation at 31 December 2015, less the portion assigned on 22 December 2016 for the amount of €894 million, which has been reinvested in dedicated assets (see note 3.6). After the partial assignment, the fair value of the CSPE receivable was adjusted based on current market rates.

(2) In 2016, 75.93% of the Group's investment in C25, the company owning 100% of RTE's shares. In 2015, 50% of the Group's investment in RTE.

The RTE shares are included at the equity value in the consolidated financial statements (book value in the table), to the extent of the portion allocated to dedicated assets (75.93%). The realisable value shown in this table is based on the future sale price (see note 3.5.1).

(3) Including the value of the share in equity of the controlled companies owning these investments.

(4) By limiting the value of certain investments in compliance with Article 16 of Decree 2007-243 concerning calculation of the amount of the regulatory realisable value of dedicated assets, the regulatory realisable value is reduced to €24,312 million at 31 December 2016 and could reach €25,653 million in 2017 once the sale of some of the shares in C25 (the company owning RTE's shares) is completed, which should be during the first half of 2017.

Structured entities – Investment funds

The investment funds held by the Group are located in France and owned by EDF. The Group has not given these funds any financial support.

The value of the assets of these investment funds amounts to €1,548 million at 31 December 2016 (€1,292 million at 31 December 2015). The funds mainly consist of 9 listed funds with total value of €1,297 million (at 31 December 2015, 7 listed funds with total value of €1,130 million).

47.4 CHANGES IN DEDICATED ASSETS IN 2016

At 31 December 2016, the degree of coverage of provisions by dedicated assets was 99.8% applying the regulatory calculations. All other things being equal, this coverage should reach 105.3% after completion of the sale of some of the shares of C25, which is planned for the first half of 2017. Without application of the regulatory limits set by Decree 2007-243, the provision coverage rate is 105.4%.

Withdrawals totalled €377 million, equivalent to the payments made in respect of the long-term nuclear obligations to be covered in 2016 (€378 million in 2015). No allocations to dedicated assets took place in 2016 (allocation of €38 million in 2015). The €972 million of allocations yet to be made, as reported at 31 December 2015, no longer applied at 30 June 2016, largely due to the extension of the depreciation period for 900MW PWR plants which led to a reversal of €1,657 million from the provisions covered by dedicated assets (see note 3.1).

However, at 31 December 2016, notably due to the decrease in the real discount rate at the year-end, increases to provisions that must be offset by allocations to dedicated assets under the Decree of 24 March 2015 amount to a total €1,095 million. EDF will allocate this amount to dedicated assets over the month following finalisation of its financial statements, in accordance with the Letter of 10 February 2017 from the Minister for the Economy and Finance, and the Minister for the Environment, Energy and the Sea.

47.5 PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS

The Group's long-term nuclear obligations in France concerned by the regulations for dedicated assets are included in the EDF group's consolidated financial statements at the following values:

(in millions of Euros)

	31/12/2016	31/12/2015
Provisions for spent fuel management – portion unrelated to the operating cycle as defined in the regulations	820	–
Provisions for long-term radioactive waste management	8,966	8,254
Provisions for nuclear plant decommissioning	14,122	14,930
Provisions for last cores – portion for future long-term radioactive waste management	450	462
PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS	24,358	23,646

After a sharp drop in the early part of the year, the financial markets ended 2016 on a positive note despite instability in the international political environmental, which generally put active management policies at a disadvantage. Against this background, the financial portfolio (equities and debt instruments) was managed conservatively, especially with underweighting on the emerging markets at the beginning of the year. But the difference in equity allocations had been made up by the end of the year, especially on emerging equities. For the bond portfolio, sensitivity was reduced to provide protection against a new rise in rates.

For the unlisted asset portfolio, EDF Invest continued over 2016 to build up a portfolio of infrastructures, real estate property and investment funds.

On 5 October 2016 EDF Invest and the Dutch infrastructure fund DIF announced their 50/50 acquisition of Thyssengas, one of Germany's principal regulated gas transport networks.

On 9 November 2016, once the regulatory authorisations had been received, Atlantia and EDF Invest, through their 75%/25% investment vehicle Azzurra Aeroporti Srl, acquired a 64% stake in Aéroports de la Côte d'Azur (ACA), the company that manages the French airports of Nice-Côte d'Azur, Cannes-Mandelieu and Saint Tropez, and the Sky Valet international business aviation service network.

These investments are allocated to EDF Invest's Infrastructures pocket, alongside other investments including TIGF, Porterbrook, MRG, Géosel and C25 (the company owning RTE's shares).

A total of €428 million in net gains on disposals from the financial portfolio was recorded in the financial result in 2016 (€972 million in 2015).

The difference between the fair value and acquisition cost of diversified bond and equity investments included in equity was a positive €1,984 million before taxes at 31 December 2016 (€1,711 million at 31 December 2015).

The Group's assessment of the value of the dedicated asset portfolio did not lead to recognition of any impairment in 2016.

Note 48 Related parties

Details of transactions with related parties are as follows:

(in millions of Euros)	Associates and joint ventures		Joint operations		French State or State-owned entities ⁽¹⁾		Group Total	
	31/12/2016	31/12/2015	31/12/2016	31/12/2015	31/12/2016	31/12/2015	31/12/2016	31/12/2015
Sales	547	618	–	–	1,328	976	1,875	1,594
Energy purchases	3,651	3,738	4	4	2,418	2,077	6,073	5,819
External purchases	4	27	4	4	1,065	1,187	1,073	1,218
Financial assets	106	670	–	–	–	–	106	670
Other assets	575	603	–	–	754	845	1,329	1,448
Financial liabilities	–	–	–	–	–	–	–	–
Other liabilities	1,106	1,049	–	–	880	1,043	1,986	2,092

(1) Excluding tax and social liabilities and the CSPE receivable.

48.1 TRANSACTIONS WITH ENTITIES INCLUDED IN THE SCOPE OF CONSOLIDATION

Transactions with the principal associates (RTE, CENG and Alpiq) are presented in note 23.

Transactions with other associates, joint ventures, and partner entities in joint arrangements with the Group mainly consist of sales and purchases of energy.

48.2 RELATIONS WITH THE FRENCH STATE AND STATE-OWNED ENTITIES

48.2.1 Relations with the French State

The French State holds 85.62% of the capital of EDF at 31 December 2016, and is thus entitled in the same way as any majority shareholder to control decisions that require approval by the shareholders.

In accordance with the legislation applicable to all companies having the French State as their majority shareholder, the EDF group is subject to certain inspection procedures, in particular economic and financial inspections by the State, audits by the French Court of Auditors (*Cour des Comptes*) or Parliament, and verifications by the French General Finance Inspectorate (*Inspection générale des finances*).

The public service contract between the French State and EDF was signed on 24 October 2005. This contract is intended to form the framework for public service missions assigned to EDF by the lawmaker for an unlimited period. The Law of 9 August 2004 does not stipulate the duration of the contract.

EDF, like other electricity producers, also participates in the multi-annual energy program established in the Decree of 27 October 2016, which defines objectives for generation and load shedding.

Finally, the French State intervenes through the regulation of electricity and gas markets, particularly for authorisation to build and operate generation facilities, establishment of sales tariffs for customers that have stayed on the regulated tariffs, transmission and distribution tariffs, and also determination of the ARENH price in accordance with France's Energy Code, and the level of the Contribution to the Public Electricity Service.

48.2.2 Relations with Engie

The common service function shared by EDF and Engie, respectively the electricity distribution and gas distribution subsidiaries Enedis and GRDF, is defined by Article L. 111-71 of the French Energy Code. Its missions in the electricity and gas distribution sector are building structures, site project management, network operation and maintenance, and metering operations. This service is not a legal entity in its own right.

48.2.3 Relations with public sector entities

The EDF group's relations with public sector entities mainly concern the AREVA group.

Transactions with AREVA concern:

- the front-end of the nuclear fuel cycle (uranium supplies, conversion and enrichment services and fuel assembly production);
- the back-end of the nuclear fuel cycle (transportation, storage, processing and recycling services for spent fuel);
- plant maintenance operations and equipment purchases.

On 15 November 2016 the Board of Directors approved the terms of the contract for the sale of an investment that would give EDF exclusive control over "New AREVA NP", a fully-owned subsidiary of AREVA NP (see note 3.4).

Front-end of the cycle

In December 2014, EDF and AREVA NP signed a contract for supplies of enriched-uranium fuel assemblies from 2015.

Several important agreements were also negotiated:

- for supplies of natural uranium: an AREVA Mines contract covering the period 2021-2030;
- for fluorination: a contract covering the period 2019-2030;
- for enrichment of natural uranium into uranium 235: an AREVA NC contract for the period 2019-2030.

As part of the plan to construct two EPRs in the United Kingdom at the Hinkley Point site, on 29 September 2016 EDF and AREVA signed a uranium contract with AREVA Mines, a conversion contract and enrichment contract with AREVA NC, and a fabrication contract with AREVA NP.

Back-end of the cycle

Relations between EDF and AREVA concerning transportation, processing and recycling of spent fuels are described in note 29.1.1.

EDF and AREVA have signed the following contracts for the 1,300MW nuclear power plants:

- in 2011, a contract for supply of 32 steam generators and a contract for renewal of the control/command systems;
- in August 2012, a contract for services related to replacement operations for the first steam generators.

In 2013, EDF and AREVA signed two amendments to the initial 2007 contract for the Flamanville EPR boiler, covering the period from development studies to industrial commissioning.

The Group owns a very small minority shareholding in AREVA (2.24%).

48.3 MANAGEMENT COMPENSATION

The Company's key management and governance personnel are the Chairman and CEO, the members of the Comex (Executive Committee) throughout 2016 or since their date of appointment if they joined the Comex during the year, and the Directors. Directors representing the employees receive no remuneration for their services.

The total compensation paid by EDF and controlled companies to the Group's key management and governance personnel amounted to €12.1 million in 2016 (€12.2 million in 2015). This amount covered short-term benefits (basic salaries, performance-related salary, profit share and benefits in kind), special IEG post-employment benefits where relevant, and the corresponding employer contributions, plus director's fees.

Apart from EDF's Chairman and CEO who could benefit from a termination indemnity if his term of office were ended, the Directors benefit from no other special pension system, starting bonus or severance payment entitlement except by contractual negotiation.

Note 49 Environment

49.1 GREENHOUSE GAS EMISSION RIGHTS

In ratifying the Kyoto Protocol Europe made a commitment to reduce its greenhouse gas emissions. EU Directive 2003/87/EC set up a greenhouse gas emission quota system for the European Union which has been in operation since 1 January 2005.

This system is adapted into national laws. Among other things it requires obligated actors, which is the case of EDF, to surrender to the State a number of greenhouse gas emission credits each year, corresponding to their emissions for the year. This Directive came into effect in 2005 for an initial three-year period, followed by a second period from 2008 to 2012, with progressive reduction of the emission rights allocated.

One of the main features of the third phase, running from 2013 to 2020, is the discontinuation of free allocation of emission rights in certain countries, including France and United Kingdom.

In the EDF group, the entities subject to this Directive are EDF, EDF Energy, Edison, Dalkia, Kogeneracja, Zielona Gora, EDF Polska and EDF Luminus.

In 2016, the Group surrendered 46 million tonnes in respect of emissions generated in 2015. In 2015, the Group surrendered 48 million tonnes in respect of emissions generated in 2014.

The Group's total emission rights allocation for 2016 recorded in the national registers is 5 million tonnes (7 million tonnes for 2015).

The volume of emissions at 31 December 2016 stood at 38 million tonnes (47 million tonnes for 2015). The provision resulting from over-quota emissions amounts to €90 million at 31 December 2016 (€209 million at 31 December 2015).

49.2 ENERGY SAVINGS CERTIFICATES

In all its subsidiaries, the Group is engaged in a process to control energy consumption through various measures developed by national legislations, in application of European Union Directives.

In France, the Law of 13 July 2005 introduced a system of energy savings certificates. Suppliers of energy (electricity, gas, heat, cold, domestic fuel oil and fuel for vehicles) with sales above a certain level are subject to energy savings obligations for a defined period. They fulfil these obligations by making direct or indirect energy savings rewarded by certificates, or by purchasing energy savings certificates. At the end of the set period, the entities concerned must provide evidence of compliance with obligations by surrendering the certificates, or pay a fine to the Treasury.

The French system was renewed by Decree 2014-1557 of 24 December 2014 for a third period running from 1 January 2015 to 31 December 2017. The energy savings objectives for this period are more ambitious, and the system has been simplified. The volumes of energy savings certificates obtained during the second period will count towards achievement of the objectives for the third period.

In application of Article 30 of the Law of 17 August 2015 on the energy transition for green growth, a new additional energy savings obligation for 2016-2017 applies from 1 January 2016, for the benefit of households in situation of energy poverty. This new obligation is added to the energy savings obligations for the third period. The annual volume of the obligation is proportional to the annual energy savings obligation.

EDF is well-placed to meet its obligations thanks to energy-efficient offers for each market segment: residential customers, business customers, local authorities and organisations funding social projects.

49.3 RENEWABLE ENERGY CERTIFICATES

Through the renewable energy certificates scheme, the EDF group has an obligation to surrender renewable energy certificates, particularly in the United Kingdom and Belgium (see note 1.3.28.2).

At 31 December 2016, a provision of €744 million was booked, essentially by EDF Energy (United Kingdom) and EDF Luminus (Belgium) to cover the shortfall in renewable energy certificates compared to the assigned obligations.

Note 50 Subsequent events

Subsequent developments concerning EDF Polska and EDF Démász are referred to in notes 3.5.2 and 3.5.3. Subsequent developments concerning changes in particular in 2017 in the regulatory limits on the discount rate used to calculate nuclear provisions in France are referred to in notes 29.1.5.1 and 47.4

50.1 ¥137 BILLION SAMURAI BOND ISSUE

On 20 January 2017, EDF raised ¥137 billion, i.e. around €1.1 billion, through 4 senior bonds issue on the Japanese market ("Samurai bonds") with maturities of 10 years and more:

- ¥107.9 billion bond, with a 10-year maturity and a fixed coupon of 1.088%;
- ¥19.6 billion green bond, with a 12-year maturity and a fixed coupon of 1.278%;
- ¥6.4 billion green bond, with a 15-year maturity and a fixed coupon of 1.569%;
- ¥3.1 billion bond, with a 20-year maturity and a fixed coupon of 1.870%.

With the issuance of two green tranches totalling ¥26 billion dedicated to the financing of its renewable investments, EDF has opened the Samurai green bond market, continuing its active contribution to the development of green bonds as financing instruments for the energy transition.

50.2 BOARD OF DIRECTORS' MEETING HELD ON 13 FEBRUARY 2017

During its meeting held on 13 February 2017, the Board of Directors of EDF decided to carry out a capital increase with preferential subscription rights to existing shareholders for a total amount, including issue premium, of approximately €4 billion, as announced on 22 April 2016.

EDF intends to launch this capital increase before the end of the first quarter of 2017, subject to market conditions and after having received the *visa* from the French *Autorité des marchés financiers* (the "AMF") on the prospectus. This transaction will be executed, after a new deliberation of the Board of Directors, in accordance with the delegation of authority which has been granted to it by the second resolution adopted at the extraordinary general meeting of the shareholders of the company held on 26 July 2016.

The French State, EDF's largest shareholder, has committed to subscribe for new shares in an amount of €3 billion out of the total amount of approximately €4 billion.

Note 51 Scope of consolidation at 31 December 2016

The Group's activities are defined as follows:

- "Generation/Supply" (G): energy generation and energy sales to industry, local authorities, small businesses and residential consumers. This segment also includes commodity trading activities;
- "Distribution" (D): management of the low and medium-voltage public electricity distribution networks;
- "Transmission" (T): operation, maintenance and development of the high-voltage and very-high-voltage electricity transmission networks;
- "Other" (O): energy services (district heating, thermal energy services, etc.) for industry and local authorities, and new businesses mainly aimed at boosting electricity generation through cogeneration and renewable energy sources (e.g. wind turbines, photovoltaic panels, etc.).

51.1 FULLY CONSOLIDATED COMPANIES

		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
France – Generation and Supply				
Électricité de France – Parent Company		100.00	100.00	G,D,O
Group Support Services (G2S)		100.00	100.00	O
Other holding companies (EDF Invest)		100.00	100.00	O
France – Regulated activities				
Enedis (formerly ERDF)		100.00	100.00	D
Électricité de Strasbourg		88.64	88.64	G, D
EDF Production Électrique Insulaire (EDF PEI)		100.00	100.00	G
C25 (the company owning RTE's shares)		100,00	–	A
United Kingdom				
EDF Energy plc (EDF Energy)		100.00	100.00	G, O
EDF Energy UK Ltd.		100.00	100.00	O
EDF Development Company Ltd.		100.00	100.00	O
Italy				
Edison SpA (Edison)		97.45	97.40	G, O
Transalpina di Energia SpA (TdE SpA)		100.00	100.00	O
Fenice Qualita Per L'Ambiente SpA (Fenice) ⁽¹⁾		–	100.00	O
Other international				
EDF International SAS	France	100.00	100.00	O
EDF Belgium SA	Belgium	100.00	100.00	G
EDF Luminus SA	Belgium	68.63	68.63	G, O
EDF Norte Fluminense SA	Brazil	100.00	100.00	G
Ute Paracambi SA	Brazil	100.00	100.00	G
French Investment Guangxi Laibin Electric Power Co, Ltd. (Figlec)	China	100.00	100.00	G
EDF (China) Holding Ltd.	China	100.00	100.00	O
EDF Inc.	USA	100.00	100.00	O
Unistar Nuclear Energy LLC	USA	100.00	100.00	G
EDF Démász Zrt.	Hungary	100.00	100.00	G, D,O
EDF Paliwa Sp. z o.o. (Energokrak)	Poland	99.51	97.44	O
EDF Polska SA	Poland	99.51	97.44	G
Zec Kogeneracja SA (Kogeneracja)	Poland	49.91	49.55	G, O
Elektrociepłownia Zielona Gora SA (Zielona Gora)	Poland	49.11	48.75	G, O
EDF Alpes Investissements SARL	Switzerland	100.00	100.00	O
Mekong Energy Company Ltd. (Meco)	Vietnam	56.25	56.25	G
EDF Chile SpA	Chile	100.00	–	G

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

(1) Fenice is part of the Edison group at 31 December 2016.

		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
Other activities				
EDF Développement Environnement SA	France	100.00	100.00	O
Société pour le Conditionnement des Déchets et Effluents Industriels (SOCODEI)	France	100.00	100.00	O
Compagnie Financière de Valorisation pour l'Ingénierie (COFIVA) ⁽¹⁾	France	–	100.00	O
Société Française d'Ingénierie Électronucléaire et d'Assistance (SOFINEL)	France	55.00	55.00	O
Tiru SA – Traitement Industriel des Résidus Urbains ⁽²⁾	France	–	51.00	O
Dunkerque LNG	France	65.01	65.01	O
EDF Énergies Nouvelles	France	100.00	100.00	G,O
EDF IMMO and real estate subsidiaries	France	100.00	100.00	O
Société C2	France	100.00	100.00	O
Société C3	France	100.00	100.00	O
EDF Holding SAS	France	100.00	100.00	O
CHAM SAS	France	100.00	100.00	O
Dalkia	France	99.94	99.94	O
Citelum	France	100.00	100.00	O
EDF Trading Ltd.	UK	100.00	100.00	O
EDF DIN UK Ltd.	UK	100.00	100.00	O
Wagram Insurance Company Ltd.	Ireland	100.00	100.00	O
EDF Investissements Groupe SA	Belgium	93.89	93.89	O
Océane Re	Luxembourg	99.98	99.98	O
EDF Gas Deutschland GmbH	Germany	100.00	100.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

(1) COFIVA merged with EDEV at 31 December 2016.

(2) Tiru is part of the Dalkia group at 31 December 2016. The percentage ownership is now 75%.

51.2 COMPANY HELD IN THE FORM OF JOINT OPERATIONS

		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
Other activities				
Friedeburger Speicherbetriebsgesellschaft GmbH (Crystal)	Germany	50.00	50.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

51.3 COMPANIES ACCOUNTED FOR BY THE EQUITY METHOD

		Percentage of ownership at 31/12/2016	Percentage of ownership at 31/12/2015	Business sector
France – Generation and Supply				
Elisandra IV (Madrileña Red de Gas Holding) (EDF Invest)	Spain	20.00	25.00	O
Alba Real Estate SCS (EDF Invest)	Luxembourg	46.50	46.50	O
Immo C47 (EDF Invest)	France	100.00	100.00	O
Géosel Manosque (EDF Invest)	France	25.00	–	O
Transport Stockage Hydrocarbures (TSH) (EDF Invest)	France	50.00	–	O
France – Regulated activities				
RTE Réseau de Transport d'Électricité (RTE)	France	100.00	100.00	T
Other international				
Compagnie Énergétique de Sinop (CES)	Brazil	51.00	51.00	G
Constellation Energy Nuclear Group LLC (CENG)	USA	49.99	49.99	G
SLOE Centrale Holding BV	Netherlands	50.00	50.00	G
Shandong Zhonghua Power Company, Ltd.	China	19.60	19.60	G
Datang Sanmenxia Power Generation Co., Ltd.	China	35.00	35.00	G
Taishan Nuclear Power Joint Venture Company Ltd. (TNPJVC)	China	30.00	30.00	G
Jiangxi Datang International Fuzhou Power Generation Company Ltd.	China	49.00	49.00	G
Nam Theun 2 Power Company (NTPC)	Laos	40.00	40.00	G
Alpiq	Switzerland	25.04	25.04	G,D,T,O
Other activities				
Domofinance SA	France	45.00	45.00	O

Business segments: G = Generation, D = Distribution, T = Transmission, O = Other.

51.4 COMPANIES IN WHICH THE EDF GROUP'S VOTING RIGHTS DIFFER FROM ITS PERCENTAGE OWNERSHIP

The percentage of voting rights, which is decisive for assessing control, differs from the Group's percentage ownership for the following entities:

	Percentage of ownership at 31/12/2016	Percentage of voting rights at 31/12/2016
Edison SpA	97.45	99.48
Zec Kogeneracja SA (Kogeneracja)	49.91	50.00
Elektrociepłownia Zielona Gora SA (Zielona Gora)	49.11	98.40
EDF Paliwa Sp. z o.o.	99.51	100.00
Société Française d'Ingénierie Électronucléaire et d'Assistance (SOFINEL)	55.00	54.98
EDF Investissements Groupe SA	93.89	50.00

Note 52 Statutory Auditors' fees

The following table sets forth the fees paid for work done by the Statutory Auditors and their network during 2016.

<i>(In thousands of Euros)</i>	Deloitte network		KPMG network	
	Amount (excluding taxes)	%	Amount (excluding taxes)	%
Audit:				
Statutory audit, certification, review of company and consolidated accounts				
EDF	3,701	21.8	3,535	26.0
Fully consolidated subsidiaries	6,787	40.0	8,639	63.7
Sub-total	10,488	61.8	12,174	89.7
Non-audit services				
EDF	1,973	11.6	448	3.3
Fully consolidated subsidiaries	4,507	26.6	951	7.0
Sub-total	6,480	38.2	1,399	10.3
TOTAL	16,968	100	13,573	100

Statutory Auditors' fees for 2015

The following table sets forth the fees paid for work done by the Statutory Auditors and their network during 2015.

<i>(In thousands of Euros)</i>	Deloitte network		KPMG network	
	Amount (excluding taxes)	%	Amount (excluding taxes)	%
Audit:				
Statutory audit, certification, review of company and consolidated accounts				
EDF	3,681	22.5	3,623	25.9
Fully consolidated subsidiaries	7,574	46.2	8,309	59.4
Sub-total	11,255	68.7	11,932	85.3
Non-audit services				
EDF	1,771	10.8	713	5.1
Fully consolidated subsidiaries	3,353	20.5	1,341	9.6
Sub-total	5,124	31.3	2,054	14.7
TOTAL	16,379	100	13,986	100

6.2 Statutory Auditors' report on the consolidated financial statements

This is a free translation into English of the Statutory Auditors' report on the consolidated financial statements issued in French and is provided solely for the convenience of English speaking readers.

This Statutory Auditors' report includes information specifically required by French law in such reports, whether qualified or not. This information is presented below the audit opinion on the consolidated financial statements and includes an explanatory paragraph discussing the auditor's assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account balances transactions, or disclosures.

The report also includes information relating to the specific verification of information given in the Group's management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

Year ended 31 December 2016

To the Shareholders,

Following our appointment as Statutory Auditors by your General Meeting, we hereby report to you, for the year ended 31 December 2016 on:

- the audit of the accompanying consolidated financial statements of Electricité de France SA (the "Group");
- the justification of our assessments;
- the specific verification required by law.

The consolidated financial statements have been approved by the Board of Directors. Our role is to express an opinion on these consolidated financial statements based on our audit.

1. OPINION ON THE CONSOLIDATED FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, using sample testing techniques or other selection methods, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting policies used and significant accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities, and of the financial position of the Group and of the results of its operations for the year then ended in accordance with IFRS as adopted by the European Union.

Without qualifying our conclusion, we draw your attention to the following matters set out in the notes to the consolidated financial statements:

- the impacts of the change of accounting estimate at 1 January 2016, as described in note 3.1 and relating to the extension to 50 years of the accounting depreciation period of the 900MW PWR power plants in France;
- the valuation of long-term provisions relating to nuclear electricity production, which results from management's best estimates and assumptions as described in notes 1.3.2.1 and 29 to the consolidated financial statements. This valuation is sensitive to the assumptions made concerning technical processes, costs, inflation rates, long-term discount rates, depreciation period of the nuclear power plants as well as forecast cash outflows. Changes in these parameters could lead to a material revision of the level of provisioning.

2. JUSTIFICATION OF ASSESSMENTS

In accordance with the requirements of Article L. 823-9 of the French commercial Code, we have made our own assessments which are brought to your attention, in relation to the following matters:

Management judgments and estimates

Note 1.3.2 to the consolidated financial statements describes the main sensitive accounting policies for which management exercises judgment and makes estimates, based on macro-economic assumptions appropriate to the very long-term cycle of Group assets. It may be possible that future results could differ from those estimates, which were made in a context of prolonged market decline, thus resulting in difficulties to assess the economic outlook in the medium term.

Particularly, the Group describes in the notes to the consolidated financial statements the information related to:

- the main assumptions and indicators used for the purposes of testing goodwill and long-lived assets for impairment and recognizing the impairment charges (notes 1.3.15, 13 and 23);
- the provisions for employee benefits, other provisions and contingent liabilities (notes 31, 32 and 45);
- the methods used to account for the shortfall in the compensation and the financing mechanism for Public Energy Service Charges – *Compensation des charges de Service Public de l'Énergie* – (notes 4.4 and 36.3).

Our procedures consisted in assessing these estimates, data, assumptions, and as applicable, the legal opinions on which they are based, reviewing, on a test basis, technical data and calculations performed by the Group, comparing accounting estimates of prior periods with corresponding actual amounts, reviewing the procedures for approving these estimates by management and finally verifying that the notes to the consolidated financial statements provide appropriate disclosures.

These assessments were made as part of our audit of the consolidated financial statements taken as a whole and contributed to the opinion we formed which is expressed in the first part of this report.

3. SPECIFIC VERIFICATION

As required by law we have also verified, in accordance with professional standards applicable in France, the information relating to the Group, given in the management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Paris - La Défense and Neuilly-sur-Seine, 13 February 2017

The Statutory Auditors

KPMG Audit

Department of KPMG SA

Jacques-François Lethu

Jean-Louis Caulier

Deloitte & Associés

Alain Pons

Anthony Maarek

6.3 EDF SA financial statements at 31 December 2016

NB: Most figures in the tables are reported in millions of Euros. The resulting approximation can lead to slight differences in totals or movements and changes.

INCOME STATEMENT

<i>(in millions of Euros)</i>	Notes	2016	2015
SALES ⁽¹⁾	4	40,857	41,553
Change in inventories and capitalised production		1,127	875
Operating subsidies	5	6,532	6,338
Reversals of provisions and depreciation	6	3,808	3,124
Other operating income and transfers of charges	7	784	938
I TOTAL OPERATING INCOME		53,108	52,828
Purchases and other external expenses	8	33,408	33,094
Fuel purchases used		2,894	2,823
Energy purchases		12,427	10,933
Services and other purchases used		18,087	19,338
Taxes other than Income taxes	9	2,616	2,682
Personnel expenses	10	6,874	6,812
Depreciation, amortisation and provisions	11	5,550	7,210
Depreciation and amortisation	11.1	2,904	3,447
Provisions and impairment	11.2	2,646	3,763
Other operating expenses	12	1,482	1,409
II TOTAL OPERATING EXPENSES		49,930	51,207
OPERATING PROFIT (I - II)		3,178	1,621
III Joint operations		6	16
IV Financial result	13	(1,264)	(2,275)
PROFIT OR LOSS BEFORE INCOME TAXES AND EXCEPTIONAL ITEMS (I - II + III + IV)		1,920	(638)
V EXCEPTIONAL RESULT	14	4,277	846
VI INCOME TAXES	15	(680)	63
PROFIT OR LOSS (I - II + III + IV + V + VI)		5,517	271

(1) Production of goods for export in 2016: €8,194 million; production of services for export in 2016: €480 million.

BALANCE SHEET**ASSETS**

	Notes	31/12/2016			31/12/2015
		Gross values	Amortisation, depreciation and impairment	Net values	Net values
<i>(in millions of Euros)</i>					
Intangible assets	16-17	1,619	751	868	851
Property, plant and equipment owned by EDF	16-17	79,789	54,767	25,022	25,406
Property, plant and equipment operated under concessions	16-17	14,119	8,337	5,782	5,666
Tangible and intangible assets in progress	16-17	17,741	141	17,600	15,888
Investments and related receivables		55,718	172	55,546	57,435
Investment securities		16,954	179	16,775	12,766
Loans and other financial assets		13,871	3	13,868	13,685
Financial assets	18	86,543	354	86,189	83,886
TOTAL I FIXED ASSETS		199,811	64,350	135,461	131,697
Inventories and work-in-progress	19	10,373	247	10,126	10,212
Advances on orders	20	1,097	129	968	1,223
Trade and other receivables	20	22,347	426	21,921	19,583
Marketable securities	21	17,204	10	17,194	13,900
Cash instruments	20	4,610	–	4,610	4,759
Cash and cash equivalents	22	5,457	–	5,457	6,199
Prepaid expenses	20	1,334	–	1,334	1,339
TOTAL II CURRENT ASSETS		62,422	812	61,610	57,215
Deferred charges (III)		285	–	285	289
Bond redemption premiums (IV)		686	196	490	512
Unrealised foreign exchange losses (V)	23	1,083	–	1,083	2,070
TOTAL ASSETS (I + II + III + IV + V)		264,287	65,358	198,929	191,783

EQUITY AND LIABILITIES

<i>(in millions of Euros)</i>	Notes	31/12/2016	31/12/2015
Capital		1,055	960
Capital-related premiums		9,847	8,081
Revaluation surplus		679	675
Reserves			
Legal reserves		101	93
Other reserves		3,000	3,000
Retained earnings		3,317	5,134
Profit or loss for the financial year		5,517	271
Interim dividend		(1,006)	(1,059)
Investment subsidies		169	170
Tax-regulated provisions		6,132	6,233
EQUITY	24	28,812	23,558
Additional equity	25	11,038	11,281
Special concession accounts	26	2,120	2,093
TOTAL I EQUITY AND CONCESSION ACCOUNTS		41,970	36,932
Provisions for risks	27	2,189	3,056
Provisions related to nuclear generation (Back-end of the nuclear cycle, plant decommissioning and last cores)	28	36,033	36,130
Provisions for decommissioning of non-nuclear facilities	29	617	597
Provisions for employee benefits	30	10,846	10,759
Provisions for other expenses	31	879	969
Provisions for expenses		48,375	48,455
TOTAL II PROVISIONS		50,564	51,511
Financial liabilities	33	56,861	55,821
Advances and progress payments received	32	7,068	6,819
Operating, investment and other liabilities	32	33,172	32,741
Cash instruments	32	5,283	3,969
Deferred income	32	3,627	3,698
TOTAL III LIABILITIES	32	106,011	103,048
Unrealised foreign exchange gains (IV)	34	384	292
TOTAL EQUITY AND LIABILITIES (I + II + III + IV)		198,929	191,783

CASH FLOW STATEMENT

<i>(in millions of Euros)</i>	Notes	2016	2015
Operating activities			
Profit/(loss) before income tax		6,198	208
Amortisation, depreciation and provisions		3,082	7,023
Capital (gains)/losses ⁽¹⁾		(3,873)	(505)
Financial income and expenses		(405)	(814)
Changes in working capital		2,335	872
Net cash flow from operations		7,337	6,784
Net financial expenses, including dividends received		1,749	1,637
Income taxes paid		(621)	(1,102)
European Commission decision of 22 July 2015 ⁽²⁾		0	(789)
(A) Net cash flow from operating activities		8,465	6,531
Investing activities			
Investments in property, plant and equipment and intangible assets		(6,001)	(5,957)
Proceeds from sale of property, plant and equipment and intangible assets		16	21
Changes in financial assets ⁽³⁾		(1,676)	(9,645)
(B) Net cash flow used in investing activities		(7,661)	(15,582)
Financing activities:			
Issuance of borrowings and underwriting agreements		6,130	9,807
Repayment of borrowings and underwriting agreements		(8,645)	(2,969)
Dividends paid	24	(165)	(1,420)
Issuance of perpetual subordinated bonds		–	–
Funding contributions received for assets operated under concessions		7	10
Investment subsidies		8	6
(C) Net cash flow from financing activities		(2,665)	5,433
(A)+ (B)+ (C) Net increase/(decrease) in cash and cash equivalents		(1,861)	(3,617)
CASH AND CASH EQUIVALENTS – OPENING BALANCE⁽⁴⁾	22	(2,427)	1,226
Effect of currency fluctuations		250	(90)
Financial income on cash and cash equivalents		57	54
CASH AND CASH EQUIVALENTS – CLOSING BALANCE⁽⁴⁾	22	(3,981)	(2,427)

(1) Including the gain on the sale of all the shares of RTE to the new company C25 (see note 2.5).

(2) On 22 July 2015 the European Commission issued a new decision classifying the tax treatment of provisions established between 1987 and 1996 for renewal of French general electricity network facilities as State aid incompatible with European Union rules (see note 2.2 to the 2015 financial statements).

(3) "Changes in financial assets" include an amount of €1,538 million received upon assignment of a portion (26.4%) of the CSPE receivable. The receivable assigned comprises a €644 million component that was not allocated to dedicated assets (see note 2.6). This item includes a cash consideration of €2,667 million received for the RTE shares transferred to C25 (see note 2.5).

(4) "Cash and cash equivalents – opening balance" and "Cash and cash equivalents – closing balance" do not include investment funds, nor negotiable debt instruments maturing in more than three months. Details of the variation in cash and cash equivalents are presented in note 22.

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Note 1 Accounting principles and methods

1.1 ACCOUNTING STANDARDS

EDF's financial statements are prepared in accordance with the accounting principles and methods defined by the French national chart of accounts (*Plan comptable général*), as presented by regulation 2014-03 of 5 June 2014 concerning the chart of accounts issued by the ANC (*Autorité des normes comptables*, France's Accounting Standards Authority), amended by regulation 2015-06 of 23 November 2015.

Application of this regulation, which was ratified by an Order of 4 December 2015, has been mandatory since 1 January 2016. It has no impact on EDF SA's financial statements.

The accounting and valuation methods applied are identical to those used in the financial statements for the year ended 31 December 2015.

1.2 MANAGEMENT JUDGMENTS AND ESTIMATES

The preparation of the financial statements requires the use of judgments, best estimates and assumptions in determining the value of assets and liabilities, income and expenses recorded for the period, considering positive and negative contingencies existing at year-end. The figures in EDF's future financial statements could differ significantly from current estimates due to changes in these assumptions or economic conditions.

In the specific case of the accounting depreciation period of its nuclear power plants, EDF's industrial strategy is to continue operation beyond 40 years, in optimum conditions as regards safety and efficiency.

EDF has been making preparations for extending this useful life for several years, and the necessary investments are being made through its *Grand carénage* industrial overhaul programme which was approved in principle by the Board of Directors in January 2015.

During 2016, all the technical, economic and governance conditions for extending the accounting depreciation period of 900MW series power plants were fulfilled. EDF therefore changed the estimate at 1 January 2016 for all 900MW power plants, with the exception of Fessenheim (see note 2.1, Extension to 50 years of the depreciation period of the 900MW PWR nuclear units in France).

The depreciation period of other series (1300MW and 1450MW), which are more recent, is currently unchanged at 40 years, as the conditions for extension are not fulfilled.

These lifetimes are in line with the date of recoupling with the network after the most recent 10-year inspection.

The other principal sensitive accounting methods involving use of estimates and judgments are described below.

In a context characterised by financial market volatility, the parameters used to prepare estimates are based on macro-economic assumptions appropriate to the very long-term cycle of EDF's assets.

1.2.1 Nuclear provisions

The measurement of provisions for the back-end of the nuclear cycle, decommissioning and last cores is sensitive to assumptions concerning technical processes, costs, inflation rates, long-term discount rates, the useful life of plants currently in operation and disbursement schedules.

These parameters are therefore re-estimated at each closing date to ensure that the amounts accrued correspond to the best estimate of the costs eventually to be borne by EDF.

EDF considers that the assumptions used at 31 December 2016 are appropriate and justified. However, any future change in assumptions could have a significant impact on the Group's balance sheet and income statement.

The main assumptions and sensitivity analyses relating to nuclear provisions are presented in note 28.5.

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs carries uncertainty factors such as:

- changes in the regulations, particularly on safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la Gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in relation to the regulatory limit, inflation rates, or changes in the contractual terms of spent fuel management.

1.2.2 Pensions and other long-term and post-employment benefit obligations

The value of pensions and other long-term and post-employment benefit obligations is based on actuarial valuations that are sensitive to all the actuarial assumptions used, particularly concerning discount rates, inflation rates, and wage increase rates.

The principal actuarial assumptions used to calculate these post-employment and long-term benefits at 31 December 2016 are presented in note 30.4. These assumptions are updated annually. EDF considers the actuarial assumptions used at 31 December 2016 appropriate and well-founded, but future changes in these assumptions could have a significant effect on the amount of the obligations and EDF's net income.

1.2.3 Energy supplied but not yet measured and billed

The quantities of energy supplied but not yet measured and billed are calculated at the reporting date based on consumption statistics and selling price estimates. Determination of the unbilled portion of sales revenues at the year-end is sensitive to the assumptions used to prepare these statistics and estimates.

1.3 SALES

Sales essentially comprise income from energy sales (to final customers and as part of trading activities), and sales of services. EDF's energy sales revenues include delivery services through the energy distribution network purchased from the subsidiary Enedis and invoiced to end-customers.

Sales are recognised when delivery of goods has taken place or the service has been completed.

The quantities of energy delivered to EDF customers but not yet measured and billed at the end of the period are calculated based on the quantities used by the sites of the EDF balance-responsible entity less the quantities billed, after losses measured by a statistical method presented to the *Commission de Régulation de l'Énergie* (CRE), the French Energy Regulation Commission. These quantities are valued using an average price determined by reference to energy invoiced in the previous month.

Sales of goods and services not completed at the balance sheet date are valued by reference to the stage of completion at that date.

Sales of energy to EDF Trading, the group's trading company, are recorded at their contractually stipulated amount.

1.4 INTANGIBLE ASSETS

1.4.1 Research and development expenses

Research expenses are recognised as expenses in the financial period incurred.

Development costs that meet the requirements for capitalisation laid down in Article 211-3 of the French national chart of accounts are included in intangible assets and amortised on a straight-line basis over their foreseeable useful life.

1.4.2 Other intangible assets

Other intangible assets mainly consist of software and storage capacity reservation costs.

They are amortised on a straight-line basis over their useful lives regardless of whether they are generated in-house or purchased.

1.5 PROPERTY, PLANT AND EQUIPMENT

EDF's property, plant and equipment is reported under two balance sheet headings, as appropriate to the business and contractual circumstances of their use:

- property, plant and equipment owned by EDF, essentially nuclear generation facilities;
- property, plant and equipment operated under concessions.

1.5.1 Initial measurement

Property, plant and equipment is recorded at acquisition or production cost.

- The cost of facilities developed in-house includes all labour and materials costs, and all other production costs attributable to the construction of the asset.
- The cost of property, plant and equipment also includes the initial estimate of decommissioning costs. These assets are associated with the provisions recorded to cover decommissioning obligations. At the date of commissioning, property, plant and equipment is measured and recorded in the same way as the corresponding provision (see note 1.15).
- Decommissioning costs for nuclear generation installations also include last core costs (see note 1.15).

When some of the decommissioning costs for a plant are to be borne by a partner, the expected reimbursement is recognised as accrued income in the assets. The difference between the provision and the accrued income is recorded as in Property, plant and equipment, and subsequent payments by the partner are deducted from the accrued income.

EDF capitalises safety expenses incurred as a result of legal and regulatory obligations sanctioning non-compliance by an administrative ban from operation.

Strategic safety spare parts for generation facilities are treated as property, plant and equipment, and depreciated over the residual useful life of the installations.

The costs of major inspections that are necessary for continued operation by generation assets are capitalised and amortised over a period corresponding to the time elapsing between two inspections.

When a part of an asset has a different useful life from the overall asset's useful life, it is identified as an asset component and depreciated over a specific period.

Borrowing costs attributable to the financing of an asset incurred during the construction period are recognised as expenses.

1.5.2 Depreciation

Items of property, plant and equipment are depreciated on a straight-line basis over their useful life, defined as the period during which the company expects to draw future economic benefits from their use.

The expected useful lives for the main facilities are as follows:

- | | |
|--|----------------|
| ■ hydroelectric dams: | 75 years |
| ■ electromechanical equipment used in hydropower plants: | 50 years |
| ■ fossil-fired power plants: | 25 to 45 years |
| ■ nuclear generation facilities: | 40 to 50 years |
| ■ transmission and distribution installations (lines, substations) | 20 to 45 years |

1.5.3 Concession agreements

In France, EDF is the operator for two types of public service concessions:

- public electricity distribution concessions in which the grantors are local authorities (municipalities or syndicated municipalities);
- hydropower concessions with the French State as grantor.

The accounting treatment of concessions is based on the 1975 accounting guide for concession operator firms, as there are no specific instructions in the national chart of accounts.

1.5.3.1 Public electricity distribution concessions

EDF is the concession operator for the island networks located in Corsica and France's overseas departments, generally under concession agreements using standard concession rules deriving from the 1992 Framework Contract (updated in 2007) negotiated with the National Federation of Licensing Authorities (*Fédération Nationale des Collectivités Concédantes et Régies* – FNCCR) and approved by the public authorities.

Assets used under concessions are reported in the balance sheet assets as property, plant and equipment operated under concessions, regardless of their initial financing, at acquisition cost or their estimated value at the transfer date when supplied by the grantor. An offsetting liability is recognised for any assets supplied for nil consideration by concession grantors.

1.5.3.2 Hydropower concessions

Hydropower concessions follow standard rules approved by Decree.

Hydropower concession assets consist solely of hydropower generation equipment (dams, pipes, turbines, etc) for initial concessions. In other concessions, they comprise hydropower generation equipment and switching facilities (alternators, etc).

Assets used in these concessions are recorded under "Property, plant and equipment operated under concessions" at acquisition cost.

Depreciation is calculated over their useful life, which is generally identical to the term of the concession.

Additional depreciation is booked in the balance sheet liabilities for assets operated under concessions (see 1.14.2).

1.6 LONG-TERM ASSET IMPAIRMENT

At each reporting date, EDF assesses whether there is an indication that an asset could have significantly lost value. If so, an impairment test is carried out as follows:

- EDF measures any long-term asset impairment by comparing the carrying value of these assets, organised into groups of assets where necessary, and their recoverable value, usually determined using the discounted future net cash flow method. When this recoverable value is lower than the value in the balance sheet, an amount equivalent to the difference is written off under "Depreciation and impairment";
- the discount rates used for these purposes are based on the weighted average cost of capital (WACC) for each asset or group of assets concerned;
- future cash flows are based on Medium-Term Plans (MTPs) and assumptions validated by the management.

1.7 FINANCIAL ASSETS

1.7.1 Investments

Investments are carried at acquisition cost.

Gains and losses on sales of investments are valued using the FIFO (first in first out) method.

In accordance with Article 213-8 of ANC regulation 2014-03 on the national chart of accounts, transfer duties, fees and commissions and legal fees related to acquisitions of investments are included in the cost of acquisition of the asset.

Expenses of this type relating to other shares are included in expenses. Tax-regulated amortisation of acquisition costs is recorded in an excess depreciation account.

When the book value of investments is higher than their value in use, impairment is recorded equivalent to the difference.

The value in use of listed securities in non-consolidated entities is based on stock market price.

For unlisted and listed securities in companies included in the EDF group consolidation, the value in use is determined by reference to the transaction value, equity value or net adjusted consolidated assets, taking into account expert valuation information and information that has become known since the previous year-end when necessary.

1.7.2 Investment securities

EDF has set up two investment portfolios:

- the first comprises dedicated financial assets intended to finance the end of nuclear fuel cycle operations, for which provisions have been accrued. These assets are managed separately from other financial assets and investments in view of their specific objective, and comprise bonds, equities, collective investment funds and "reserved" funds built up by EDF solely for its own use;
- the second comprises securities acquired to generate a satisfactory return on investment in the medium to long term, without participating in the management of the companies concerned.

Investment securities also include treasury shares that cover obligations relating to debt instruments providing access to the company's capital, acquired under a liquidity contract with an investment services company or through an external operation or capital reduction.

Shares are recorded at acquisition cost. In compliance with Article 213-8 of ANC regulation 2014-03 on the national chart of accounts, transfer duties, professional fees, commissions, legal expenses and purchasing costs are all charged to expenses, applying the option used for other investments.

Investment securities (shares and bonds) are recorded at acquisition cost. If the year-end inventory value of a security is lower than the acquisition cost, the unrealised capital loss is fully covered by a provision without being netted against potential gains on other securities. The inventory value of listed securities is assessed individually, taking the stock market price into account. For unlisted securities, the inventory value is also assessed individually, mainly by reference to the growth prospects of the companies concerned and their share prices.

1.7.3 Other financial assets

As part of of Group activities, EDF grants short-term loans in foreign currencies to its subsidiaries.

In order to reduce exposure to foreign exchange risks, the Group mainly finances these loans by short-term commercial paper issues in foreign currencies and in Euros, together with the use of currency hedging derivatives. Capitalised receivables are stated at nominal value. Impairment is recognised when the inventory value falls below the book value.

1.8 INVENTORIES AND WORK-IN-PROGRESS

The initial cost of inventories includes all direct material costs (including the effect of hedging), labour costs and a share of indirect production costs.

Inventory consumption is generally valued under the weighted average unit cost method. Consumption of greenhouse gas emission rights and Energy Savings Certificates is valued under the FIFO (first in first out) method.

Inventories are carried at the lower of historical cost or net realisable value.

1.8.1 Nuclear fuel and materials

Inventory accounts include:

- nuclear materials, whatever their form during the fuel production cycle;
- fuel components in the warehouse or in the reactor.

The stated value of nuclear fuel and materials and work-in-progress is determined based on direct processing costs including materials, labour and subcontracted services (e.g. fluorination, enrichment, production, etc).

In accordance with the concept of "loaded fuel" as defined in the Order of 21 March 2007, the cost of inventories for fuel loaded in the reactors but not yet irradiated includes expenses for spent fuel management and long-term radioactive waste management. The corresponding amounts are taken into account in the relevant provisions.

Nuclear fuel consumption is determined by component (natural uranium, fluorination, enrichment, fuel assembly production) as a proportion of the expected output when the fuel is loaded in the reactor. These quantities are valued at weighted average cost of inventories, applied to each component. Inventories are periodically corrected in view of forecast spent quantities, based on neutronic measurements and physical inventories.

1.8.2 Other operating inventories

These inventories include:

- fossil fuels required for operation of fossil-fired power plants;
- operating materials and equipment such as spare parts supplied under a maintenance programme (excluding capitalised strategic safety spare parts);
- greenhouse gas emission rights and energy savings certificates acquired for the generation cycle (see notes 1.19.1 and 1.19.2);
- gas stocks, valued at weighted average cost, including direct and indirect purchase costs, especially transport costs.
- Certificates issued under the capacity obligation mechanisms (capacity guarantees in France) (see note 3.2).

Impairment of spare parts depends mainly on the turnover of the parts concerned.

1.9 TRADE RECEIVABLES AND MARKETABLE SECURITIES**1.9.1 Trade receivables**

Trade receivables are initially stated at nominal value.

They also include the value of unbilled receivables for energy already supplied.

A write-down is recorded when, based on the probability of recovery assessed according to the type of receivable, the inventory value of receivables falls below their book value. Depending on the nature of the receivable, the risk associated with doubtful receivables is assessed individually or by experience-based statistical methods. EDF does not bear the risks of non-payment for the delivery portion of these receivables, which is borne by Enedis.

1.9.2 Marketable securities

Marketable securities are initially recorded as assets at acquisition cost, and restated at the lower of historical cost or present value at year-end.

For listed securities, the present value is equal to the year-end stock market price. For unlisted securities, the value in use is the probable trading value taking the company's growth prospects into consideration.

Impairment is recorded to fully cover any unrealised losses, without netting against unrecorded unrealised gains.

Gains and losses on sales of marketable securities are valued using the FIFO (first in first out) method.

1.10 BOND ISSUANCE EXPENSES AND REDEMPTION PREMIUMS

Bond redemption premiums are amortised in equal portions according to the duration of the bond (straight-line method), regardless of the redemption pattern, applying the option allowed by Article 212-10 of the national chart of accounts.

Commissions and external costs paid by EDF upon issuance of borrowings and included in "Deferred charges" are spread on a straight-line basis over the term of the related instruments.

1.11 UNREALISED FOREIGN EXCHANGE GAINS AND LOSSES

Foreign currency receivables and payables are translated into Euros at the year-end exchange rates. The resulting translation differences are recorded in the balance sheet under "Unrealised foreign exchange gains" and "Unrealised foreign exchange losses". Provisions are recorded to cover all unrealised exchange losses on foreign currency borrowings not hedged for exchange risks. Unrealised gains are not recognised in the income statement.

Translation differences with respect to swaps hedging foreign currency borrowings are recorded under "Unrealised foreign exchange gains" and "Unrealised foreign exchange losses" as an offsetting entry to "Cash Instruments".

1.12 TAX-REGULATED PROVISIONS

This item mainly includes excess depreciation recorded for tax purposes and relates to:

- ordinary depreciation of generation and distribution facilities;
- exceptional depreciation of software developed in-house by the company.

1.13 ADDITIONAL EQUITY

Perpetual subordinated bonds issued by EDF in Euros and other currencies are recorded in compliance with the French Chartered accountants' body *Ordre des experts comptables* opinion 28 of July 1994, taking their specific characteristics into consideration.

As a result, they are classified as additional equity, since redemption is exclusively controlled by EDF.

Issuance expenses and premiums are amortised through the income statement.

Interest paid on these bonds is recorded in financial result.

1.14 SPECIAL CONCESSION LIABILITIES

These liabilities relate mostly to public electricity distribution concessions for the Island Energy Systems (SEI), and hydropower concessions.

1.14.1 Special public electricity distribution concession liabilities – SEI

These liabilities represent the contractual obligations specific to the concession rules for public electricity distribution concessions, recognised in the liabilities as:

- rights in existing assets: these correspond to the grantor's right to recover all assets for nil consideration. This right comprises the value in kind of the facilities – the net book value of assets operated under concession – less any as yet unamortised financing provided by the operator;
- rights in assets to be replaced: these correspond to the operator's obligation to contribute to the financing of assets due for replacement. These non-financial liabilities comprise:
 - depreciation recorded on the portion of assets financed by the grantor,
 - the provision for renewal, exclusively for assets due for renewal before the end of the concession. This provision is included in provisions for expenses.

When assets are replaced, the provision and amortisation of the grantor's financing recorded in respect of the replaced item are eliminated and transferred to the rights in existing assets, since they are considered as the grantor's financing for the new asset. Any excess provision is taken to income.

During the concession, the grantor's rights in assets to be replaced are thus transferred upon the asset's renewal to become the grantor's rights in existing assets, with no outflow of cash to the benefit of the grantor.

1.14.2 special hydropower concession liabilities

These liabilities comprise:

- the value of assets remitted for nil consideration and contributions received;
- differences arising from revaluations in accordance with French legislation for fixed assets commissioned before 1 January 1959 and before 1 January 1977;
- additional depreciation to industrial depreciation for facilities that are to be returned for nil consideration at the end of the concession but whose useful life extends beyond the concession term.

Following the changes made to the accounting treatment of hydropower concessions at 1 January 2009, the 1959 revaluation reserve is transferred to equity when the assets concerned are retired.

The net revaluation reserve generated by the 1976 revaluation is taken to income over the residual useful life of the assets concerned.

The value of assets remitted for nil consideration and contributions received are transferred to the income statement over their useful lives.

1.15 PROVISIONS OTHER THAN EMPLOYEE BENEFIT PROVISIONS

EDF recognises provisions when it has a present obligation (legal or constructive) arising from a past event, an outflow of resources will probably be required to settle the obligation, and the obligation amount can be estimated reliably.

If it is anticipated that all or part of the expenses covered by a provision will be reimbursed, the reimbursement is recognised under receivables if and only if EDF is virtually certain of receiving it.

Provisions are determined based on EDF's expectation of the cost necessary to settle the obligation. Estimates are based on management data from the information system, assumptions adopted by the company, and if necessary experience of similar transactions, or in some cases based on independent expert reports or contractor quotes. The various assumptions are reviewed for each closing of the accounts.

The expected costs are estimated based on year-end economic conditions and spread over a forecast disbursement schedule. They are then adjusted to Euros of the year of payment through application of a forecast long-term inflation rate and discounted to present value using a nominal discount rate. The provisions are based on these discounted future cash flows.

The rate of inflation and the discount rate are based on the economic and regulatory parameters of France, considering the long operating cycle of assets and the maturities of commitments.

The discount effect generated at each closing to reflect the passage of time is recorded in financial expenses.

In extremely rare situations, a provision cannot be booked due to lack of a reliable estimate. In such cases, the obligation is mentioned in the notes as a contingent liability, unless there is little likelihood of an outflow of resources.

1.15.1 Provisions related to nuclear generation

These provisions mainly cover the following:

- back-end nuclear cycle expenses for spent fuel management and long-term radioactive waste management;
- costs for decommissioning power plants and losses relating to fuel in the reactor when the reactor is shut down (provision for last cores).

Last core expenses correspond to the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints, and the cost of fuel processing, and removal and storage of the resulting waste.

Changes in provisions resulting from a change in discount rates, a change in the disbursement schedule or a change in contractor quote are recorded:

- as an increase or decrease in the corresponding assets, up to the net book value, if the provision was initially covered by balance sheet assets (decommissioning of plants still in operation, long-term management of the radioactive waste resulting from such decommissioning, and last cores);
- in the income statement in all other cases.

Detailed information on the principles for determining provisions related to nuclear generation is given in note 28.

1.15.2 Other provisions

These provisions mainly cover:

- losses relating to multi-year agreements for the purchase and sale of energy:
 - losses on energy purchase agreements are measured by comparing the acquisition cost under the contractual terms with the forecast market price,
 - losses on energy sale agreements are measured by comparing the estimated income under the contractual terms with the cost of the energy to be supplied.
- unrealised foreign exchange losses;
- risks relating to subsidiaries and affiliates;
- tax risks;
- litigation;
- costs of decommissioning of fossil-fired and hydropower plants;
- costs of renewal of facilities operated under public electricity distribution concessions;
- provisions related to environmental schemes (see note 1.19).

In extremely rare cases, description of a specific litigation covered by a provision may be omitted from the notes to the financial statements if such disclosure could cause serious prejudice to the company.

1.16 EMPLOYEE BENEFITS

In accordance with the statutory regulations for companies in the electricity and gas sector (IEG), EDF's employees are entitled to post-employment benefits (pension plans, retirement indemnities, etc) and other long-term benefits (e.g. long-service awards).

1.16.1 Calculation and recognition of employee benefits

In application of the CNC Emergency Committee opinion 2000-A issued on 6 July 2000, incorporated into Article 324-1 of ANC regulation 2014-03 on the national chart of accounts, EDF opted for recognition of post-employment benefits granted to personnel as of 1 January 2005.

Obligations under defined-benefit plans are calculated by the projected unit credit method, which determines the present value of entitlements earned by employees at year-end to post-employment benefits and long-term benefits, taking into consideration the prospects for wage increases and the country's specific economic conditions.

Post-employment benefit obligations are valued mainly using the following methods and assumptions, in compliance with Article 324-1 of ANC regulation 2014-03:

- retirement age, determined on the basis of the applicable rules, and the requirements to qualify for a full pension;
- career-end salary levels, with reference to employee seniority, projected salary levels at the time of retirement based on the expected effects of career advancement, and estimated trends in pension levels;
- forecast numbers of pensioners, determined based on employee turnover rates and mortality data;
- reversion pensions where relevant, taking into account both the life expectancy of the employee and his/her spouse and the marriage rate for IEG sector employees;
- a discount rate that depends on the duration of the obligations, determined at the year-end date by reference to the market yield on high quality corporate bonds or the rate on government bonds whose duration is coherent with EDF's commitments to employees.

The amount of the provision takes into account the present value of the assets that cover these benefits, which is deducted from the value of the benefit obligation.

Any actuarial gain or loss on post-employment benefit obligations in excess of 10% (the "corridor") of the obligations or fund assets, whichever is the highest, are recognised in the income statement progressively over the average residual working life of the company's employees.

For other long-term benefits, actuarial gains and losses and the full past service cost are directly included in the provision, without application of the "corridor" rule.

The net expense booked during the year for employee benefit obligations includes:

- the current service cost, corresponding to additional benefit entitlements earned during the year;
- the net interest expense, corresponding to interest on obligations net of the return on fund assets;
- the income or expense corresponding to the actuarial gains and losses on long-term benefits and amortisation of actuarial gains or losses on post-employment benefits;
- the past service cost, including the income or expense related to amendments or settlements of benefit plans or introduction of new plans.

1.16.2 Post-employment benefit obligations

Since the financing reform for the IEG sector system took effect on 1 January 2005, the CNIEG (*Caisse nationale des IEG*, the sector's specific pension body) has managed not only the special IEG pension system, but also the industrial accident, invalidity and death insurance system for the sector.

The CNIEG is a social security body governed by private law, formed by the Law of 9 August 2004. It has legal entity status and reports to the French government, operating under the joint supervision of France's ministers for the Budget, Social Security and Energy.

Under the funding arrangements introduced by the Law, EDF establishes pension provisions to cover entitlements not funded by France's standard systems (CNAV, AGIRC and ARRCO), to which the IEG system is affiliated, or by the CTA (*Contribution Tarifaire d'Acheminement*) levy on gas and electricity transmission and distribution services.

As a result of this funding mechanism, any change (whether favourable or unfavourable to employees) in the standard French pension system that is not passed on to the IEG pension system is likely to cause a variation in the amount of the provisions recorded by EDF to cover its obligations.

The benefits covered by pension provisions include:

- specific benefits of employees in the deregulated or competitive activities;
- specific benefits earned by employees from 1 January 2005 for the regulated activities (island public electricity distribution) (benefits earned before that date are financed by the CTA levy).

CNIEG management expenses payable by EDF for the administration and payment of retired employees' pensions are also included.

In addition to pensions, other benefits are granted to IEG status former employees (not currently in active service), as detailed below:

- benefits in kind (energy): Article 28 of the IEG national statutes entitles such employees and current employees to benefits in kind in the form of supplies of electricity or gas at preferential prices. The obligation for supplies of energy to employees of EDF and Engie corresponds to the probable present value of kWh to be supplied to beneficiaries or their dependants during their retirement, valued on the basis of the unit cost. It also includes the payment made under the energy exchange agreement with Engie;
- retirement gratuities: these are paid upon retirement to employees due to receive the statutory old-age pension, or to their dependants if the employee dies before reaching retirement. These obligations are almost totally covered by an insurance policy;
- bereavement benefit: this is paid out upon the death of an inactive or disabled employee, in order to provide financial assistance for the expenses incurred at such a time (Article 26 - § 5 of the National Statutes). It is paid to the deceased's principal dependants (statutory indemnity equal to three months' pension, subject to a ceiling) or to a third party that has paid funeral costs (discretionary indemnity equal to the costs incurred);
- bonus pre-retirement paid leave: all employees eligible to benefit immediately from the statutory old-age pension and aged at least 55 at their retirement date are entitled to 18 days of bonus paid leave during the last twelve months of their employment;
- other benefits include help with the cost of studies, time banking for pre-retirement leave, and pensions for personnel sent on secondment to companies not covered by the IEG system.

1.16.3 Other long-term benefit obligations

These benefits concern employees currently in service, and include:

- annuities following incapacity, invalidity, industrial accident or work-related illness; like their counterparts in the general national system, IEG employees are entitled to financial support in the event of industrial accident or work-related illness, and invalidity and incapacity annuities and benefits. The obligation is measured as the probable present value of future benefits payable to current beneficiaries, including any possible reversions;
- long-service awards;
- specific benefits for employees who have been in contact with asbestos.

1.17 DERIVATIVES

EDF uses derivatives in order to minimise the impact of foreign exchange risks and interest rate risks.

These short-term and long-term derivatives comprise interest rate and currency derivatives.

Hedging derivatives correct the foreign exchange result and interest income or expense of the corresponding asset or liability. If the foreign exchange risk is fully hedged, no provision is recorded. If it is only partly hedged, a provision is recorded for the entire unhedged portion of the unrealised foreign exchange loss.

For derivatives traded over the counter, when there is no hedging relationship, a provision is recorded for unrealised losses and unrealised gains are not recognised.

Instruments in the portfolio at the year-end are included in off-balance sheet commitments at the nominal value of the contracts.

1.18 COMMODITY CONTRACTS

Forward financial instruments on commodities are traded for hedging purposes. Gains and losses on these operations are included in sales or in the cost of energy purchases, depending on the nature of the hedged item.

Instruments in the portfolio at the year-end are included in off balance sheet commitments at the quantities to be delivered or to be received under the contracts.

1.19 ENVIRONMENT

1.19.1 Greenhouse gas emission rights

EDF applies the accounting methods for greenhouse gas emission rights in accordance with France's Accounting Standards Authority (ANC) regulation 2012-04 of 4 October 2012, incorporated into Articles 615-1 to 615-22 of ANC regulation 2014-03.

The accounting treatment of emission rights depends on the holding intention. There are two economic models, both of which coexist at EDF.

Emission rights held under the "Trading" model are included in inventories at acquisition cost. A write-down is recorded when the present value of emission rights is lower than the book value.

Emission Rights held to comply with regulatory requirements on greenhouse gas emissions (the "Generation" model) are included in inventories at acquisition cost, and the FIFO (first in first out) method is applied. A write-down is recorded when the generation cost of the electricity that includes the cost of the rights is higher than the present value of that electricity. At year-end, a "net presentation" principle is applied as follows:

- an asset is recognised (in inventories) if the quantities of greenhouse gas emissions are lower than the number of emission rights held in the portfolio. This corresponds to the rights available to cover future greenhouse gas emissions;
- a liability (provision) is recorded in the opposite situation equivalent to the rights still needed to cover emissions already produced, valued at contractualised acquisition price for forward purchases deliverable before surrender, and at market value for the balance.

The net reporting principle assumes that the emission rights held in the portfolio will be the rights used to offset emissions produced. However, there is a limit to the fungibility of rights at EDF, as there are no transfers of rights between the island and mainland activities. This can lead to concurrent recognition of an asset and a liability.

1.19.2 Energy savings certificates

EDF accounts for Energy Savings Certificates in compliance with ANC regulation 2012-04 of 4 October 2012, incorporated into Articles 616-1 to 616-25 of ANC regulation 2014-03.

EDF holds Energy Savings Certificates in order to meet the requirements of the regulations on energy savings. Consequently, EDF applies the "Energy Savings" model defined by the ANC regulation.

Certificates obtained or receivable are recorded in inventories at production or acquisition cost, and are valued under the FIFO (first in first out) method.

At the year-end, only the net position is presented in the financial statements:

- an asset is recognised (in inventories) if the energy savings achieved are greater than the energy savings obligations. This inventory corresponds to the certificates purchased, obtained or receivable that cover future energy savings obligations. It is consumed as and when energy sales are completed that generate energy savings obligations; or
- a liability (provision) is recognised if the energy savings achieved are lower than the energy savings obligations. The liability corresponds to the cost of action yet to be taken to cover the obligations associated with energy sales completed. It is subsequently extinguished by making energy savings expenditures that enable the company to obtain certificates, or by purchasing certificates.

Note 2 Significant events and transactions

2.1 EXTENSION TO 50 YEARS OF THE DEPRECIATION PERIOD OF THE 900MW PWR NUCLEAR POWER PLANTS¹

EDF considers that all the technical, economic and governance conditions necessary to bring the depreciation periods of its 900MW PWR power plants in France into line with its industrial strategy are fulfilled in 2016.

In view of studies and work already completed, particularly concerning replacement of components and controlled equipment ageing, EDF has sufficient assurance of the plants' technical capacity to operate for at least 50 years. This is also confirmed by the international benchmark.

EDF has also made progress with the Nuclear Safety Authority (*Autorité de sûreté nucléaire* – ASN) on the question of the content of the fourth 10-year inspections of this series as part of the *Grand Carénage* overhaul programme. Although some points remain to be finalised, the components of these inspections are currently in a convergence process with the ASN. This is demonstrated by the Re-examination Orientation File response sent by the ASN to EDF in April 2016, in which the ASN stated its agreement with the company's chosen themes and commitments for these inspections. This was an important step in the process, giving EDF secure grounds for industrial preparations for the 10-year inspections pending the ASN's generic opinion, which should be issued a few months before the first of the inspections begins.

Once its fourth 10-year inspections are completed, the 900MW PWR series will have reached a level of safety that is both as close as possible to EPR safety level and one of the highest worldwide.

Extending the nuclear reactors' operating lifetimes beyond 40 years also offers clearly positive returns that are higher than in a 40-year scenario, even in the event of long-term price depression.

Furthermore, the principle of operating lifetimes of more than 40 years is laid down in France's multi-year energy plan (*programmation pluriannuelle de l'énergie* – PPE) adopted by Decree 2016-1442 of 27 October 2016 as a necessity for secure power supplies. Extending the depreciation periods of the 900MW series is consistent with the objectives of the PPE (particularly development of renewable energies, and control of greenhouse gas emissions).

In view of all these factors, EDF considers that the best estimate for the depreciation period of the 900MW series is now 50 years. This change in accounting estimate does not affect the ASN's decisions to authorise continued operation. Authorisations will be given individually for each unit after each 10-year inspection, which is currently the case as required by law.

EDF therefore undertook this change of accounting estimate at 1 January 2016 for all its power plants in the 900MW series, except for Fessenheim.

This change of accounting estimate is applied prospectively, and has the following consequences for EDF SA's financial statements at 31 December 2016:

- At 1 January 2016, due to timing differences in the payment schedules, provisions relating to nuclear power generation were reduced by €2,044 million (see note 28), including €1,657 million covered by dedicated assets (see note 38.2.4). This reversal from provisions does not affect the income statement, but is allocated to the net book value of the assets (see note 17). It is almost entirely taxable and generates a current tax liability of €679 million.

1. Except for Fessenheim.

- The impacts in 2016 are estimated as follows:
 - the 10-year extension of the accounting depreciation period, and the reduction in the value of assets at 1 January in line with the decrease in nuclear provisions, leads to a lower depreciation charge compared to depreciation based on a 40-year depreciation period, estimated at €959 million for the year (see note 11) and an €(81) million decrease in the exceptional result due to lower reversals from excess tax depreciation (see note 14);
 - the reduction in nuclear provisions at 1 January 2016 leads to a €90 million decrease in the cost of unwinding the discount;
 - income related to partner advances made to EDF under the nuclear plant financing plans is down by €42 million;
 - overall, the various effects lead to a €926 million increase in the income before taxes, and a €72 million decrease in the net income.

2.2 HINKLEY POINT C: SIGNATURE OF THE FINAL AGREEMENTS

On 21 October 2015, EDF and China General Nuclear Power Corporation (CGN) signed a Strategic Investment Agreement for joint investment in the construction of two EPRs at the Hinkley Point C site (HPC) in Somerset. The agreement also includes a UK partnership to develop the new nuclear power plants Sizewell C (SZC) in Suffolk and Bradwell B (BRB) in Essex.

The final agreements concerning Hinkley Point C were signed on 29 September 2016 following the final investment decision authorized by EDF's Board of Directors on 28 July 2016.

This important milestone marks the end of the development phase for the Hinkley Point C project after ten years of planning and preparation involving assessment of the generic EPR design, obtaining the licence for the nuclear site, and the start of on-site work.

Funding

Under the Strategic Investment Agreement, EDF holds 66.5% of the project entity HPC and CGN holds 33.5%.

EDF intends to remain the majority shareholder and has noted the British Government's stipulation that control of HPC should not be transferred during the construction phase without its approval. EDF has not ruled out the possibility of bringing other investors into the project in due course, but will retain a stake of at least 50%.

Financing guarantee agreements for the HPC project were also signed with the British Treasury on 29 September 2016. A first tranche of a maximum £2 billion will be made available once certain required conditions are fulfilled. However, as EDF has indicated to the British government, it currently has no intention of using this guarantee, and the project will be self-funded, at least initially.

Return on investment and sensitivity

The total project cost is estimated at £18 billion nominal (excluding interim interest). This investment will be equity financed by the partners, at least in an initial phase. The EDF group's share amounts to £12 billion and CGN's share is £6 billion. These figures include a contingency provision.

In the event the final project cost is lower, any gains made will be shared with consumers under the profit-sharing mechanism of the Contract for Difference. The plant construction risks, particularly those associated with delays and budget overruns, are borne by the investors.

The total equity commitment by the shareholders includes an additional 15% margin amounting to £2.7 billion, in addition to the £18 billion planned.

The projected IRR is estimated at around 9%.

The sensitivity of this IRR is approximately 45 base points for a twelve-month delay on construction.

Agreement for secure income: the Contract for Difference – CfD

As announced on 21 October 2015, the HPC project entity and the British government's Department of Energy and Climate Change (DECC) have finalised the terms for the Contract for Difference that was approved in October 2014 by the European Commission as compliant with EU regulations on State aid.

This CfD was signed on 29 September 2016 and is designed to guarantee returns on the electricity produced and sold by HPC, through payments based on the differential between the contractual strike price defined below and the market price over a 35-year period beginning once the plant starts operation.

From that date, if the benchmark price for the sales of HPC-generated electricity on the market falls below the strike price agreed in the contract, the generator will receive a top-up payment.

If the price is higher, the generator will pay the difference.

2.3 SENIOR BOND ISSUES

On 6 October 2016, EDF raised the equivalent of €5.4 billion through a series of senior bond issues in US dollars, Euros and Swiss Francs. Details are as follows:

- EDF undertook a €3 billion multi-currency senior bond issue in 4 tranches:
 - a €1,750 million green bond, with 10-year maturity and a fixed coupon of 1%;
 - a €750 million bond with 20-year maturity and a fixed coupon of 1.875%;
 - a CHF 400 million bond, with 8-year maturity and a fixed coupon of 0.3%;
 - a CHF 150 million bond, with 12-year maturity and a fixed coupon of 0.65%.
- On the same day, EDF raised US\$2.7 billion from some twenty investors through 2 senior Formosa bonds on the Taiwanese market:
 - a US\$491 million bond, with 30-year maturity and a fixed coupon of 4.65%;
 - a US\$2,164 million bond, with 40-year maturity and a fixed coupon of 4.99%.

These transactions enable EDF to further diversify its investor base and extend the average maturity of its gross debt.

2.4 EDF AND AREVA SIGN BINDING AGREEMENTS FOR THE ACQUISITION OF AREVA NP'S ACTIVITIES

EDF and AREVA SA signed a non-binding memorandum of understanding on 30 July 2015 that formalised the state of progress on discussions concerning their contemplated partnership. This memorandum had three sections:

- acquisition by EDF of exclusive control over AREVA NP. The plan was that EDF should hold majority control (at least 51%) of AREVA NP, while AREVA would hold up to 25% in a strategic partnership, that could potentially involve other minority partners;
- formation of a dedicated company (currently named *Nuclear Island Common Engineering*), owned 80% by EDF and 20% by AREVA NP, to optimise design activities and construction for nuclear islands and command-control systems for new projects in France and internationally;
- conclusion of a comprehensive strategic and industrial partnership agreement covering such areas as promotion of integrated offerings (fuel assemblies and materials) in the event of new reactor export sales, cooperation on dismantling work (methods, tools, skills, etc) and storage of spent fuel (joint export offerings), continuation of studies concerning fourth-generation reactors (boilers and fuel) and cooperation in R&D.

At its meeting of 27 January 2016, EDF's Board of Directors was informed that following due diligence work conducted during the second half of 2015, discussions with AREVA regarding EDF's takeover of the activities of AREVA NP had been finalised.

The Board approved the final valuation of the activities to be acquired by EDF, amounting to €2.5 billion for 100% of the capital¹ of AREVA NP. This amount could be revised upwards or downwards depending on the financial statements drawn up at the transaction's completion date, with a possible earn-out payment of up to €350 million based on achievement of certain performance objectives measured after the completion date.

A further non-binding memorandum of understanding was signed by the same parties on 28 July 2016, noting new developments since early 2016 which did not affect the three sections presented above. The valuation was unchanged and the earn-out payment was revised to a maximum €325 million.

The new developments since early 2016 are:

- the negative outcome of discussions with TVO on the initial proposed arrangements to give EDF total protection against the risks of the Olkiluoto 3 (OL3) project, leading to the following new transaction structure: formation of a company, New AREVA NP, over which EDF will acquire exclusive control: this company will take over the contracts currently held by AREVA NP except for the OL3 contract and certain other contracts involving risks that EDF does not intend to bear. The contracts for the Olkiluoto 3 EPR project and the resources required to complete the project, as well as certain contracts relating to components forged in Le Creusot plant, will be retained by AREVA NP, which is part of the AREVA SA group, depending on their maturities and the assessment of the associated risks that is currently in process as part of the ongoing audits;
- AREVA NP remains a fully-owned subsidiary of AREVA SA and will retain all its current contracts that are not transferred to New AREVA NP. The valuation of New AREVA NP remains the figure validated by EDF for AREVA NP: €2.5 billion for 100% of the capital;

- AREVA and EDF have a common intention to set up the dedicated company currently named Nuclear Island Common Engineering (NICE) before EDF's acquisition of exclusive control over New AREVA NP;
- the cases of non-quality observed at AREVA's Le Creusot plant, whether insufficient control of carbon content ("carbon segregation") or irregularities in the manufacturing records. The new memorandum of understanding laid down the principles for indemnification and protection of EDF against the consequences of these issues: non-transfer of terminated contracts to New AREVA NP, specific indemnities and a general guarantee, prerequisite conditions for completion of EDF's acquisition of exclusive control over New AREVA NP (intended for late 2017) depending on the ASN's conclusions on test results for the Flamanville 3 reactor's primary circuit, and the results of the quality audit launched by AREVA NP in the Le Creusot, Saint-Marcel and Jeumont plants. AREVA SA will remain responsible in the usual way for the contractual obligations concerning any defects brought to light in quality control for equipment manufactured at Le Creusot, and if relevant at the Saint-Marcel and Jeumont plants. The aim is to provide EDF with full protection from the risks associated with any defects noted that are classified as serious.

In accordance with the terms of this memorandum of understanding, an equity sale contract was signed between EDF SA, and AREVA SA and AREVA NP. Opinions on the operation were issued by EDF's Central Works Committee on 27 October 2016 and AREVA's Central Works Committee on 10 November 2016, and it was approved by AREVA's Board of Directors on 10 November 2016 and EDF's Board of Directors on 15 November 2016. The contract was signed by all parties on 15 November 2016.

Completion of the transaction, expected during the second half of 2017, remains conditional on:

- favourable ASN conclusions regarding the outcome of the tests on the Flamanville 3 reactor's primary circuit;
- completion with satisfactory conclusions of the quality audits at Le Creusot, Saint-Marcel and Jeumont plants;
- clearance by the relevant merger control authorities.

Meanwhile, AREVA and EDF have begun discussions with strategic investors that have expressed an interest in becoming shareholders in New AREVA NP alongside EDF. The stake acquired by EDF could thus be reduced to a target of at least 51%, but EDF would retain control.

2.5 EDF, CAISSE DES DÉPÔTS AND CNP ASSURANCES: SIGNATURE OF A BINDING AGREEMENT

On 14 December 2016, EDF entered into a binding agreement with Caisse des Dépôts and CNP Assurances for the acquisition by Caisse des Dépôts and CNP Assurances of 49.9% of the capital of Réseau de Transport d'Electricité (RTE)², and the modalities of a long-term partnership to promote the development of RTE.

The final agreed value was set at €8,200 million for 100% of RTE's equity, with a potential supplement of up to €100 million.

Completion of the operation is expected during 2017, once the necessary authorisations (e.g. by the merger control authorities) have been given.

1. Without transfer of financial debt.

2. 29.9% for Caisse des Dépôts and 20% for CNP Assurances.

Under the chosen structure for the sale, on 23 December 2016 EDF transferred all the shares in RTE to a new company, currently named C25, in exchange for shares in C25 to the value of €5,143 million and a cash payment of €2,667 million.

EDF will then sell 49.9% of the equity capital of this company to Caisse des Dépôts and CNP Assurances.

At 31 December 2016, this operation is reflected in EDF's financial statements through a €3,780 million gain on sale recorded in the exceptional result (see note 14). Regarding the recognition of EDF's investment in C25 in the balance sheet, the portion that will be retained by EDF after the operation (50.1%) is classified as investments, and the portion that will be sold in 2017 to Caisse des Dépôts and CNP Assurances (49.9%) is classified as investment securities (see note 18).

Following publication of Decree 2016-1781 of 19 December 2016, the shares of C25 can be allocated to the portfolio of dedicated assets intended to cover EDF's back-end nuclear cycle expenses. At 31 December 2016, 75.93% of the shares in C25 are allocated to dedicated assets (see note 38.2.3). Once the operation is completed, EDF's remaining investment in C25 (50.1%) will be allocated to the dedicated asset portfolio.

2.6 PARTIAL ASSIGNMENT OF THE CSPE RECEIVABLE

On 22 December 2016 EDF assigned a portion (26.4%) of the CSPE (Contribution to the Public Electricity Service) receivable on the French state, corresponding to the accumulated shortfall at 31 December 2015 in compensation for public energy service costs.

This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. This assignment generated income of €1,538 million.

Part of the assigned receivable was not allocated to dedicated assets, and consequently assignment of this portion led to a €644 million improvement in net indebtedness. The balance was allocated to dedicated assets and the corresponding amount has been reinvested in those assets.

2.7 COMPENSATION ARRANGEMENTS FOR THE CLOSURE OF THE FESSENHEIM PLANT

At a meeting held on 24 January 2017, EDF's Board of Directors examined the terms of the protocol negotiated between the company and the French State concerning compensation for the prejudice to the Company resulting from closure of the Fessenheim nuclear power plant, in application of the Energy Transition Law of 17 August 2015.

This Law caps the total authorized installed nuclear generation capacity in France at 63.2GW. This means that the Flamanville 3 EPR cannot be commissioned before the final shutdown of an equivalent generation capacity by the commissioning date.

The Board of Directors was informed of the unanimously negative opinion issued by EDF's Central Works Council on 10 January 2017.

The Board approved the terms of the protocol and authorized the CEO to sign it on behalf of EDF in due course. The protocol provides for the following compensation for EDF:

- a fixed initial portion covering the anticipated costs associated with the closure (costs of staff retraining, decommissioning, the INB tax on basic nuclear facilities and "post-operation" costs). This fixed portion is currently estimated at approximately €490 million, 20% of which would be paid in 2019 and 80% in 2021;
- a further, variable portion that could give rise to subsequent payments reflecting the loss of income for EDF until 2041. This will be determined on the basis of market prices and the actual volumes generated by EDF's 900MW power plants other than Fessenheim over that period. EDF's partners in the Fessenheim plant (EnBW and CNP) will have certain conditional entitlements to a share of the compensation for loss of income, proportional to their contractual rights to the plant's generation capacity.

The closure of the Fessenheim plant requires a decree revoking its operating licence, to be issued at the request of the company. In application of the Law, this decree will take effect at the same time as the commissioning of the Flamanville 3 EPR, scheduled for late 2018.

In the corporate interests of EDF, and in order to comply with the statutory ceiling of 63.2GW, the Board decided that submission of the request for revocation would be subject to the entry into force of the authorisations required to continue construction of the Flamanville 3 EPR and operation of Paluel 2, which is currently offline, and European Commission clearance of the protocol as regards State aid regulations.

The Board has decided that further deliberations will take place to establish that these conditions are fulfilled before the request for revocation is submitted.

Note 3 Regulatory events in 2016**3.1 REGULATED ELECTRICITY SALES TARIFFS IN FRANCE****3.1.1 Cancellation by the Council of State of the 2014-2015 regulated tariffs**

Several petitions for cancellation and repeal of the ministerial orders of 28 July and 30 October 2014 and the Decree of 28 October 2014 were brought before the Council of State by the ANODE (French association of energy retail operators).

After a public reading of the reporting officer's (*Rapporteur*) conclusions on 13 May 2016, the Council of State issued its decisions on 19 May and 15 June 2016, in which:

- it dismissed the substance of the appeal against the Decree of 28 October 2014, thereby validating the "stacking" method for constructing regulated sales tariffs;
- it overturned the Ministerial Order of 28 July 2014 that cancelled the 5% increase in "blue" tariffs from 1 August 2014 planned in a previous Decree of 26 July 2013, for reasons of unsound legal grounds;
- it cancelled the decision of 30 October 2014 due to the insufficient level of "blue" residential tariffs and "green" tariffs which had been set without including the total tariff regularisation adjustment existing at that date.

The rectified tariffs for 2014-2015 requested by the Council of State were published in the *Journal officiel* on 2 October 2016.

Based on this rectification, additional sales revenues of €1,018 million were recognised in the income statement for 2016 (see note 4). Including the various costs associated with the rectification, the impact on the net income before exceptional items and taxes for 2016 amounts to €856 million.

3.1.2 Regulated electricity sales tariffs**"Blue" tariffs**

In application of the NOME Law on organisation of the French electricity market, on 7 December 2015 responsibility for proposing tariff scales was transferred to France's Energy Regulation Commission (*Commission de Régulation de l'Énergie* or CRE).

On 13 July 2016 the CRE proposed an average 0.5% reduction in the blue tariff for residential customers and an average 1.5% reduction in the blue tariff for non-residential customers. The ministers concerned accepted this proposal and the Ministerial Order on these new tariff scales was published in the *Journal officiel* of 29 July 2016, to take effect from 1 August 2016. The CRE's proposal also gave details of the methodologies and options chosen to calculate regulated sales tariffs, using the "stacking" method in accordance with the Decree of 28 October 2014 and the NOME Law.

"Yellow" and "green" tariffs

31 December 2015 saw the end of the "yellow" and "green" regulated tariffs. By 1 January 2016 around three quarters of the sites concerned had signed a market-rate contract with their chosen supplier. The remaining quarter who had not yet signed up with a supplier continued to receive electricity from their former supplier, under a transitional contract that was due to end on 30 June 2016.

During the first half of 2016 the CRE organised calls for tenders from suppliers to allocate the sites that had not chosen a supplier at 30 June 2016 (approximately 20,000 sites at the beginning of June 2016). Suppliers bid for combinations of a contract and an electricity price set by the CRE, proposing an amount per megawatt sold that would be passed on to the State. No supplier could be awarded more than 15% of contract combinations.

EDF, like several other suppliers, was awarded 15% of these contracts and has supplied the sites concerned since 1 July 2016 on the basis of the contract and the prices set by the CRE, while continuing to offer its own contracts.

In November 2016, the CRE organised a second call for tenders to allocate the sites still on transitional contracts due to lack of bids, sites that were left out of the combinations in the first call for tenders, and sites that had not switched to the scope of the allocated supplier (around 2,700 sites). No bids were made, and these sites remain on transitional contracts.

3.2 EUROPEAN COMMISSION APPROVAL OF THE REVISED FRENCH CAPACITY MECHANISM

On 8 November 2016, the European Commission concluded that the capacity market proposed by France was compatible with internal market rules on State aid. This decision marked the end of an in-depth investigation opened one year earlier against France, and the mechanism was able to take effect as of 1 January 2017. The decision of 8 November 2016 lays down the methods for sales of capacity guarantees related to the ARENH system (see note 3.4).

The Commission's decision results from commitments made by the French authorities to modify the mechanism, mainly along three dimensions:

- to facilitate the entry of new market players by allowing new capacities to obtain certificates with a seven-year duration, subject to certain conditions;
- to include capacity providers from neighbouring EU Member States, subject to the capacity available for interconnections at peak times;
- to increase the mechanism's transparency and introduce measures to prevent possible market manipulation.

Amendments to the mechanism rules in November 2016 made it possible to apply the third of these measures.

For the first two, further amendments are needed that will take effect from 2019. Capacity market participants will be consulted on changes to the rules during 2017.

The first auction of French capacities was held on the European Power Exchange EPEX SPOT on 15 December 2016. A total volume of 22.6GW was traded between obligated capacity purchasers and operators selling capacity. The equilibrium price determined was €10/kWh. This price is also the "market reference price" of capacity for 2017.

The capacity price will be passed on to customers through their contracts with their supplier (EDF or a different supplier).

A further auction will take place in 2017 for 2017 and subsequent years.

3.3 COMPENSATION FOR PUBLIC ENERGY SERVICE CHARGES

The financing and compensation mechanism for public energy service charges (*compensation des charges de service public de l'énergie*) exists to compensate operators who are assigned certain public service charges relating to gas and electricity. EDF is the main operator concerned¹.

¹ Local distribution companies and *Électricité de Mayotte* also make small contributions to the system.

Charges covered by the mechanism

The current system results from a reform by France's amended Finance Law for 2015, published in the *Journal officiel* on 30 December 2015. It is overseen by the French government, which funds it through the national budget with input from the CRE, which calculates and proposes the amounts of charges to be compensated for each operator. Public energy service charges are therefore included in the State budget through two items:

- a special "Energy Transition" budget item, mainly covering the expenses borne by obligated operators, such as the additional costs associated with contracts obliging suppliers to purchase renewable energies and biogas, the differences between forecast and actual expenses, the annual contribution to repayment of the accumulated shortfall due to EDF, and reimbursement of surplus amounts of TICFE (renamed CSPE) to industrial operators who were exempt prior to 2016;
- a "Public Energy Service" item in the general budget to cover solidarity charges, purchase obligations excluding renewable energies, and the cost of applying the standard national tariffs to zones that are not connected to France's mainland network.

Funding for the CSPE mechanism

Funding for this system comes from four taxes on energy consumption (the TIFCE for electricity, the TICC for coal and similar sources, the TICGN for natural gas and the TICPE for fuel oils), in varying proportions.

For 2016, the special "Energy Transition" budget item was funded by 100% of the TIFCE and 2.16% of the income generated by the TICGN. Income from the other taxes went into the general budget without being allocated to any particular expense item.

From 1 January 2017, the special "Energy Transition" budget item is funded by income from taxes on carbon energies, mainly the TICPE, supplemented by the TICC. Income from the other taxes, including the TIFCE, contributes to the general budget.

The level of the TIFCE (renamed CSPE) remained stable in 2016, with the full rate at €22.5/MWh, and reduced rates for electro-intensive users of between €0.5/MWh and €7.5/MWh, depending on a criterion of kWh per euro of value added and electro-intensiveness. These rates have not been changed by the French Finance Law for 2017.

Compensation for charges borne by EDF in 2016

The amount of expenses to be covered by compensation for EDF for 2016 is €6,365 million, 1% more than in 2015. The main explanation for this slight rise is the increase in the cost of purchase obligations, principally due to growth in the volume of renewable energies as the renewable energy fleet expands in France, partly offset by lower surplus costs for generation in non-interconnected zones. The amounts received during 2016 totalled €6,357 million, up by 4% from 2015.

Reimbursement of the pre-reform shortfall

The French government issued a ministerial order on 2 December 2016 setting the final amount of the receivable due to EDF at 31 December 2015 for the past accumulated shortfall in compensation (€5,780 million in principal excluding interest accrued in 2015). A repayment schedule was also laid down in the ministerial order such that the receivable will be repaid by 2020.

On 22 December 2016 EDF assigned a portion (26.40%) of the receivable on the French government for compensation for public energy service charges, corresponding to the accumulated shortfall in compensation for public energy services at 31 December 2015. This receivable was assigned to a pool of investors comprising a bank and a dedicated securitisation vehicle. The assignment operation generated income of €1,538 million net of expenses and commission.

Following this operation, from 2017 EDF will receive 73.6% (corresponding to the unassigned portion of the receivable) of reimbursements of this receivable and associated interest paid by the State.

3.4 ARENH

The slump in wholesale market prices made the wholesale market an attractive source of energy supplies over most of the year. Consequently, no applications for the ARENH (regulated access to historical nuclear electricity) scheme were made at the end of 2015 for supplies in the first half of 2016, or in mid-2016 for supplies during the second half of 2016.

However, a very large number of ARENH applications were made by alternative suppliers in November/December 2016 (a firm commitment of 40.8TWh for first-half 2017). Given the extremely rapid upturn in forward prices for 2017 (particularly for the first quarter, driving a general rise for the whole year) in the weeks leading up to the November/December 2016 round of bids for ARENH supplies, the application bids were higher than the ARENH price of €42/MWh, which also includes the value of capacity guarantees.

The ministerial orders of 8 and 14 November 2016 modified the ARENH framework agreement. The main changes were the addition of provisions concerning implementation of the capacity mechanism and the rules for early termination by suppliers. The revised framework agreement restricts the possibility of unilateral termination such that it is only applicable if the ARENH price is modified by more than 2%, there is a substantial modification to the framework agreement, or changes in ARENH regulations have a substantial, unfavourable effect on the balance of supply conditions for the buyer.

Income statement

Note 4 Sales

Sales are comprised of:

<i>(in millions of Euros)</i>	2016	2015
Sales of energy ⁽¹⁾	38,836	39,504
Sales of goods and services	2,021	2,049
SALES	40,857	41,553

(1) Including a share of delivery costs for sales of electricity and gas.

The movement in sales observed in 2016 primarily reflects stiffer competition (with the end of the “yellow” and “green” regulated tariffs) and lower market prices for electricity. The decrease in nuclear power output, principally related to requests by the Nuclear Safety Authority (ASN) for inspections, led to a substantially lower supply on the wholesale markets.

The sales decreases were partly offset by the €1,018 million effect of regularisation of regulated sales tariffs for the period 1 August 2014 to 31 July 2015 (see note 3.1) and a favourable weather effect.

Note 5 Operating subsidies

<i>(in millions of Euros)</i>	2016	2015
OPERATING SUBSIDIES	6,532	6,338

Operating subsidies mainly comprise the subsidy received or receivable by EDF in respect of the Compensation for Public Energy Service Charges (CSPE). In the financial statements, this compensation results in recognition of income of €6,510 million for 2016 (€6,320 million for 2015). The increase is mainly

explained by lower market prices for electricity and the rise in purchase volumes for wind power and photovoltaic energy, which led to an increase in the subsidy receivable for purchase obligations.

Note 6 Reversals of provisions and impairment

<i>(in millions of Euros)</i>	2016	2015
Reversals of provisions for risks	261	158
Pensions and similar obligations	1,219	1,272
Spent fuel management	817	826
Long-term radioactive waste management ⁽¹⁾	698	215
Decommissioning of nuclear power plants	159	165
Decommissioning of fossil-fired and hydropower plants	51	32
Other provisions for expenses	225	121
Reversals of provisions for expenses	3,169	2,631
Reversals of depreciation	378	335
TOTAL REVERSALS OF PROVISIONS AND IMPAIRMENT	3,808	3,124

(1) Including a reclassification of €465 million from provisions for long-term radioactive waste management to provisions for spent fuel management (see note 11.2).

Note 7 Other operating income and transfers of charges

<i>(in millions of Euros)</i>	2016	2015
Other operating income	665	824
Transfers of charges	119	114
TOTAL OTHER OPERATING INCOME AND TRANSFERS OF CHARGES	784	938

Note 8 Purchases and other external expenses

<i>(in millions of Euros)</i>	2016	2015
Fuel purchases used ⁽¹⁾	2,894	2,823
Energy purchases ⁽²⁾	12,427	10,933
Services and other purchases used ⁽³⁾	18,087	19,338
TOTAL PURCHASES AND OTHER EXTERNAL EXPENSES	33,408	33,094

(1) Fuel purchases used include costs relating to raw materials for energy generation (nuclear fuel, fissile materials, coal, oil, and gas), and purchases of services related to the nuclear fuel cycle. This item also includes greenhouse gas emission rights consumed (see note 1.19.1).

(2) Energy purchases include purchase obligations.

(3) Service purchases include distribution network access fees invoiced by the subsidiary Enedis.

Note 9 Taxes other than income taxes

Details of taxes other than income taxes are as follows:

<i>(in millions of Euros)</i>	2016	2015
Taxes on salaries and wages	176	171
Energy-related taxes	1,236	1,226
Local Economic Contribution	482	561
Property taxes	408	393
Other taxes	314	331
TOTAL TAXES OTHER THAN INCOME TAXES	2,616	2,682

Note 10 Personnel expenses

<i>(in millions of Euros)</i>	2016	2015
Salaries and wages	4,001	3,964
Social contributions	2,873	2,848
TOTAL PERSONNEL EXPENSES	6,874	6,812

	2016			2015
	Executives	Non executives	Total	Total
IEG status	28,979	36,277	65,256	66,337
Other	1,882	2,356	4,238	4,432
TOTAL AVERAGE WORKFORCE	30,861	38,633	69,494	70,769

Average workforce numbers are reported on a full-time equivalent basis.

Note 11 Operating depreciation, amortisation and provisions

11.1 DEPRECIATION AND AMORTISATION

(in millions of Euros)	2016	2015
Amortisation of intangible assets	181	158
Depreciation on property, plant and equipment:		
■ owned by EDF ⁽¹⁾	2,451	3,032
■ operated under concessions ⁽²⁾	246	233
Total depreciation and amortisation on fixed assets	2,878	3,423
Other depreciation and amortisation and deferred expenses	26	24
TOTAL DEPRECIATION AND AMORTISATION	2,904	3,447

(1) Depreciation on property, plant and equipment owned by EDF is affected by the extension to 50 years of the depreciation period for 900MW PWR series nuclear power plants (except Fessenheim), with an impact of €959 million at 31 December 2016 (see note 2.1).

(2) This depreciation concerns the Island Energy System's public electricity distribution concessions and hydropower concessions.

11.2 PROVISIONS AND IMPAIRMENT

(in millions of Euros)	2016	2015
Provisions for risks ⁽¹⁾	372	353
Pensions and similar obligations	891	885
Management of spent nuclear fuel	389	726
Long-term management of radioactive waste ⁽²⁾	173	516
Decommissioning of nuclear power plants and last cores ⁽³⁾	156	590
Decommissioning of thermal and hydropower plants	22	–
Other provisions for expenses	137	143
Provisions for expenses	1,768	2,860
Impairment ⁽⁴⁾	506	550
TOTAL PROVISIONS AND IMPAIRMENT	2,646	3,763

(1) Most of the increase concerns supply and sales contracts.

(2) In 2015 this item includes a €820 million increase to provisions following the decision of 15 January 2016 concerning the cost of implementing long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project (see note 28.2 – “Long-lived medium and high-level waste”) and a reversal of €332 million reflecting the impact on the provision for long-term radioactive waste management of updating of the industrial scenario for decommissioning nuclear power plants that are permanently shut down (see note 28.2, Long-lived low-level waste).

(3) Including a €125 million increase in 2016 for the Irradiated Materials Workshop at Chinon. A €590 million increase to provisions was booked in 2015 following revision of the estimates for decommissioning of permanently shut-down nuclear power plants (see note 28.3).

(4) Including a €29 million increase to provisions booked in 2016 following the decision to close unit 1 at the Porcheville thermal power plant in early 2017. In 2015, a €70 million increase was booked in connection with the decision to close the Aramon thermal power plant in early 2016.

Note 12 Other operating expenses

Other operating expenses amount to €1,482 million in 2016 (€1,409 million in 2015) and notably include losses on non-recoverable receivables, and the net book value of assets sold.

Note 13 Financial result

<i>(in millions of Euros)</i>	2016	2015
Income from investments ⁽¹⁾	2,240	2,081
Income from other securities and receivables related to fixed assets ⁽²⁾	555	458
Interest and similar income and expenses ⁽³⁾	(2,856)	(2,662)
Reversal of provisions and impairment and transfers of charges ⁽⁴⁾	1,535	339
Foreign exchange result	466	936
■ Gains	3,061	5,489
■ Losses	(2,595)	(4,553)
Result on sales of marketable securities	(35)	(12)
■ Net income	9	25
■ Net charges	(44)	(37)
Financial amortisation, provisions and impairment ⁽⁵⁾	(3,169)	(3,415)
FINANCIAL RESULT	(1,264)	(2,275)

(1) The change in dividends received principally concerns:

- Enedis (€551 million in 2016 and €454 million in 2015);
- RTE (€129 million in 2016 and €176 million in 2015);
- C3 (the holding company which carries EDF Investissements Groupe) (€345 million in 2016 and €646 million in 2015);
- EDF International (€500 million in 2016 and €400 million in 2015);
- EDF Holding (€517 million in 2016 and €235 million in 2015);
- PEI (€55 million in 2016 and €17 million in 2015);
- EDF Immo (€61 million in 2016 and €39 million in 2015);
- EDEV (€100 million in 2015, no equivalent in 2016).

(2) In 2016, this item includes income of €100 million (€88 million in 2015) for the cost of bearing the CSPE financial receivable.

(3) The increase essentially results from changes in the unrealised foreign exchange gain or loss on currency instruments (€ 453 million). In 2015, an interest expense of €282 million was recorded following the European Commission's decision of 22 July 2015 concerning the French General Network (see note 2.2 to the 2015 financial statements).

(4) This change mainly reflects the recovery of a provision for unrealised foreign exchange losses on long-term borrowings, amounting to €1,128 million (see note 27).

(5) These charges chiefly include the discount expenses on provisions for the back-end of the nuclear cycle, decommissioning and last cores, and provisions for long-term and post-employment benefits. They also reflect i) the unfavourable foreign exchange effect on unhedged borrowings in foreign currencies and perpetual subordinated bonds, which was substantially lower in 2016, and ii) increases to provisions on investment securities and investments.

In 2016, the discount expense on nuclear provisions rises by €679 million due to the decrease in the real discount rate (2.7% at 31 December 2016 compared to 2.9% at 31 December 2015). However, the foreign exchange effect on unhedged borrowings in foreign currencies and perpetual subordinated bonds was very favourable compared to 2015, as a result of foreign currency movements.

Note 14 Exceptional result

At 31 December 2016, exceptional items resulted in net income of €4,277 million. The main items are the following:

- a net gain of €3,780 million on the transfer of all the shares in RTE to the new company C25 (see note 2.5);
- net gains of €367 million on sales of investment securities included in dedicated assets, undertaken as part of operational portfolio management;
- net reversals of €126 million from excess tax depreciation, including a lower reversal from this item (€81 million) as a result of the extension to

50 years of the depreciation period for the 900MW PWR nuclear plants at 1 January 2016 (see note 2.1).

At 31 December 2015, exceptional items resulted in net income of €846 million. The main items are the following:

- net gains of €707 million on sales of investment securities included in dedicated assets, undertaken as part of operational portfolio management;
- net reversals of €117 million from excess tax depreciation.

Note 15 Income taxes

15.1 TAX GROUP

Since 1 January 1988, EDF and certain subsidiaries formed a group subject to the tax consolidation system existing under French tax legislation (Articles 223A to 223U of the French Tax Code). The tax consolidation group comprises 224 subsidiaries in 2016, including RTE Réseau de Transport d'Electricité, Enedis, EDF International, EDF Énergies Nouvelles and Dalkia.

15.2 INCOME TAX PAYABLE

Under Article 223A of the French Tax Code, EDF, as the head of the tax consolidated group, is the sole entity responsible for payment of income taxes and additional related contributions (social contributions and 3% contribution on dividend distributions).

The tax consolidation agreement between the members of the tax group stipulates that the arrangement must be neutral in effect. In application of this principle, each subsidiary pays the consolidating company a contribution to group income tax equivalent to the tax it would have paid had it been taxed separately.

The tax consolidation agreement between EDF and the subsidiaries included in the tax group requires EDF to reimburse loss-making subsidiaries for the tax saving generated by their losses, as and when the entities concerned make taxable profits, in compliance with the standard rules for use of taxable losses.

The company at the head of the tax group, EDF, recorded an income tax charge of €680 million for 2016. The breakdown is as follows:

- an expense of €839 million for the taxable income of 2016;
- a net exceptional expense of €59 million;
- a positive €218 million for adjustments resulting from the tax consolidation.

15.3 TAX CREDIT FOR COMPETITIVITY AND EMPLOYMENT (CICE)

The amounts received in 2016 under the French CICE tax credit scheme for 2015 were to fund the company's investment and recruitment efforts.

15.4 DEFERRED TAXES

Deferred taxes are not recognised in EDF's individual financial statements. Deferred taxes result from differences between the accounting bases and tax bases of items. They generally arise as a result of timing differences in the recognition of income and expenses:

- deferred tax assets reflect expenses which will be tax deductible in future years or losses carried forward which will reduce taxable income in the future;
- deferred tax liabilities reflect either advance tax deduction of future accounting expenses or accounting revenues that will be taxable in future years and will increase taxable income in the future.

Changes in deferred taxes are as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015	Variation
1. Timing differences generating a deferred tax asset			
■ Non-deductible provisions ⁽¹⁾	(14,938)	(13,560)	(1,378)
■ Financial instruments and unrealised exchange gains	(967)	(1,528)	561
■ Other	(378)	(287)	(91)
Total deferred tax assets subject to the standard rate	(16,283)	(15,375)	(908)
2. Timing differences generating a deferred tax liability			
■ Financial instruments and unrealised exchange losses	2,276	2,457	(181)
■ Other	1,716	1,435	281
Total deferred tax liabilities subject to the standard rate	3,992	3,892	100
■ Capital gains not yet taxed, net of capital losses	79	79	–
■ Provisions for losses taxable at 15%	(10)	(4)	(6)
Total deferred tax liabilities subject to reduced rate	69	75	(6)
BASIS FOR DEFERRED TAXES	(12,222)	(11,408)	(814)
Net future tax asset at standard rate ⁽²⁾	3,585	3,954	(369)
Net future tax liability at reduced rate	(2)	(3)	1

(1) Mainly concerning post-employment benefits for personnel.

(2) Applying a corporate income tax rate of 28.92% to long-term timing differences.

Balance sheet

Note 16 Gross values of intangible and tangible fixed assets

<i>(in millions of Euros)</i>	Gross value at 31/12/2015	Increases	Decreases	Gross value at 31/12/2016
Software	1,354	217	192	1,379
Other	232	9	1	240
Intangible assets	1,586	226	193	1,619
Land	119	5	6	118
Buildings	9,984	423	56	10,351
Nuclear power plants	52,134	2,839	771	54,202
Machinery and plant other than networks	12,086	804	318	12,572
EDF-owned networks	939	61	1	999
Other	1,493	142	88	1,547
Property, plant and equipment owned by EDF	76,755	4,274	1,240	79,789
Land	39	1	–	40
Buildings	9,740	185	19	9,906
Machinery and plant other than networks	1,464	51	11	1,504
Concession networks	2,553	120	15	2,658
Other	10	1	–	11
Property, plant and equipment operated under concessions ⁽¹⁾	13,806	358	45	14,119
Tangible assets ⁽²⁾	11,940	6,204	4,085	14,059
Intangible assets ⁽²⁾	1,363	328	1,059	632
Advances and progress payments on orders	2,844	206	–	3,050
Assets in progress	16,147	6,738	5,144	17,741
TOTAL INTANGIBLE AND TANGIBLE FIXED ASSETS ⁽³⁾	108,294	11,596	6,622	113,268

(1) Assets operated under concessions concern the Island Energy System's public electricity distribution concessions and hydropower concessions.

(2) Investments during the year mainly concern equipment for existing power plants and construction of the EPR plant of Flamanville. They also include reclassification of certain costs related to the Flamanville 3 EPR, from intangible assets in progress to tangible assets in progress.

(3) Including the Flamanville 3 EPR (€8,801 million) at 31 December 2016.

Note 17 Depreciation, amortisation and impairment on intangible and tangible fixed assets

<i>(in millions of Euros)</i>	31/12/2015	Increases	Decreases	31/12/2016
Software	643	198	192	649
Other	92	10	–	102
Intangible assets	735	208	192	751
Land and buildings	6,773	232	53	6,952
Nuclear power plants ⁽¹⁾	35,447	3,797	815	38,429
Machinery and plant other than networks	7,833	539	354	8,018
EDF-owned networks	418	28	1	445
Other	878	123	78	923
Property, plant and equipment owned by EDF	51,349	4,719	1,301	54,767
Land and buildings	6,087	141	17	6,211
Machinery and plant other than networks	1,017	24	8	1,033
Concession networks	1,026	69	13	1,082
Other	10	1	–	11
Property, plant and equipment operated under concessions	8,140	235	38	8,337
Tangible assets in progress	259	8	126	141
TOTAL DEPRECIATION, AMORTISATION AND IMPAIRMENT	60,483	5,170	1,657	63,996

(1) The increase in depreciation and impairment on nuclear power plants reflects the €2,044 million impact of the extension to 50 years of the depreciation period for 900MW PWR nuclear power plants from 1 January 2016 (see note 2.1).

Note 18 Financial assets**18.1 CHANGE IN FINANCIAL ASSETS**

<i>(in millions of Euros)</i>	Gross value at 31/12/2016	Gross value at 31/12/2015
Investments ⁽¹⁾	55,667	57,169
Receivables related to investments	51	451
Investment securities ⁽²⁾	16,698	12,823
Other investments	257	162
CSPE receivable ⁽³⁾	4,184	5,872
Loans to subsidiaries and other financial assets ⁽⁴⁾	9,686	7,816
Total financial assets, gross	86,543	84,293
Impairment of investments and related receivables	(171)	(185)
Impairment of investment securities	(183)	(222)
Total impairment	(354)	(407)
TOTAL FINANCIAL ASSETS, NET	86,189	83,886

(1) The change in investments essentially corresponds to:

- the sale of all the shares in RTE to the new company C25, for a net book value of €4,030 million;
- the receipt of shares in C25 for the total value of €5,143 million: €2,577 million classified as investments and €2,566 million classified as investment securities (see note 2.5).

(2) Changes in investment securities correspond to acquisitions and sales of dedicated assets over the period. The 49.9% of shares in C25 which are to be sold to Caisse des Dépôts and CNP Assurances are classified as investment securities at the value of €2,566 million (see note 2.5). Acquisitions and sales of dedicated assets generated net gains in 2016 (see note 14).

(3) This receivable consists of the accumulated shortfall at 31 December 2015 in the compensation for public service energy charges and the associated financing costs. Reimbursements received during 2016 amounted to €293 million, in line with the schedule published in the decisions of 13 May 2016 and 2 December 2016, made in application of Article R. 121-31 of the French Energy Code.

The change in the CSPE receivable also reflects the assignment by EDF of part of the receivable relating to the shortfall in compensation up to 31 December 2015 and the associated interest, amounting to €1,501 million, of which €872 million was classified as dedicated assets (see note 2.6).

(4) Loans to subsidiaries at 31 December 2016 total €9,592 million, including €4,560 million for EDF International, €1,506 million for EDF Energy, €926 million for PEI, €1,068 million for Dalkia, €1,158 million for EDF Énergies Nouvelles and €220 million for Edison. EDF's loan to RTE was fully repaid in October 2016 (€670 million at 31 December 2015).

18.2 SUBSIDIARIES AND INVESTMENTS OF AT LEAST 50% OF CAPITAL

(in millions of Euros)	Gross book value of shares owned	Impairment recorded at 31/12/2016	% capital owned	Equity 2015	Net income 2015	Dividends received 2016	Sales 2015
I. Subsidiaries							
Holding companies							
EDEV	6,891	–	100	6,286	(15)	–	2
EDF International	25,930	–	100	21,720	(1,194)	500	2
EDF Production Électrique Insulaire SAS	561	–	100	882	58	55	712
EDF Holding SAS	1,950	–	100	2,598	544	517	–
C3	11,196	–	100	11,639	363	345	–
EDF Immo	1,361	–	100	1,442	52	61	–
C25 ⁽¹⁾	2,577	–	100	–	–	–	–
Other companies	1,071	–	100	984	34	36	–
Industrial and commercial companies							
France							
Centrale Électrique Rhénane de Gambenheim	3	–	50	10	–	–	8
Dalkia Investissement	200	26	100	150	14	–	nm
Dalkia	967	–	99	551	45	20	2,066
Enedis	2,700	–	100	4,775	374	551	13,548
Other countries							
Emosson	14	14	50	129	–	–	34
Rheinkraftwerk Iffezheim (RKI)	3	–	50	113	4	4	11
Forces Motrices du Chatelôt	nm	–	50	8	nm	nm	5
Other entities (GIE EIFER)	112	110	–	–	–	–	–
TOTAL I	55,536	150				2,089	

nm: not material (less than €500,000).

(1) C25 is the company owning 100% of RTE: €2,577 million classified as investments and €2,566 million classified in investment securities because they are expected to be sold in 2017 (see note 2.5).

18.3 SUBSIDIARIES AND INVESTMENTS UNDER 50%

<i>(in millions of Euros)</i>	Gross book value of shares owned	Impairment recorded at 31/12/2016	% capital owned	Equity 2015	Net income 2015	Dividends received 2016
I. Subsidiaries						
Total I Carried forward	55,536	150				2,089
II Investments						
II.1 Companies in which EDF has an interest of between 10% and 50%						
Industrial and commercial companies						
France						
Trimet France	130	21	35	251	9	7
Total II.1	130	21				7
II.2 Companies in which EDF has an interest of less than 10%						
Other companies						
	–	–	–	–	–	–
Other countries						
Forces Motrices de Mauvoisin	1	–	10	109	5	nm
Total II.2	1	–				–
Total II	131	21				7
Total investments, gross	55,667	171				2,096
TOTAL INVESTMENTS, NET	55,496					

nm: not material (less than €500,000).

18.4 INVESTMENT SECURITIES PORTFOLIO

<i>(in millions of Euros)</i>	At start of year			At year-end		
	Gross book value	Net book value	Fair value	Gross book value	Net book value	Fair value
VALUE OF INVESTMENT SECURITIES	12,823	12,609	14,463	16,698	16,520	17,606

At 31 December 2016, the investment securities portfolio comprises dedicated assets (€15,245 million, including €1,328 million corresponding to shares in C25 – see note 38.2.3) and €123 million of shares in AREVA, against which impairment of €87 million has been booked.

18.5 VARIATION IN TREASURY SHARES

A share repurchase programme authorized by the General Shareholders' Meeting of 9 June 2006 was implemented by the Board of Directors, within the limits of 10% of the total number of shares making up the Company's capital. The initial duration of the programme was 18 months, renewed for 12 months then by tacit agreement every year.

A liquidity contract exists for this programme, as required by the French market regulator AMF.

<i>(in millions of Euros)</i>	Gross value at 31/12/2015	Increases	Decreases	Gross value at 31/12/2016
TREASURY SHARES	35	118	(127)	26

At 31 December 2016, treasury shares included in the investment securities portfolio represent 2,618,621 shares with total value of €26 million.

18.6 FINANCIAL LOANS AND RECEIVABLES RELATED TO INVESTMENTS

(in millions of Euros)	Liquidity			Gross value at 31/12/2016	Gross value at 31/12/2015
	< 1 year	1 - 5 years	> 5 years		
Receivables related to investments	2	–	49	51	451
CSPE receivable	977	3,207	–	4,184	5,872
Loans and other financial assets	6,776	1,692	1,219	9,687	7,816
FINANCIAL LOANS AND RECEIVABLES RELATED TO INVESTMENTS	7,755	4,899	1,268	13,922	14,139

Note 19 Inventories and work-in-progress

(in millions of Euros)	31/12/2016			31/12/2015		
	Gross value	Provisions	Net value	Gross value	Provisions	Net value
Nuclear fuel	8,746	(19)	8,727	8,598	(17)	8,581
Other raw materials	185	–	185	236	–	236
Other supplies	1,109	(198)	911	1,205	(175)	1,030
Work-in-progress and other inventories	333	(30)	303	365	–	365
TOTAL INVENTORIES	10,373	(247)	10,126	10,404	(192)	10,212

Note 20 Other current assets

(in millions of Euros)	Liquidity			Gross value at 31/12/2016	Gross value at 31/12/2015
	< 1 year	1 - 5 years	> 5 years		
Advances on orders	358	465	274	1,097	1,224
■ Trade receivables					
– Amounts billed	2,299	–	–	2,299	2,094
– Unbilled receivables ⁽¹⁾	14,061	127	–	14,188	12,157
■ Other operating receivables ⁽²⁾	5,641	63	156	5,860	5,725
Operating receivables	22,001	190	156	22,347	19,976
Cash instruments⁽³⁾	1,159	1,457	1,994	4,610	4,759
Prepaid expenses	529	242	563	1,334	1,339
TOTAL CURRENT ASSETS	24,047	2,354	2,987	29,388	27,298

(1) Mainly receivables for energy supplied and not billed, including the accrued income recognised in 2016 for the portion of the retroactive tariff adjustment (see note 3.1) not yet received at 31 December 2016, which amounts to €966 million.

(2) Including €3,476 million of receivables on the State related to taxes other than income taxes, and €1,637 million for the compensation for public energy service charges (CSPE) (€1,640 million in 2015). The rest of the CSPE receivable is recorded under "Financial assets" (see note 18.1).

(3) Unrealised gains on foreign exchange instruments.

Note 21 Marketable securities

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015	Change
Treasury shares	3	3	–
Investment funds	3,955	3,518	437
Negotiable debt instruments (Euros or other currencies) maturing after 3 months	4,179	4,098	81
Bonds	6,787	5,686	1,101
Accrued interest and other marketable securities	2,280	602	1,678
Total gross value	17,204	13,907	3,297
Provisions	(10)	(7)	(3)
TOTAL NET VALUE	17,194	13,900	3,294

Note 22 Variation in cash and cash equivalents reported in the cash flow statement

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015	Change
Marketable securities	17,204	13,907	3,297
Cash and cash equivalents	5,457	6,199	(742)
Sub-total in balance sheet assets	22,661	20,106	2,555
Euro investment funds	(3,955)	(3,518)	(437)
Negotiable debt instruments (Euro) maturing after 3 months	(4,084)	(3,951)	(133)
Negotiable debt instruments (non Euro) maturing after 3 months	(95)	(147)	52
Bonds	(6,787)	(5,686)	(1,101)
Treasury shares	(3)	(3)	(0)
Accrued interest and other marketable securities	(2,280)	(602)	(1,678)
Marketable securities included in financial assets in the cash flow statement	(17,204)	(13,907)	(3,297)
Cash advances to subsidiaries (cash pooling agreements) included in "other operating receivables" in the balance sheet	–	56	(56)
Cash advances from subsidiaries (cash pooling agreements) included in "other operating liabilities" in the balance sheet	(9,438)	(8,682)	(756)
CASH AND CASH EQUIVALENTS, CLOSING BALANCE IN THE CASH FLOW STATEMENT ⁽¹⁾	(3,981)	(2,427)	(1,554)
Elimination of the effect of currency fluctuations			(250)
Elimination of net financial income on cash and cash equivalents			(57)
NET VARIATION IN CASH AND CASH EQUIVALENTS IN THE CASH FLOW STATEMENT ⁽¹⁾			(1,861)

(1) See the Cash flow statement.

Note 23 Unrealised foreign exchange losses

Unrealised foreign exchange losses amount to €1,083 million at 31 December 2016, principally reflecting the unfavourable effects of movements in the pound sterling and the US dollar (€2,070 million at 31 December 2015).

Note 24 Changes in equity

<i>(in millions of Euros)</i>	Capital	Reserves and premiums	Retained earnings and interim dividends	Profit or loss for the financial year	Investment subsidies	Tax-regulated provisions	Total equity
At 31 December 2014	930	10,967	4,539	1,649	174	6,324	24,583
Allocation of 2014 net income	–	–	380	(380)	–	–	–
2015 profit	–	–	–	271	–	–	271
Capital increase of 18 December 2015	30	876	–	–	–	–	906
Dividend distribution	–	–	1	(1,269)	–	–	(1,268)
Interim dividend	–	–	(1,059)	–	–	–	(1,059)
Other changes	–	6	214	–	(4)	(91)	125
At 31 December 2015	960	11,849	4,075	271	170	6,233	23,558
Allocation of 2015 net income	–	8	(758)	750	–	–	–
2016 profit	–	–	–	5,517	–	–	5,517
Capital increase of 30 June 2016	47	892	–	–	–	–	939
Dividend distribution	–	–	1	(1,021)	–	–	(1,020)
Capital increase of 31 October 2016	48	875	–	–	–	–	923
Interim dividend	–	–	(1,006)	–	–	–	(1,006)
Other changes	–	3	–	–	(1)	(101)	(99)
AT 31 DECEMBER 2016	1,055	13,627	2,311	5,517	169	6,132	28,812

24.1 SHARE CAPITAL

EDF's share capital amounted to €1,054,568,341.50 at 31 December 2016, comprising 2,109,136,683 fully subscribed and paid-up shares with nominal value of €0.50 each, owned 85.62% by the French State, 12.68% by the public (institutional and private investors), 1.57% by current and retired Group employees, and 0.13% held by EDF as treasury shares.

In June 2016, payment of the balance of the dividend for 2015 in the form of a scrip dividend led to a €47 million increase in the share capital and an issue premium of €892 million following the issuance of 93,112,364 new shares.

In October 2016, payment of part of the interim dividend for 2016 in the form of a scrip dividend led to a €48 million increase in the share capital and an issue premium of €875 million following the issuance of 95,885,292 new shares.

Under Article L. 111-67 of the French Energy Code, the French State must hold more than 70% of the capital of EDF at all times.

24.2 DIVIDENDS

The General Shareholders' Meeting of 12 May 2016 decided to distribute an ordinary dividend of €1.10 per share in respect of 2015, offering the choice of receiving this dividend in cash, or in the form of shares (scrip option).

In application of Article 24 of EDF's articles of association, shareholders who have held their shares continuously for at least 2 years at the year-end and still hold them at the dividend distribution date benefit from a 10% bonus on their dividends. The number of shares carrying an entitlement to the bonus dividend cannot exceed 0.5% of the company's capital for a single shareholder. The bonus dividend amounts to €1.21 per share.

As interim dividends of €0.57 per share had been paid out on 18 December 2015, the balance payable for 2015 amounted to €0.53 per share benefiting from the ordinary dividend and €0.64 per share benefiting from the bonus dividend. The balance of the dividend was paid out on 30 June 2016.

The French government opted for the scrip dividend for this distribution.

The amount of the cash dividend paid to shareholders who did not opt for the scrip dividend amounted to €82 million.

On 30 September 2016, EDF's Board of Directors decided to distribute an interim dividend of €0.50 per share in respect of 2016. This interim dividend amounting to a total of €1,006 million was paid out in the form of new shares (scrip option) or cash on 31 October 2016.

The French government opted for the scrip interim dividend.

The amount of the cash dividend paid to shareholders who did not opt for the scrip interim dividend for 2016 amounted to €83 million.

Note 25 Additional equity

Additional equity consists of the perpetual subordinated bonds issued by EDF in January 2013 and January 2014 at the value of €6,135 million and €3,973 million respectively (net of redemption premiums).

After adjustment for foreign exchange variations and amortisation of the redemption premium over the year, additional equity amounts to €11,038 million at 31 December 2016.

PERPETUAL SUBORDINATED BONDS

(in millions of currency units)

Entity	Issue date	Amount	Currency	Redemption option	Rate
EDF	01/2013	1,250	EUR	7 years	4.25%
EDF	01/2013	1,250	EUR	12 years	5.38%
EDF	01/2013	1,250	GBP	13 years	6.00%
EDF	01/2013	3,000	USD	10 years	5.25%
EDF	01/2014	1,500	USD	10 years	5.63%
EDF	01/2014	1,000	EUR	8 years	4.13%
EDF	01/2014	1,000	EUR	12 years	5.00%
EDF	01/2014	750	GBP	15 years	5.88%

Note 26 Special concession liabilities

(in millions of Euros)	31/12/2016	31/12/2015
Value in kind of assets	105	106
Revaluation difference	885	913
Additional depreciation	164	137
Rights in hydropower assets	1,154	1,156
Value in kind of assets	1,653	1,597
Unamortised financing by the operator	(999)	(960)
Amortisation of grantor financing	306	293
Contributions received for concessionary plant assets under construction	6	7
Rights in public distribution concession assets⁽¹⁾	966	937
TOTAL SPECIAL CONCESSION LIABILITIES	2,120	2,093

(1) Rights in public distribution concession assets concern the Island Energy System's (SEI) public electricity distribution concession.

Note 27 Provisions for risks

(in millions of Euros)	31/12/2015	Increases		Decreases			Other	31/12/2016
		Operating ⁽¹⁾	Financial	Utilisations	Reversals	Financial ⁽²⁾		
Provisions for unrealised exchange losses	2,071	–	147	–	–	(1,135)	–	1,083
Provisions for losses on contracts	632	147	9	(100)	(16)	–	–	672
Provisions for other risks	353	225	–	(42)	(103)	–	1	434
PROVISIONS FOR RISKS	3,056	372	156	(142)	(119)	(1,135)	1	2,189

(1) Mainly concerning supply and sales contracts.

(2) €1,128 million of reversals from provisions concern long-term borrowings (see note 13).

Note 28 Provisions related to nuclear generation – back-end of the nuclear cycle, plant decommissioning and last cores

The provisions established by EDF for the nuclear generation fleet result from the Law of 28 June 2006 on long-term management of radioactive materials and waste, and the associated implementing provisions concerning secure financing of nuclear expenses.

In compliance with the accounting principles described in note 1.15:

- EDF books provisions to cover all obligations related to the nuclear facilities it operates;
- EDF holds dedicated assets for secure financing of long-term obligations (see note 38).

The calculation of provisions incorporates a level of risks and unknowns as appropriate to the operations concerned. The valuation of costs also carries uncertainty factors such as:

- changes in legislation, particularly regarding safety, security and environmental protection, and financing of nuclear expenses;
- changes in the regulatory decommissioning process and the time necessary for issuance of administrative authorisation;
- future methods for storing long-lived radioactive waste and provision of storage facilities by the French agency for radioactive waste management ANDRA (*Agence Nationale pour la gestion des Déchets Radioactifs*);
- changes in certain financial parameters such as discount rates, notably in view of the regulatory limits, inflation rates, or changes in the contractual terms of spent fuel management.

Details of changes in provisions for the back-end of the nuclear cycle, decommissioning and last cores are as follows:

(in millions of Euros)	31/12/2015	Increases		Decreases		Other changes ⁽³⁾	31/12/2016
		Operating	Financial ⁽¹⁾	Utilisation	Reversals ⁽²⁾		
Provisions for spent fuel management	10,391	389	637	(791)	(491)	523	10,658
Provisions for long-term radioactive waste management	8,254	173	729	(233)	–	43	8,966
Provisions for the back-end of the nuclear cycle	18,645	562	1,366	(1,024)	(491)	566	19,624
Provisions for nuclear plant decommissioning	14,930	156	723	(159)	–	(1,528)	14,122
Provisions for last cores	2,555	–	93	–	–	(361)	2,287
Provisions for decommissioning and last cores	17,485	156	816	(159)	–	(1,889)	16,409
TOTAL PROVISIONS RELATED TO NUCLEAR GENERATION	36,130	718	2,182	(1,183)	(491)	(1,323)	36,033

(1) The discount effect comprises the €1,502 million cost of unwinding the discount, and the effects of the change of real discount rate in 2016 via the income statement for provisions with no related assets (€680 million).

(2) Following an update to the industrial scenario, services associated with additional interim storage of spent fuel are no longer covered by provisions. The decrease in provisions for spent fuel includes an amount of €491 million reversed from the provision for this reason.

(3) Other movements include changes in provisions with related assets (assets associated with provisions and underlying assets), resulting from the following in 2016:

- the consequences of extending the accounting depreciation period of the 900MW PWR series power plants (see note 2.1), i. e. a €(2,044) million decrease in provisions at 1 January 2016, comprising €(1,465) million on provisions for decommissioning, €(470) million on provisions for last cores, and €(109) million on provisions for long-term radioactive waste management concerning waste resulting from decommissioning;
- the effects of the change in real discount rate at 31 December 2016 on the same provisions, which amounts to €662 million;
- revision of the decommissioning costs for the PWR plants currently in operation, amounting to €(451) million (see note 28.3).

Other movements also include a reclassification of €465 million from provisions for long-term radioactive waste management to provisions for spent fuel management.

28.1 PROVISIONS FOR SPENT NUCLEAR FUEL MANAGEMENT

EDF's currently adopted strategy with regards to the fuel cycle, in agreement with the French State, is to process spent fuel and to recycle the separated plutonium in the form of MOX fuel (Mixed OXyde of plutonium and uranium).

The quantities processed, totalling approximately 1,100 tonnes per year – are determined based on the quantity of recyclable plutonium in the reactors that are authorized to load MOX fuel.

Consequently, provisions for spent fuel cover services associated with the following:

- removal of spent fuel from EDF's generation centres, as well as reception and interim storage;
- processing, including conditioning and storage of recyclable matter and waste resulting from this processing.

The processing expenses included in the provision exclusively concern spent fuel that can be recycled in existing facilities, including the portion in reactors but not yet irradiated.

Expenses are measured based on forecast physical flows at the year-end, with reference to the contracts currently in effect with AREVA following the framework agreement for the period 2008-2040, which has given rise to the following contracts:

- an implementation contract signed in July 2010, setting the prices and quantities of services for the period 2008-2012;
- an implementation contract signed in May 2015 defining the conditions for processing and recycling over the period 2013-2015;
- an amendment signed on 5 February 2016 laying down the terms of implementation for the period 2016-2023, which was previously covered by an agreement of December 2015, presented to the Board of Directors on 27 January 2016.

The provision also covers long-term storage of spent fuel that cannot currently be recycled in existing installations: plutonium fuel (MOX) or uranium fuel derived from enriched processing, and fuel from Creys-Malville and Brennilis.

The provision for long-term radioactive waste management breaks down as follows:

(in millions of Euros)

	31/12/2016	31/12/2015
Very low-level and low and medium-level waste	1,066	988
Long-lived low-level waste	256	252
Long-lived medium and high-level waste ⁽¹⁾	7,644	7,014
PROVISIONS FOR LONG-TERM RADIOACTIVE WASTE MANAGEMENT	8,966	8,254

(1) Including provisions for retrieval and conditioning of waste.

Very low-level and low and medium-level waste

Very low-level waste mainly comes from nuclear plant decommissioning, and generally takes the form of rubble (concrete, scrap metal, insulating materials and piping). This type of waste is stored at surface level at the Morvilliers storage centre managed by ANDRA.

Low and medium-level waste comes from nuclear facilities (gloves, filters, resins). This type of waste is stored at surface level at the Soulaines storage centre managed by ANDRA.

The cost of removing and storing short-lived waste (very low-level and low and medium-level) is assessed on the basis of current contracts with transporters and contracts with ANDRA for operation of the existing storage centres.

Long-lived low-level waste

Long-lived low-level waste belonging to EDF essentially consists of graphite waste from the ongoing decommissioning of the former UNGG (natural uranium graphite gas-cooled) reactors.

As this waste has a long lifetime, but is lower-level than long-lived medium and high-level waste, specific subsurface storage requirements apply under the French Law of 28 June 2006.

An initial site search launched by ANDRA in 2008 was unsuccessful. ANDRA resumed this search in 2013 and is currently continuing feasibility studies in liaison with the authorities. Other alternative management scenarios are also being examined, including new specifications for a broader range of potential management solutions.

The benchmark scenario for dismantling the UNGG plants, established in 2015 (see note 28.3), sets out a sequence for dismantling operations.

28.2 PROVISIONS FOR LONG-TERM RADIOACTIVE WASTE MANAGEMENT

These provisions concern future expenses for:

- removal and storage of radioactive waste resulting from decommissioning of nuclear installations operated by EDF;
- removal and storage of radioactive waste packages resulting from spent fuel processing;
- EDF's share of the costs of studies, construction, operation and maintenance, shutdown and surveillance of existing and future storage centres.

The volumes of waste concerned by provisions include existing packages of waste and all waste to be conditioned, resulting from plant decommissioning or spent fuel processing at La Hague (comprising all fuel in reactors at 31 December, irradiated or otherwise). These volumes are regularly reviewed, in keeping with the data declared for the purposes of the national waste inventory undertaken by ANDRA.

In particular, the aim is to consolidate experience acquired from dismantling the first caisson (UNGG reactor building) before beginning work on the other five. The new schedule also defers the dates for removal of waste (graphite and long-lived medium-level waste). In 2015 this change led to a reversal of €292 million from the provision for long-lived low-level waste, and a smaller €40 million reversal from the provision for very low-level and low and medium-level waste resulting from decommissioning of the UNGG plants, giving a total reversal of €332 million from the provision for long-term waste management.

Long-lived medium and high-level waste

Long-lived medium and high-level waste essentially comes from processing of spent fuel, and to a lesser extent waste resulting from nuclear plant decommissioning (metallic components that have been inside the reactor).

The French Law of 28 June 2006 requires reversible storage in deep geological layers for this type of waste.

The provision established for long-lived medium and high-level waste is the largest component of provisions for long-term radioactive waste management.

From 2005, the gross value and disbursement schedules for forecast expenses were based on a scenario of industrial geological waste storage, following conclusions presented in the first half of 2005 by a working group formed under supervision of the State involving representatives of the administrations concerned, ANDRA and the producers of waste (EDF, AREVA, CEA). EDF applied a reasonable approach to information supplied by this working group, leading to a benchmark cost, for storage of waste from all producers, of €14.1 billion under the economic conditions of 2003 (€20.8 billion under 2011 economic conditions).

In the partnership set up in 2011 between ANDRA and waste producers to contribute to the success of the geological storage project (the Cigéo project), ANDRA carried out preliminary conceptual studies from 2012, and analysed the technical optimisations proposed by the producers. The cooperation between ANDRA and producers provided a forum for formal technical discussions that resulted in optimisation of the waste storage design (for example new sizing for the above-ground installations, a significant reduction in the length of underground structures, thinner coatings, etc) and operating conditions (such as new timetables for package transfer, leading to a substantial reduction in the numbers of operating staff).

On this basis, ANDRA drew up provisional figures in a report sent to EDF on 18 July 2014. In compliance with the Law of 28 June 2006, a consultation process was started by the French Department for Energy and Climate (*Direction Générale de l'Énergie et du Climat* or DGEC) on 18 December 2014, when ANDRA's consolidated figures were submitted to the waste producers for their comments. The consultation focused mainly on methods for incorporating risks, opportunities and uncertainties, and on unit costs, which are still a point of significant divergence between ANDRA and the producers. EDF and the other producers sent their comments on ANDRA's report to the DGEC in February 2015 and a joint estimation of the target Cigéo storage cost in April 2015. All this information was included in the report submitted to the Minister for Ecology, Sustainable Development and Energy, who will set the new benchmark cost for storage of long-lived medium and high-level waste after consulting the Nuclear Safety Authority (ASN).

On 15 January 2016 the Ministry of Ecology, Sustainable Development and Energy issued a Ministerial Order setting the cost associated with the implementation of long-term management solutions for long-lived medium and high-level radioactive waste under the Cigéo storage project at €25 billion under 2011 economic conditions. This cost valuation is required by Article L. 542-12 of France's Energy Code.

The cost as defined constitutes an objective to be met by ANDRA, in compliance with safety standards set by the ASN, working in close liaison with the operators of nuclear installations.

Publication of this Order entailed an €820 million adjustment to the provision shown in EDF's financial statements at 31 December 2015. The cost of the Cigéo project defined in the Order has replaced the estimated benchmark cost of €20.8 billion previously used by EDF in its financial statements.

In application of this Ministerial Order, the cost of the Cigéo project will be regularly updated, at least at each key milestone in the course of the project's development (authorisation to create the facility, commissioning, end of the "pilot industrial phase", safety reviews) in accordance with the opinion of the ASN.

Design studies for future facilities are currently in process with ANDRA, with a view to filing an application to build a new basic nuclear facility by 2018. The Law of 11 July 2016, which defines the terms for creation of a reversible deep geological storage facility, is an important step towards issuance of the

authorisation. Under the timetable set by ANDRA, authorisation to create the facility should be given in 2021 and the first waste should arrive in 2030.

The provision for long-lived medium and high-level waste also includes provisions for retrieval and conditioning of waste, amounting to €581 million (of which €452 million were booked in 2016, notably for long-lived medium-level radioactive waste from operations).

28.3 DECOMMISSIONING PROVISIONS FOR NUCLEAR POWER PLANTS

EDF bears full technical and financial responsibility for decommissioning of the nuclear plants it operates. The decommissioning process is governed by French Law of 13 June 2006, Decree 2007-1557 of 2 November 2007, and the French Environment Code (Articles L593-25 and following). It involves the following operations for each site:

- a shutdown declaration, to be made at least two years prior to the planned shutdown date:
 - since the Energy Transition Law of 17 August 2015, the final shutdown, which takes place during the operating phase of the basic nuclear facility, is considered separately from dismantling, as a notable change of lesser importance (simply requiring a declaration by the operator to the Minister and the ASN);
- an application for decommissioning, which after examination by the authorities and a public inquiry, leads to a single decree authorising the decommissioning;
- key progress reviews with the ASN, included in a formal safety procedure specific to dismantling operations;
- an internal authorisation procedure for the operator, independent of operational personnel and audited by the ASN, allowing some specific work to be started ahead of the authorized safety procedure;
- finally, once these operations are complete, declassification of the facility to remove it from the legal regime governing basic nuclear facilities.

The decommissioning scenario adopted by EDF complies with France's Environmental Code, which requires as short a period as possible to elapse between final shutdown and dismantling in economically acceptable conditions and in compliance with the principles laid down in Article L. 1333-1 of the Public Health Code (radioprotection) and section II of Article L. 110-1 of the Environmental Code (protection of the environment). The intended end-state is industrial use: the sites will be restored to their original condition and will be reusable for industrial facilities.

The decommissioning provisions cover future decommissioning expenses as described above (excluding the cost of removing and storing waste, which is covered by the provision for long-term waste management).

Details of changes in decommissioning provisions for nuclear power plants are as follows:

(in millions of Euros)	2015	Increases		Decreases		2016
		Operating	Financial ⁽¹⁾	Utilisation	Other changes ⁽²⁾	
Provisions for decommissioning of nuclear plants in operation	11,944	–	472	(23)	(1,494)	10,899
Provisions for decommissioning of shut-down nuclear plants	2,986	156	251	(136)	(34)	3,223
TOTAL PROVISIONS FOR NUCLEAR PLANT DECOMMISSIONING	14,930	156	723	(159)	(1,528)	14,122

(1) Financial discounting expenses and effects of changes in the net discount rate for provisions without related assets.

(2) These are changes of estimate with a corresponding adjustment to property, plant and equipment (see note 1.15) or reclassifications of provisions.

For nuclear power plants currently in operation (PWR pressurized water reactor plants with 900MW, 1,300MW and N4 reactors)

Until 2013, provisions were estimated based on a 1991 study by the French Ministry of Trade and Industry, which set an estimated benchmark cost for decommissioning expressed in €/MW, confirming the assumptions defined in 1979 by the PEON commission.

In 2009, EDF carried out a detailed study of decommissioning costs, using Dampierre (four 900MW units) as a representative site. This study involved the following steps:

- measurement of the decommissioning cost for the Dampierre site, taking into consideration the most recent developments in regulations, past experience in decommissioning of shut-down plants and recommendations issued by the ASN;
- a review of the timeline for decommissioning operations (the total duration of decommissioning for one reactor was estimated at 15 years following shutdown);
- determination of the rules for extrapolation of cost estimates for the entire fleet of PWR plants in operation.

An intercomparison with the study carried out by consultants LaGuardia, based mainly on the Maine Yankee reactor in the US which is comparable in terms of technology and capacity, subsequently corroborated the results of EDF's study.

In 2014 the Dampierre study was reviewed by EDF to make sure that the previous calculations were still valid in view of recent developments and experience, both internationally and internally. This review reinforced the amounts of decommissioning provisions for plants in operation based on costs resulting from the Dampierre study, incorporating best estimates and feedback in and outside France. This change of estimate had no significant impact on the level of provisions at 31 December 2014.

Between June 2014 and July 2015, an audit of dismantling costs for EDF's nuclear fleet currently in operation was conducted by specialised consulting firms, at the request of the French Department for Energy and Climate (*Direction Générale de l'Énergie et du Climat* or DGEC). On 15 January 2016 the DGEC published a summary of the audit report. It stated that although estimating the cost of decommissioning nuclear reactors is a demanding exercise due to relatively limited past experience, the prospects of changes in techniques, and the distant timing of the expenditure, overall, the audit confirmed EDF's estimate of decommissioning costs for its nuclear fleet currently in operation. The DGEC also made a number of recommendations to EDF following this audit.

In 2016, EDF revised the decommissioning estimate, in order to incorporate the audit recommendations and past experience gained from dismantling operations for first-generation reactors (particularly Chooz A).

A detailed analytical approach was used to revise this estimate, identifying all costs for the engineering, construction work, operation and waste processing relating to future dismantling of reactors currently in operation. This led to figures based on detailed timetables for plant decommissioning. The approach adopted made it possible to explore more thoroughly the assessment of costs specific to the initial units of each series and the series and mutualisation effects, as these costs and effects are inherent to the fleet's size and configuration.

EDF considers that the work done to revise the estimate answers the recommendations issued after the audit. The approach adopted and its results have been presented to the administrative authority and are currently the subject of further questions and discussion.

EDF is also continuing to support its analyses through an international comparison, making it sure it takes into consideration a number of factors that could distort direct comparisons, for example differences in the scope concerned by costs estimate, or national and regulatory contexts.

The results of the work accomplished this year lead overall to limited changes in the costs estimate and the associated provisions at 31 December 2016, apart from the consequences of the change in the depreciation period for 900MW series plants (excluding Fessenheim) at 1 January 2016, and the effect of changes in discount rates at 31 December 2016.

To note for the limited changes:

- an increase of €321 million in the estimated decommissioning costs and an increase of €334 million in the estimated cost of long-term management of long-lived medium-level waste; and
- a decrease of €(451) million in the provision for plant decommissioning, and an increase of €162 million in the provision for long-term management of long-lived medium-level waste, with corresponding changes in the underlying assets.

For permanently shut-down nuclear power plants

Unlike the PWR fleet currently in operation, the first-generation reactors now shut down used a range of different technologies: a PWR reactor at Chooz A, UNGG (natural uranium graphite gas-cooled) reactors at Bugey, St-Laurent and Chinon, a heavy water reactor at Brennilis, and a sodium-cooled fast neutron reactor at Creys-Malville.

The decommissioning costs are based on contractor quotes, which take account of accumulated industrial experience, unforeseen and regulatory developments, and the latest available figures.

In 2015 the industrial strategy for UNGG plants was totally revised. The previously selected strategy was based on a scenario involving "underwater" dismantling of caissons (UNGG reactor buildings) for four of the reactors, with direct graphite storage in a centre currently under examination by ANDRA (see note 28.2 – "Long-lived low-level waste"). This scenario was re-examined in view of several new technical factors (new technical information indicating industrial difficulties in underwater dismantling in this specific case, lower visibility on the availability of graphite storage, etc). The new information also brought out an alternative "in-air" dismantling solution for the caissons, which facilitates industrial control of operations and would be more favourable in terms of safety, radioprotection and environmental impact. The company has therefore selected a new "in-air" dismantling scenario as the benchmark strategy for all six caissons.

The amended scenario was presented to the ASN's commissioners on 29 March 2016, and shared with local stakeholders in the Local Information Commissions for the sites concerned. A further presentation to the ASN is scheduled for mid-2017. For both scenarios, the studies to update contractor quotes have led to a significant increase in forecast decommissioning costs for these caissons. The selected scenario includes a consolidation phase, building on experience acquired from dismantling the first caisson before beginning work on the other five. Under this scenario, the decommissioning phase will ultimately be longer than previously planned, leading to higher contractor quotes due to the induced operating costs.

Updating the industrial decommissioning scenario for first-generation power plants, particularly UNGGs, led to a €590 million increase in the provision at 31 December 2015.

After the revision of the estimated cost in 2015, the decision was made that it should be reviewed annually. In 2016 this review gave rise to adjustments that were non-significant except for one specific installation (the Irradiated Materials Workshop at Chinon), for which the provision was increased by €125 million.

28.4 PROVISIONS FOR LAST CORES

These provisions cover the future expenses resulting from scrapping fuel that will only be partially irradiated when the reactor is shut down. It is measured based on:

- the cost of the loss on fuel in the reactor that is not totally spent at the time of final reactor shutdown and cannot be reused due to technical and regulatory constraints;
- the cost of fuel processing, and waste removal and storage operations. These costs are valued in a similar way to provisions for spent fuel management and long-term radioactive waste management.

These unavoidable costs are components of the cost of nuclear reactor shutdown and decommissioning. As such, they are fully covered by provision from the commissioning date and an asset associated with the provision is recognised.

28.5 DISCOUNTING OF PROVISIONS RELATED TO NUCLEAR GENERATION AND SENSITIVITY ANALYSES

28.5.1 Discount rate

Calculation of the discount rate

The discount rate is determined based on long-series data for a sample of bonds with maturities as close as possible to that of the liability. However, some expenses covered by these provisions will be disbursed over periods significantly longer than the duration of instruments generally traded on the financial markets.

The benchmark used to determine the discount rate is the sliding 10-year average of the return on French OAT 2055 treasury bonds, which have a similar duration to the obligations, plus the spread of corporate bonds rated A to AA, which include EDF.

The methodology used to determine the discount rate, particularly the reference to sliding 10-year averages, is able to prioritise long-term trends in rates, in keeping with the long-term horizon for disbursements. The discount rate is therefore revised in response to structural developments in the economy leading to medium and long-term changes.

The assumed inflation rate is determined in line with the forecasts provided by consensus and expected inflation based on the returns on inflation-linked bonds.

The discount rate determined in this way is 4.2% at 31 December 2016, assuming inflation of 1.5% (4.5% and 1.6% respectively at 31 December 2015), giving a real discount rate of 2.7% at 31 December 2016 (2.9% at 31 December 2015).

Regulatory discount rate limit

The discount rate applied must also comply with two regulatory limits. Since the Ministerial Order of 24 March 2015, the discount rate must be lower than:

- a regulatory maximum "equal to the arithmetic average over the 120 most recent months of the constant 30-year rate (TEC 30 years), observed on the last date of the period concerned, plus one point";
- and the expected rate of return on assets covering the liability (dedicated assets).

The ceiling rate based on the TEC 30-year rate is 4.3% at 31 December 2016 (4.6% at 31 December 2015).

In a letter dated 10 February 2017, the Minister for the Economy and Finance and the Minister for the Environment, Energy and the Sea announced their decision to change the calculation formula for the regulatory limit on discount rates with effect from 2017. This decision will be set out in an amendment to the Ministerial Order of 21 March 2007, itself modified by the Order of 24 March 2015. This amendment comes after joint work by the nuclear operators and public authorities to establish a formula for a maximum discount rate, taking into account the long time horizons of nuclear liabilities and prudential objectives for secure financing of long-term nuclear expenses.

Under the new formula, the regulatory limit will gradually migrate from its level at 31 December 2016 (4.3%) until by 2026 it is equal to the average constant 30-year rate (TEC 30 years) over the four most recent years, plus 100 base points.

Considering past and anticipated changes in rates, the new formula, which will progressively incorporate the move from the regulatory 4.3% to a four-year average including a 100 base point spread, should mean that future years see smoother changes in the regulatory limit than under the previous formula.

28.5.2 Analyses of sensitivity to macroeconomic assumptions

Sensitivity to assumptions concerning costs, inflation rate, long-term discount rate, and disbursement schedules can be estimated through comparison of the gross amount estimated under year-end economic conditions with the present value of the amount.

	2016		2015	
	Costs based on year-end economic conditions ⁽¹⁾	Amounts in provisions at present value	Costs based on year-end economic conditions	Amounts in provisions at present value
<i>(in millions of Euros)</i>				
Spent fuel management ⁽²⁾	18,460	10,658	16,843	10,391
Long-term radioactive waste management ⁽³⁾	29,631	8,966	28,890	8,254
BACK-END NUCLEAR CYCLE EXPENSES	48,091	19,624	45,733	18,645
Decommissioning provisions for nuclear power plants in operation ⁽⁴⁾	20,185	10,899	19,636	11,944
Decommissioning provisions for shut-down nuclear power plants ⁽⁴⁾	6,431	3,223	6,431	2,986
Provisions for last cores	4,344	2,287	4,113	2,555
DECOMMISSIONING AND LAST CORE EXPENSES	30,960	16,409	30,180	17,485

(1) An amount of €1,368 million has been reclassified from provisions for long-term radioactive waste management to provisions for spent fuel management.

(2) Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of spent fuel management, based on year-end economic conditions, includes an amount of €(540) million related to the lower cost estimate for additional interim spent fuel storage services, which are no longer covered by a provision. Other changes notably concern updating of the contractor quote for processing of spent fuel loaded in the reactors in 2016.

(3) Excluding the effect of the reclassification presented in (1), the increase between 2015 and 2016 in the cost of long-term radioactive waste management, based on year-end economic conditions, includes an amount of €729 million for retrieval and conditioning of waste, particularly the long-lived medium-level waste resulting from operations and decommissioning of plants in operation. Other changes mainly concern adjustment of the Cigéo estimate for processing of spent fuel loaded in the reactors in 2016.

(4) The increase between 2015 and 2016 of the cost of nuclear plant decommissioning based on year-end economic conditions includes an amount of €321 million resulting from revision of the cost estimate for decommissioning of plants currently in operation.

This approach can be complemented by estimating the impact of a change in the discount rate on the discounted value.

In application of Article 11 of the Decree of 23 February 2007, the following table reports these details for the main components of provisions for the back-end of the nuclear cycle, decommissioning of nuclear plants and last cores for EDF:

	Amounts in provisions at present value	Sensitivity to discount rate			
		Balance sheet provision		Pre-tax net income	
		0.20%	-0.20%	0.20%	-0.20%
<i>(in millions of Euros)</i>	31/12/2016				
Back-end nuclear cycle expenses					
■ spent fuel management	10,658	(211)	227	182	(195)
■ long-term radioactive waste management	8,966	(475)	534	381	(432)
Decommissioning and last core expenses					
■ decommissioning of nuclear power plants in operation	10,899	(465)	488	6	(7)
■ decommissioning of nuclear power plants that have been shut down	3,223	(121)	131	121	(131)
■ last cores	2,287	(85)	90	–	–
TOTAL	36,033	(1,357)	1,470	690	(765)

Note 29 Provisions for decommissioning of non-nuclear facilities

These provisions principally concern fossil-fired power plants.

The costs of decommissioning fossil-fired power plants are calculated using regularly updated studies based on estimated future costs, measured by reference to the charges recorded on past operations and the most recent estimates for plants still in operation.

The provision recorded at 31 December 2016 reflects the most recent known contractor quotes and commissioning of new generation assets.

Note 30 Provisions for employee benefits

Changes in provisions for employee benefits were as follows:

(in millions of Euros)	31/12/2015	Increases		Decreases		31/12/2016
		Operating ⁽¹⁾	Financial	Operating ⁽²⁾	Financial ⁽³⁾	
Provisions for post-employment benefits	9,814	765	666	(1,136)	(272)	9,837
Provisions for long-term benefits	945	126	22	(83)	–	1,009
PROVISIONS FOR EMPLOYEE BENEFITS	10,759	891	688	(1,219)	(272)	10,846

(1) Including past service cost of €480 million, amortisation of actuarial losses amounting to €401 million, and unvested benefits of €10 million.

(2) Including €(1,194) million for employers' contributions and €(25) million for actuarial gains.

(3) For the expected return on fund assets.

DETAILS OF CHANGES IN PROVISIONS

(in millions of Euros)	Obligations	Fund assets	Obligations net of fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
Balance at 31/12/2015	28,362	(10,251)	18,111	(68)	(7,284)	10,759
Net expense for 2016	1,168	(272)	896	10	376	1,281
Unrecognised actuarial gains and losses	2,575	(819)	1,757	–	(1,757)	–
Contributions to funds	–	(382)	(382)	–	–	(382)
Benefits paid	(1,218)	407	(812)	–	–	(812)
BALANCE AT 31/12/2016	30,887	(11,317)	19,570	(59)	(8,665)	10,846

The actuarial gains and losses on obligations generated over 2016 amount to €2,575 million. They include €412 million resulting from changes in the value of the employees' energy benefits in kind and €2,194 million resulting from changes in discount and inflation rates.

POST-EMPLOYMENT AND LONG-TERM EMPLOYEE BENEFIT EXPENSES

(in millions of Euros)	31/12/2016	31/12/2015
Current service cost	480	506
Interest expenses (discount effect)	688	647
Expected return on fund assets	(272)	(296)
Amortisation of unrecognised actuarial gains and losses – post-employment benefits	257	305
Change in actuarial gains and losses – long-term benefits	118	(15)
Effect of plan curtailment or settlement ⁽¹⁾	–	(50)
Past service cost – vested benefits ⁽²⁾	–	(31)
Past service cost – unvested benefits	10	11
NET CHARGES RELATED TO POST-EMPLOYMENT BENEFITS AND LONG-TERM BENEFITS	1,281	1,077
including:		
Operating expenses ⁽³⁾	866	726
Financial expenses	415	351

(1) The net amount of €(50) million in 2015 resulted from gross income (€(185) million) and additional amortisation of actuarial gains and losses €135 million.

(2) The Law of 22 December 2014 (2014-1544) on social security financing for 2015 and Decree 2015-209 of 24 February 2015 introduced a fixed scale for death benefits in the standard French system, which was extended to the IEG sector by Decree 2015-1536 of 25 November 2015.

(3) In 2016 this amount corresponds to operating increases (€891 million) net of reversals for actuarial gains and losses (€(25) million).

30.1 PROVISIONS FOR POST-EMPLOYMENT BENEFITS

Details of these provisions are shown below:

(in millions of Euros)	31/12/2015	Increases		Decreases		31/12/2016
		Operating	Financial	Operating	Financial	
Provisions for post-employment benefits	9,814	765	666	(1,136)	(272)	9,837
comprising:						
Pensions	7,539	478	516	(930)	(261)	7,343
CNIEG expenses	437	8	12	(14)	–	443
Benefits in kind (energy)	1,362	199	104	(118)	–	1,547
Retirement gratuities	(15)	37	14	(44)	(11)	(19)
Other benefits	491	43	20	(30)	–	523

(in millions of Euros)	Obligations	Fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2016	29,878	(11,318)	(58)	(8,665)	9,837
comprising:					
Pensions	23,294	(10,797)	–	(5,155)	7,343
CNIEG expenses	499	–	–	(55)	443
Benefits in kind (energy)	4,580	–	–	(3,033)	1,547
Retirement gratuities	617	(506)	(35)	(95)	(19)
Other benefits	888	(15)	(23)	(327)	523

<i>(in millions of Euros)</i>	Obligations	Fund assets	Unrecognised past service cost	Unrecognised actuarial gains and losses	Provision in the balance sheet
Provisions for post-employment benefits at 31/12/2015	27,417	(10,251)	(68)	(7,284)	9,814
comprising:					
Pensions	21,629	(9,740)	–	(4,350)	7,539
CNIEG expenses	476	–	–	(39)	437
Benefits in kind (energy)	3,916	–	–	(2,554)	1,362
Retirement gratuities	597	(496)	(43)	(73)	(15)
Other benefits	799	(15)	(25)	(268)	491

The increase in obligations between 2015 and 2016 is principally related to the change in discount rate (2.4% at 31 December 2015, and 1.9% at 31 December 2016), the change in the inflation rate (1.6% at 31 December 2015, and 1.5% at 31 December 2016) and changes concerning the employees' energy benefits in kind.

30.2 PROVISIONS FOR OTHER LONG-TERM BENEFITS FOR CURRENT EMPLOYEES

The amount of obligations for other long-term benefits awarded to current employees is identical to the corresponding balance sheet provisions. Details are as follows:

<i>(in millions of Euros)</i>	31/12/2015	Increases		Decreases	31/12/2016
		Operating	Financial	Operating	
Provisions for other long-term benefits for current employees	945	126	22	(83)	1,009
comprising:					
Annuities following work-related accident and illness	820	90	19	(70)	859
Long service awards	102	32	3	(9)	128
Other	23	4	–	(4)	22

30.3 FUND ASSETS

Fund assets amount to €11,317 million at 31 December 2016 (€10,251 million at 31 December 2015) and are principally allocated to coverage of the past specific benefits earned under the special pension system (€10,797 million) and retirement gratuities (with target coverage of 100%) (€506 million).

Investments under the contracts concerned break down as follows:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
TOTAL FUND ASSETS	11,317	10,251
Assets funding special pension benefits	10,797	9,740
(%)		
Equities	31%	29%
Bonds and monetary instruments	69%	71%
Assets funding retirement gratuities	506	496
(%)		
Equities	33%	32%
Bonds and monetary instruments	67%	68%
Assets funding other benefits	15	15

30.4 ACTUARIAL ASSUMPTIONS

The main actuarial assumptions used for provisions for post-employment benefits and long-term employee benefits under the IEG system are summarised below:

- the discount rate is 1.9% at 31 December 2016 (2.4% at 31 December 2015);
- the inflation rate is estimated at 1.5% at 31 December 2016 (1.6% at 31 December 2015);
- the average residual period of employment is 19.35 years;
- the staff turnover rate is considered non-significant;
- the *tarif agent* (special energy price for EDF employees) includes changes in taxes based on that tariff;

- the expected return on fund assets covering past specific benefits under the special pension system is 2.68% for 2016;
- the expected return on fund assets covering retirement gratuities is 2.24% for 2016.

The discount rate used for employee benefit obligations is determined by applying the yield rate on high-quality corporate bonds based on their duration to maturities corresponding to the future disbursements resulting from these obligations.

The obligations are based on wage increase assumptions that are differentiated by age group and employee category, leading to an average annual rise of 1.7% excluding inflation (3.2% including inflation).

Note 31 Provisions for other expenses

(in millions of Euros)	31/12/2015	Operating increases	Decreases		Other	31/12/2016
			Utilisations	Reversals		
Provisions for :						
■ Personnel expenses	113	69	(93)	(1)	–	88
■ Renewal of facilities operated under concession	265	11	–	(12)	(2)	262
■ Other expenses	591	97	(153)	(5)	(1)	529
PROVISIONS FOR OTHER EXPENSES	969	177	(246)	(18)	(3)	879

Note 32 Liabilities

(in millions of Euros)	Maturity			Gross value at 31/12/2016	Gross value at 31/12/2015
	< 1 year	1 - 5 years	> 5 years		
Liabilities					
Bonds	2,312	12,415	35,416	50,143	46,958
Borrowings from financial institutions	–	–	1,245	1,245	561
Other borrowings	3,973	8	5	3,986	6,727
Other financial liabilities :					
■ Advances on consumption	2	8	19	29	31
■ Other	1,455	3	–	1,458	1,544
Financial liabilities (see Note 33)	7,742	12,434	36,685	56,861	55,821
Advances and progress payments received ⁽¹⁾	7,068	–	–	7,068	6,819
Trade payables and related accounts	7,023	55	25	7,103	6,623
Tax and social security liabilities ⁽²⁾	8,539	–	–	8,539	6,994
Liabilities related to fixed assets and related accounts	1,813	–	–	1,813	2,082
Other liabilities ⁽³⁾	15,717	–	–	15,717	17,042
Operating, investment and other liabilities	33,092	55	25	33,172	32,741
Cash instruments ⁽⁴⁾	2,411	2,005	867	5,283	3,969
Deferred income ⁽⁵⁾	733	943	1,951	3,627	3,698
TOTAL LIABILITIES	51,046	15,437	39,528	106,011	103,048

(1) Advances and progress payments received principally include monthly standing order payments by EDF's residential and business customers, amounting to €6,828 million (€6,682 million at 31 December 2015). The increase over 2015 is mainly explained by customers opting to pay their bills this way.

(2) In 2016 this item includes an amount of €1,632 million for the CSPE compensation to be collected by EDF on energy supplied but not yet billed (€1,258 million in 2015).

(3) Mainly the amount of current accounts, cash pooling and cash management agreements with subsidiaries.

(4) Essentially unrealised losses on foreign exchange instruments.

(5) Deferred income at 31 December 2016 comprises the partner advances made to EDF under nuclear plant financing plans and the associated long-term contracts, amounting to €1,822 million (€1,874 million in 2015). Deferred income on long-term contracts also includes the advance paid to EDF in 2010 under the agreement with the Exeltium consortium. This advance is transferred to the income statement progressively over the term of the contract.

Note 33 Financial liabilities

<i>(in millions of Euros)</i>	Balance at 31/12/2015	New borrowings	Repayments	Translation adjustments	Other	Balance at 31/12/2016
Bonds in Euros	1,013	–	–	–	–	1,013
Bonds in other currencies	15,174	–	(389)	524	–	15,309
Euro-Medium Term Notes (EMTN) in Euros	19,083	2,500	(1,100)	–	–	20,483
Euro-Medium Term Notes (EMTN) in other currencies	11,688	2,923	–	(1,273)	–	13,338
Bonds	46,958	5,423	(1,489)	(749)	–	50,143
Long-term loans in Euros	561	725	(41)	–	–	1,245
Borrowings from financial institutions	561	725	(41)	–	–	1,245
Negotiable debt instruments in Euros ⁽¹⁾	3,744	–	(2,070)	–	–	1,674
Negotiable debt instruments (non Euro) ⁽¹⁾	2,969	–	(731)	60	–	2,298
Contractual financial borrowings	14	–	–	–	–	14
Other borrowings	6,727	–	(2,801)	60	–	3,986
Total borrowings	54,246	6,148	(4,331)	(689)	–	55,374
Advances on consumption	31	–	–	–	(2)	29
Miscellaneous advances	82	15	(15)	–	–	82
Bank overdrafts	200	–	–	–	(66)	134
Deferred bank debits	14	–	–	–	24	38
Interest payable	1,248	–	–	–	(44)	1,204
Total other financial liabilities	1,544	15	(15)	–	(86)	1,458
TOTAL FINANCIAL LIABILITIES	55,821	6,163	(4,346)	(689)	(88)	56,861

(1) Issues net of repayments.

On 6 October 2016, EDF issued a senior bond in Euros and Swiss francs in several tranches, and a senior “Formosa bond” on the Taiwanese market in two tranches (see note 2.3).

Redemption of bonds totalled €1,489 million and concerned bonds in Euros and other currencies that reached maturity.

33.1 BREAKDOWN OF LOANS BY CURRENCY, BEFORE AND AFTER HEDGING INSTRUMENTS

<i>(in millions of Euros)</i>	Debt structure in balance sheet				Impact of hedging instruments		Debt structure after hedging			
	Non-Euro	In Euros	% Non-Euro	% of debt	Non-Euro	In Euros	Non-Euro	In Euros	% Non-Euro	% of debt
Total I – Euros		24,429		44		25,824		50,253		91
CHF	1,250	1,164	3.8	2	(1,250)	(1,164)	–	–	–	–
GBP	7,385	8,626	27.9	16	(3,000)	(3,505)	–	5,121	100	9
HKD	1,216	149	0.5	–	(1,216)	(149)	–	–	–	–
JPY	–	–	–	–	–	–	–	–	–	–
NOK	1,000	110	0.4	–	(1,000)	(110)	–	–	–	–
USD	22,027	20,896	67.5	38	(22,027)	(20,896)	–	–	–	–
Total II – Non-Euro currencies		30,945		56		(25,824)		5,121	100	9
TOTAL I+II		55,374		100		–		55,374		100

The nominal value of hedging instruments included in off-balance sheet commitments (see note 35.1) has no effect on loans in the balance sheet.

33.2 BREAKDOWN OF LOANS BY TYPE OF INTEREST RATE BEFORE AND AFTER HEDGING INSTRUMENTS

<i>(in millions of Euros)</i>	Debt structure in balance sheet			Impact of hedging instruments	Debt structure after hedging		
	Total	% 31/12/2016	% 31/12/2015		Total	% 31/12/2016	% 31/12/2015
Long-term borrowings and EMTN	49,936			(24,241)	25,695		
Short-term borrowings	3,972			–	3,972		
Borrowings at fixed rate	53,908	97	98	(24,241)	29,667	54	52
Long-term borrowings and EMTN	1,466			24,241	25,707		
Short-term borrowings	–			–	–		
Borrowings at floating rate	1,466	3	2	24,241	25,707	46	48
TOTAL	55,374	100	100	–	55,374	100	100

Note 34 Unrealised foreign exchange gains

Unrealised foreign exchange gains in 2016 amount to €384 million, of which €128 million concerned a borrowing in pounds sterling partly hedged by foreign exchange swaps (€292 million at 31 December 2015).

Other information

Note 35 Financial instruments

35.1 OFF-BALANCE SHEET COMMITMENTS RELATED TO CURRENCY AND INTEREST RATE DERIVATIVES

EDF uses financial instruments to limit the impact of foreign exchange rate risks and interest rate risks.

<i>(in millions of Euros)</i>	31/12/2016		31/12/2015	
	To be received (notional)	To be given (notional)	To be received (notional)	To be given (notional)
1 – Interest rate transactions				
Short-term interest rate swaps				
EUR	–	–	1,550	1,550
Long-term interest rate swaps				
EUR	7,423	7,423	7,855	7,855
USD	3,463	3,463	3,399	3,399
GBP	3,730	3,730	4,530	4,530
JPY	–	–	107	107
Sub-total	14,616	14,616	17,441	17,441
2 – Exchange rate transactions				
Forward transactions				
EUR	20,619	21,819	18,697	20,528
CAD	662	518	965	965
USD	15,756	14,644	15,841	12,015
GBP	5,624	4,575	3,887	4,902
CHF	141	242	145	276
HUF	458	458	226	362
PLN	1,360	1,432	1,116	1,473
JPY	48	862	107	247
CNY	–	–	136	136
MXN	60	60	71	71
Other	275	275	149	149
Long-term currency swaps				
EUR	9,315	35,407	8,871	34,470
JPY	–	113	336	106
USD	22,726	5,615	19,565	4,637
GBP	13,011	4,213	16,910	4,930
CHF	1,257	93	738	92
HUF	–	–	–	–
CAD	42	42	42	42
ILS	140	140	136	136
PLN	4	1	323	323
NOK	110	–	104	–
HKD	149	–	144	–
Sub-total	91,757	90,509	88,509	85,860
3 – Securitisation swaps	350	350	462	462
TOTAL FINANCIAL OFF-BALANCE SHEET COMMITMENTS	106,723	105,475	106,412	103,763
4 – Commodity swaps				
Coal <i>(in millions of tonnes)</i>	3	3	2	2
Oil products <i>(in thousands of barrels)</i>	7,634	7,634	5,890	5,890

The amounts shown in the above table are the nominal value of contracts, translated where necessary using 2016 year-end exchange rates (regardless of whether they are classified as hedges).

35.2 IMPACTS OF FINANCIAL INSTRUMENT TRANSACTIONS ON NET INCOME

<i>(in millions of Euros)</i>	2016	2015
Instruments not classified as hedges		
Realised gains and losses	273	857
Unrealised gains and losses	(1,252)	(619)
Interest rate instruments (swap, cap and floor, FRA, option) ⁽¹⁾	136	(3)
Instruments classified as hedges		
Interest rate instruments (swap, cap and floor, FRA)	596	306
Exchange rate instruments (currency swap)	94	526

(1) Including interest on swaps.

35.3 FAIR VALUE OF DERIVATIVE FINANCIAL INSTRUMENTS

The fair value of currency and interest rate swaps was calculated by discounting future cash flows using year-end market exchange and interest rates, over the remaining term of the contracts (market value includes accrued interest).

The book value of off-balance sheet derivatives includes accrued interest, equalisation payments and premiums paid or received, plus translation adjustments, which are already booked in EDF's accounts. The difference between book value and market value is the unrealised gain or loss.

The fair value of derivative financial instruments reported off-balance sheet at 31 December 2016 as calculated by EDF is as follows:

<i>(in millions of Euros)</i>	Book value	Fair value
Interest rate hedges		
■ Long-term swaps	132	2,027
■ Short-term swaps	1	–
Exchange rate hedges		
■ Forward exchange transactions	(102)	8
■ Long-term currency swaps	1,277	14
Commodity hedges		
■ Coal	–	(34)
■ Oil products	–	92
TOTAL	1,308	2,107

Note 36 Other off-balance sheet commitments and operations

At 31 December 2016, off-balance sheet commitments related to operations, financing and investments (other than electricity supply commitments and partnership agreements) comprise the following:

(in millions of Euros)	Maturity				31/12/2016	31/12/2015
	< 1 year	1 - 5 years	5 - 10 years	> 10 years		
Off-balance sheet commitments given	13,666	20,995	12,490	11,286	58,437	52,204
Operating commitments	7,766	14,651	11,587	11,228	45,232	39,546
■ Commitments related to fuel and energy purchases	5,080	11,441	10,787	10,974	38,282	32,925
■ Other operating commitments	2,686	3,210	800	254	6,950	6,621
Investment commitments	3,326	4,299	394	46	8,065	8,829
Financing commitments	2,574	2,045	509	12	5,140	3,829
Off-balance sheet commitments received	5,971	9,663	268	174	16,076	11,682
Operating commitments	1,574	1,242	268	174	3,258	1,771
Investment commitments	2,582	21	–	–	2,603	5
Financing commitments	1,815	8,400	–	–	10,215	9,906

36.1 COMMITMENTS GIVEN

In almost all cases, commitments given are reciprocal, and the third parties concerned are under a contractual obligation to supply EDF with assets or services related to operating, investment and financing transactions.

36.1.1 Fuel and energy purchase commitments

In the course of its ordinary generation and supply activities, EDF has entered into long-term contracts for purchases of electricity, other energies and commodities and nuclear fuel, for periods of up to 20 years.

At 31 December 2016, these commitments mature as follows:

(in millions of Euros)	Maturity				31/12/2016	31/12/2015
	< 1 year	1 - 5 years	5 - 10 years	> 10 years		
Electricity purchases and related services	3,361	3,417	3,881	5,810	16,469	14,179
Nuclear fuel purchases	1,719	8,024	6,906	5,164	21,813	18,746
FUEL AND ENERGY PURCHASE COMMITMENTS	5,080	11,441	10,787	10,974	38,282	32,925

Electricity purchases and related services

Electricity purchase commitments mainly concern:

- Island Energy Systems (SEI), which has given commitments to purchase electricity generated from bagasse and coal, and electricity generated by the plants of EDF's Island Electricity Production subsidiaries;
- hedging contracts: these are forward purchases, for which the volumes and prices are set in contracts with EDF Trading.

In addition to the obligations reported above and under Article 10 of the Law of 10 February 2000, in mainland France EDF is obliged, at

the producer's request and subject to compliance with certain technical features, to purchase the power produced by co-generation plants and renewable energy generation units (wind turbines, small hydro-electric plants, photovoltaic power, etc).

The additional costs generated by this obligation are offset, after validation by the CRE, by the CSPE. These purchase obligations total 43TWh for 2016 (41TWh for 2015), including 6TWh for co-generation (5TWh for 2015), 20TWh for wind power (20TWh for 2015), 8TWh for photovoltaic power (7TWh for 2015) and 3TWh for hydropower (3TWh for 2015).

Nuclear fuel purchases

Commitments for purchases of nuclear fuel arise from supply contracts for the nuclear plants intended to cover the EDF group's needs for uranium and fluorination, enrichment and fuel assembly production services.

The rise in these commitments is mainly explained by the signature of new contracts with AREVA in 2016 for purchases of natural uranium, fluorination services and enrichment services. These contracts notably relate to fuel supplies for the two EPRs at the Hinkley Point site in the United Kingdom.

36.1.2 Other operating commitments

These are mostly commitments undertaken by EDF through signature of orders relating to operations or contracts in progress, related guarantees, and commitments as lessee under irrevocable operating lease contracts principally for premises, equipment and vehicles. The corresponding rents are subject to renegotiation at intervals defined in the contracts.

36.1.3 Investment commitments

Investment commitments are mostly commitments for acquisition of property, plant and equipment. The decrease in EDF's commitments for acquisition of intangible assets and property, plant and equipment is explained by the progress on the Flamanville 3 EPR project, and changes in contracts for replacement of steam generators.

On 15 November 2016 EDF also embarked on a process to purchase New AREVA NP, a subsidiary of AREVA NP (see note 2.4).

36.1.4 Financing commitments

These are commitments by EDF to its subsidiaries, primarily €2,060 million to EDF Trading, €809 million to Edison, €109 million to EDF Énergies Nouvelles and €800 million to Enedis.

36.2 COMMITMENTS RECEIVED

36.2.1 Operating commitments

These commitments mainly comprise:

- operating lease commitments received as lessor;
- operating guarantees received;
- operating sale commitments, essentially concerning engineering services for HPC.

36.2.2 Financing commitments

These commitments correspond to the total value of credit lines available to EDF from various banks.

36.2.3 Investment commitments

Investment commitments received at 31 December 2016 primarily include an amount of €2,566 million for the future sale of 49.9% of the subsidiary RTE via the new company C25 (see note 2.5).

36.3 OTHER TYPES OF COMMITMENT

36.3.1 Electricity supply commitments

In the course of its business, EDF has signed long-term contracts to supply electricity as follows:

- long-term contracts with a number of European electricity operators, for a specific plant or for a defined group of plants in the French nuclear generation fleet, corresponding to installed power capacity of 3.5GW;
- in execution of France's NOME Law on organisation of the French electricity market, EDF has a commitment to sell some of the energy generated by its existing nuclear power plants to other suppliers. This covers volumes of up to 100TWh each year until 31 December 2025.

36.3.2 Gas purchases and related services

Gas purchase commitments are given by EDF in connection with its expanding gas supply business.

Gas purchases for supply, delivery and storage are mostly undertaken through long-term contracts and forward purchases from EDF Trading.

In 2011, EDF signed a capacity subscription contract for the Dunkirk methane terminal, which began commercial operations in early January 2017.

Note 37 Contingent liabilities

PERSONAL TRAINING ACCOUNT (COMPTE PERSONNEL DE FORMATION OR CPF)

French Law 2014-288 of 5 March 2014, which took effect from 1 January 2015, reformed the system for in-service training, replacing the former Individual training entitlement (*Droit Individuel à la Formation* or DIF) by the Personal Training Account (*Compte Personnel de Formation* or CPF). The CPF is a "universal" system that relates to the person, not the work contract. It concerns all EDF's employees, whether full or part-time, on permanent or fixed-term contracts, and there is no requirement concerning the length of service. It represents a progressive "capital" of training time entitlement, capped at 150 hours.

TAX INSPECTIONS

Following inspections of previous years' accounts, the French tax authorities are challenging the tax-deductibility of the provision for annuities following work-related accidents and illness paid by the Company. As this is an issue that relates to the special gas and electricity (IEG) statutes, it also concerns RTE, Enedis and Électricité de Strasbourg. The Group is contesting the tax authorities' position on this question. The National Commission of direct taxes and sales taxes issued several opinions that were favourable to RTE and EDF. EDF and its subsidiaries RTE and Électricité de Strasbourg also received favourable rulings from Montreuil Administrative Court which were all upheld by the Versailles Administrative Appeal Court. The authorities filed appeals

against these decisions before the Council of State. If the outcome of this dispute is unfavourable, the financial risk for the Group (payment of back income taxes) could amount to some €250 million.

EDF was notified in late 2011 of a proposed rectification for 2008 particularly concerning the tax-deductibility of certain long-term liabilities. This rectification, which may apply each year, represents a financial risk of some €500 million in income taxes at 31 December 2016.

The tax authorities also issued notice of a reassessment concerning an interest-free advance made by EDF to its indirect subsidiary Lake Acquisitions Ltd. in connection with the acquisition of British Energy. The out-of-court negotiations initiated by EDF had a favourable outcome for the Group during 2016.

In late 2015 the tax authorities issued notice to the Company of the recurring reassessments stated above for the years 2012 and 2013, and challenged the deductibility of certain long-term provisions.

LABOUR LITIGATION

EDF is party to a number of labour lawsuits with employees, primarily regarding working hours. EDF estimates that none of these lawsuits, individually, is likely to have a significant impact on its financial results or financial position. However, because they relate to situations that could concern a large number of EDF's employees in France, any increase in such litigations could have a potentially negative impact on EDF's financial position.

Note 38 Dedicated assets

38.1 REGULATIONS

Article L. 594 of France's Environment Code and its implementing regulations require assets (dedicated assets) to be set aside for secure financing of nuclear plant decommissioning expenses and long-term storage expenses for radioactive waste. The regulations govern the way dedicated assets are built up, and the management and governance of the funds themselves. These assets are clearly identified and managed separately from the company's other financial assets and investments. They are also subject to specific monitoring and control by the Board of Directors and the administrative authorities.

The law requires the realisable value of these dedicated assets to be higher than the value of the provisions corresponding to the present value of the long-term nuclear expenses defined above.

The Decree of 29 December 2010 made RTE shares eligible for inclusion in dedicated assets subject to certain conditions and administrative authorisation. The Decree of 24 July 2013 revised the list of eligible assets by reference to the Insurance Code, and unlisted securities are also now eligible subject to certain conditions.

The Decree of 24 March 2015 contains two measures concerning dedicated assets:

- the annual allocation to dedicated assets, net of any increases to provisions, must be positive or zero as long as their realisable value is below 110% of the amount of the provisions concerned;

- subject to certain conditions, real estate property owned by the operators of nuclear facilities may be allocated to coverage of these provisions.

Subject to certain conditions, the Decree of 19 December 2016 allows allocation of the shares of C25, which holds 100% of the capital of RTE, to the portfolio of dedicated assets at 31 December 2016 (see note 38.2.2 below).

38.2 PORTFOLIO CONTENTS AND MEASUREMENT

Given the applicable regulations, these dedicated assets are a highly specific category of assets.

The dedicated assets are structured and managed according to a strategic allocation defined by the Board of Directors and reported to the administrative authorities. The strategic allocation is designed to meet the overall objective of long-term coverage of obligations, and determines the structure and management of the portfolio as a whole. It takes into account regulatory constraints concerning the nature and liquidity of the dedicated asset, the financial outlook for the equity and bond markets, and the diversifying contribution of unlisted assets.

As part of the strategic allocation review process and in order to pursue the diversification into unlisted assets begun in 2010 with the shares in RTE, in 2013 the Board of Directors approved the introduction of an unlisted asset portfolio alongside the diversified equity and bond investments. This portfolio is managed by the EDF Invest Division, which was formed following the Decree of 24 July 2013 on securing the funding for nuclear expenses.

EDF Invest has three target asset classes: principally infrastructures, and also real estate and private equity funds.

Following the French government's authorisation issued on 8 February 2013, and the approval of the Nuclear Commitments Monitoring Committee and the Board of Directors' decision of 13 February 2013, EDF allocated the entire receivable recognised by the French state, representing the accumulated shortfall in CSPE financing at 31 December 2012, to its dedicated assets.

This financial receivable was increased in the financial statements at 31 December 2015 by an additional amount estimated at €644 million that was not allocated to dedicated assets, corresponding to the shortfalls in compensation that arose between the beginning of 2013 and the end of 2015, as acknowledged by the State in a ministerial letter of 26 January 2016. In accordance with this letter, the total financial receivable bears interest at 1.72% and will be repaid under a revised schedule ending in late 2020. This schedule was laid down in a decision of 2 December 2016, based on the CRE's confirmation of the shortfall for 2015.

On 22 December 2016, EDF assigned a 26.4% portion of this financial receivable, including the additional receivable corresponding to the shortfalls in compensation between 2013 and 2015, to a pool of investors.

Consequently, the realisable value of the non-assigned portion of the receivable, which is totally allocated to dedicated assets, is calculated based on the assignment value at that date.

The amount received for assignment of the portion of the CSPE receivable that was allocated to dedicated assets (€894 million) has been reinvested in dedicated assets (currently, in the "Cash portfolio") (see note 2.6).

38.2.1 Diversified equity and bond investments

Certain dedicated assets take the form of bonds held directly by EDF. The rest comprise specialised collective investment funds on leading international markets, managed by independent asset management companies. They take the form of open-end funds and "reserved" funds established solely for the use of EDF (which does not participate in the fund management).

Details of the portfolio at 31 December 2016 are as follows:

(in millions of Euros)	31/12/2016		31/12/2015	
	Net book value	Fair value or realisable value	Net book value	Fair value or realisable value
Investments – C25 (RTE) ⁽¹⁾	3,905	3,905	2,015	2,580
Investment Securities ⁽²⁾	13,917	16,027	12,563	14,418
Other financial investments	1,291	1,477	1,090	1,233
Dedicated assets – Investments	19,113	21,409	15,668	18,231
CSPE receivable ⁽³⁾	4,184	4,288	5,228	5,232
Total dedicated assets before hedging	23,297	25,697	20,896	23,463
Hedging instruments and other	(20)	(20)	24	17
TOTAL DEDICATED ASSETS AFTER HEDGING⁽²⁾	23,277	25,677	20,920	23,480

(1) In 2016, 75.93% of EDF's investment in C25, the company owning the shares in RTE. The shares of C25 allocated to dedicated assets at 31 December 2016 are classified as "Investments" (€2,577 million) and "Investment securities" (€1,328 million). In 2015, 50% of the investment in RTE. The realisable value of the shares of C25 is based on the sale price (see note 2.5).

(2) By limiting the value of certain investments in compliance with Article 16 of Decree 2007-243 concerning calculation of the regulatory realisable value of dedicated assets, the regulatory realisable value is reduced to €24,312 million at 31 December 2016 and could reach €25,653 million in 2017 once the sale of some of the shares in C25 (the company owning the shares of RTE) is completed, which should be during the first half of 2017.

(3) The receivable consisting of shortfalls in compensation at 31 December 2015, less the portion assigned on 22 December 2016 for the amount of €894 million, which has been reinvested in dedicated assets (see note 2.6). After the partial assignment, the fair value of the CSPE receivable was adjusted based on current market rates.

Net book value and fair value include unmatured accrued interest.

These investments are structured and managed in line with the strategic allocation, which takes into consideration international stock market cycles, for which the statistical inversion generally observed between equity market cycles and bond market cycles – as well as between geographical areas – has led EDF to define an overall composite benchmark indicator that guarantees continuation of the long-term investment policy.

38.2.2 Unlisted assets (EDF Invest)

The assets managed by EDF Invest consist of unlisted securities related to investments in infrastructures, real estate, and private equity funds.

At 31 December 2016, the assets managed by EDF Invest represent a realisable value of €5,633 million, mainly including:

- 75.93% of the Group's shares in C25, the company that owns RTE, in compliance with Decree 2016-1781 of 19 December 2016 amending the Decree of 23 February 2007. These shares amount to €3,905 million at 31 December 2016 (€2,580 million for 50% of the shares in RTE at 31 December 2015) (see note 2.5);
- EDF's investment in TIGF, Porterbrook, Thyssengas, Aéroports de la Côte d'Azur, Madriľeña Red de Gas (MRG) and Géosel.

38.2.3 Valuation of EDF's dedicated assets

Dedicated assets are classified in the balance sheet according to their accounting nature: investments, investment securities, and marketable securities. They are valued under the accounting principles presented in note 1.

38.2.4 Changes in dedicated assets in 2016

At 31 December 2016, the degree of coverage of provisions by dedicated assets was 99.8% applying the regulatory calculations. All other things being equal, this coverage should reach 105.3% after completion of the sale of some of the shares of C25, which is planned for the first half of 2017. Without application of the regulatory limits set by Decree 2007-243, the provision coverage rate is 105.4%.

Withdrawals totalled €377 million, equivalent to the payments made in respect of the long-term nuclear obligations to be covered in 2016 (€378 million in 2015). No allocations to dedicated assets took place in 2016 (allocation of €38 million in 2015). The €972 million of allocations yet to be made, as reported at 31 December 2015, no longer applied at 30 June 2016, largely due to the extension of the depreciation period for 900MW PWR plants which led to a reversal of €1,657 million from the provisions covered by dedicated assets (see note 2.1).

However, at 31 December 2016, notably due to the decrease in the real discount rate at the year-end, increases to provisions that must be offset by allocations to dedicated assets under the Decree of 24 March 2015 amount to a total €1,095 million. EDF will allocate this amount to dedicated assets over the month following finalisation of its financial statements, in accordance with the Letter of 10 February 2017 from the Minister for the Economy and Finance, and the Minister for the Environment, Energy and the Sea.

After a sharp drop in the early part of the year, the financial markets ended 2016 on a positive note despite instability in the international

political environment, which generally put active management policies at a disadvantage. Against this background, the financial portfolio (equities and debt instruments) was managed conservatively, especially with underweighting on the emerging markets at the beginning of the year. But the difference in equity allocations had been made up by the end of the year, particularly on emerging equities. For the bond portfolio, sensitivity was reduced to provide protection against a new rise in rates.

For the unlisted asset portfolio, EDF Invest continued over 2016 to build up a portfolio of infrastructures, real estate property and investment funds.

On 5 October 2016 EDF Invest and the Dutch infrastructure fund DIF announced their 50/50 acquisition of Thyssengas, one of Germany's principal regulated gas transport networks.

On 9 November 2016, once the regulatory authorisations had been received, Atlantia and EDF Invest, through their 75%/25% investment vehicle Azzurra Aeroporti Srl, acquired a 64% stake in Aéroports de la Côte d'Azur (ACA), the company that manages the French airports of Nice-Côte d'Azur, Cannes-Mandelieu and Saint Tropez, and the Sky Valet international business aviation service network.

These investments are allocated to EDF Invest's Infrastructures pocket, alongside other investments including TIGF, Porterbrook, MRG, Géosel and C25 (the company owning the shares of RTE).

A total of €428 million in net gains on disposals from the financial portfolio was recorded in the financial result in 2016 (€972 million in 2015).

38.3 PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS

The long-term nuclear obligations concerned by the regulations for dedicated assets are included in EDF's financial statements at the following values:

<i>(in millions of Euros)</i>	31/12/2016	31/12/2015
Provisions for spent fuel management – portion unrelated to the operating cycle as defined in the regulations	820	–
Provisions for long-term radioactive waste management	8,966	8,254
Provisions for nuclear plant decommissioning	14,122	14,930
Provisions for last cores – portion for future long-term radioactive waste management	450	462
PRESENT COST OF LONG-TERM NUCLEAR OBLIGATIONS	24,358	23,646

Note 39 Related parties**39.1 RELATIONS WITH SUBSIDIARIES**

(in millions of Euros)	EDF's receivables ⁽¹⁾		EDF's liabilities ⁽¹⁾			Financial income (excluding dividends)
	Loans	Trade receivables	Net liabilities included in current account	Trade liabilities	Financial expenses	
Companies						
C48	–	–	–	–	–	(4)
EDF Energy	–	127	–	129	–	1
EDF Énergies Nouvelles	1,158	–	–	–	–	21
EDF Energy UK Ltd. EU	1,506	–	–	–	–	58
EDF International	4,560	–	–	–	–	73
EDF Trading	–	1,243	–	1,264	–	1
Edison Nouveau	220	–	–	–	–	2
ENEDIS	–	123	–	1,776	–	–
Dalkia France	1,068	–	–	92	–	26
Groupe PEI	926	–	–	–	–	21
SOCODEI	50	–	–	–	–	–
RTE	–	218	–	91	–	30
Current account with ENEDIS	–	–	–	2,378	–	–
Group cash management agreement with subsidiaries ⁽²⁾	–	–	5,217	–	(3)	–
Tax consolidation agreement	–	88	–	1,256	–	–
Agreement for investment of subsidiaries' cash surpluses	–	–	1,497	–	(10)	–

(1) Receivables and payables of more than €50 million.

(2) Including €1,560 million concerning EDF Trading and €1,433 million concerning EDF International.

39.2 RELATIONS WITH THE FRENCH STATE AND STATE-OWNED ENTITIES**39.2.1 Relations with the French State**

The French State holds 85.62% of the capital of EDF at 31 December 2016, and is thus entitled in the same way as any majority shareholder to control decisions that require approval by the shareholders.

In accordance with the legislation applicable to all companies having the French State as their majority shareholder, EDF is subject to certain inspection procedures, in particular economic and financial inspections by the State, audits by the French Court of Auditors (*Cour des comptes*) or Parliament, and verifications by the French General Finance Inspectorate (*Inspection générale des finances*).

The public service contract between the French State and EDF was signed on 24 October 2005. This contract is intended to form the framework for public service missions assigned to EDF by the lawmaker for an unlimited period. The Law of 9 August 2004 does not stipulate the duration of the contract.

EDF, like other electricity producers, also participates in the multi-annual energy programme established in the Decree of 27 October 2016, which defines objectives for generation and load shedding.

Finally, the French State intervenes through the regulation of electricity and gas markets, particularly for authorisation to build and operate generation facilities, establishment of sales tariffs for customers that have stayed on the regulated tariffs, transmission and distribution tariffs, and also determination of the ARENH price in accordance with France's Energy Code, and the level of the Contribution to the Public Electricity Service.

39.2.2 Relations with public sector entities

EDF's relations with public sector entities mainly concern the AREVA group.

Transactions with AREVA concern:

- the front-end of the nuclear fuel cycle (uranium supplies, conversion and enrichment services and fuel assembly production);
- the back-end of the nuclear fuel cycle (transportation, storage, processing and recycling services for spent fuel);
- plant maintenance operations and equipment purchases.

On 15 November 2016 the Board of Directors approved the terms of the contract for the sale of an investment that would give EDF exclusive control over "New AREVA NP", a fully-owned subsidiary of AREVA NP (see note 2.4).

Front-end of the cycle

In December 2014, EDF and AREVA NP signed a contract for supplies of enriched-uranium fuel assemblies from 2015.

Several important agreements were also negotiated:

- for supplies of natural uranium: an AREVA Mines contract covering the period 2021-2030;
- for fluorination: a contract covering the period 2019-2030;

- for enrichment of natural uranium into uranium 235: an AREVA NC contract for the period 2019-2030.

As part of the plan to construct two EPRs in the United Kingdom at the Hinkley Point site, on 29 September 2016 EDF and AREVA signed a uranium contract with AREVA Mines, a conversion contract and enrichment contract with AREVA NC, and a fabrication contract with AREVA NP.

Back-end of the cycle:

Relations between EDF and AREVA concerning transportation, processing and recycling of spent fuels are described in note 28.1.

EDF and AREVA have signed the following contracts for the 1,300MW nuclear power plants:

- in 2011, a contract for supply of 32 steam generators and a contract for renewal of the control/command systems;
- in August 2012, a contract for services related to replacement operations for the first steam generators.

In 2013, EDF and AREVA signed two amendments to the initial 2007 contract for the Flamanville EPR boiler, covering the period from development studies to industrial commissioning.

EDF owns a very small minority shareholding in AREVA (2.24%).

Note 40 Environment

40.1 GREENHOUSE GAS EMISSION RIGHTS

In ratifying the Kyoto Protocol, Europe made a commitment to reduce its greenhouse gas emissions. EU Directive 2003/87/EC set up a greenhouse gas emission quota system for the European Union which has been operated since 1 January 2005.

This system is adapted into national laws. Among other things it requires obligated actors, of which is the case of EDF, to surrender to the State each year a number of greenhouse gas emission credits corresponding to their emissions for the year. This Directive came into effect in 2005 for an initial three-year period, followed by a second period from 2008 to 2012, with progressive reduction of the emission rights allocated.

One of the main features of the third phase, running from 2013 to 2020, is the discontinuation of free allocation of emission rights in certain countries, including France. EDF thus purchases emission credits on the market, or makes investments in developing countries (through the clean development mechanism) to cover all the emission credits that must be surrendered annually.

In 2016, EDF surrendered 7 million tonnes in respect of emissions generated in 2015. In 2015, EDF surrendered 9 million tonnes in respect of emissions generated in 2014.

The volume of emissions at 31 December 2016 stood at 8 million tonnes (7 million tonnes at 31 December 2015).

40.2 ENERGY SAVINGS CERTIFICATES

In France, the Law of 13 July 2005 introduced a system of energy savings certificates. Suppliers of energy (electricity, gas, heat, cold, domestic fuel oil and fuel for vehicles) with sales above a certain level are subject to energy savings obligations for a defined period. They fulfil these obligations by making direct or indirect energy savings rewarded by certificates, or by purchasing energy savings certificates. At the end of the set period, the entities concerned must provide evidence of compliance with obligations by surrendering the certificates, or pay a fine to the Treasury.

The French system was renewed by Decree 2014-1557 of 24 December 2014 for a third period running from 1 January 2015 to 31 December 2017. The energy savings objectives for this period are more ambitious, and the system has been simplified. The volumes of energy savings certificates obtained during the second period will count towards achievement of the objectives for the third period.

In application of Article 30 of the Law of 17 August 2015 on the energy transition for green growth, a new additional energy savings obligation for 2016-2017 applies from 1 January 2016, for the benefit of households in a situation of energy poverty. This new obligation is added to the energy savings obligations for the third period. The annual volume of the obligation is proportional to the annual energy savings obligation.

EDF is well-placed to meet its obligations thanks to energy-efficient offers for each market segment: residential customers, business customers, local authorities and organisations funding social projects.

Note 41 Management compensation

The Company's key management and governance personnel are the Chairman and CEO and the directors. Directors representing the employees receive no remuneration for their services, in accordance with the law.

The total gross compensation paid by EDF (salaries, all types of benefits and director's fees, excluding employer contributions) to the company's key management personnel was as follows:

(in Euros)	2016	2015
Chairman and CEO ⁽¹⁾	452,868	500,236
Directors ⁽²⁾	475,500	311,055

(1) On 8 April 2015 the Board of Directors set the fixed annual compensation of the Chairman and Chief Executive Officer at the gross remuneration of €450,000 for the years 2014 and 2015, and decided that for 2014 this compensation would be calculated in proportion to the appointment of Mr. Jean-Bernard Lévy as interim Chairman and Chief Executive Officer on 23 November 2014, i.e. a gross amount of €47,368 for 2014, paid in 2015. At its meeting of 15 February 2016 the Board decided to keep the fixed annual gross compensation of the Chairman and Chief Executive Officer at €450,000 for 2016.

(2) In application of the Ordinance of 20 August 2014, the number of directors receiving directors' fees for their work on the Board of Directors rose from 5 to 11 after renewal of the Board on 23 November 2014. On 8 March 2016 the Board of Directors decided to submit a proposal to the shareholders at their general meeting to be held on 12 May 2016, to increase the annual budget for directors' fees to €510,000 for 2016 (from €440,000 in 2015), in order to specifically remunerate directors for the work done in 2015 and 2016 by the independent directors' working group in connection with EDF's project of acquiring control of AREVA NP.

Note 42 Subsequent events

Subsequent developments concerning changes in particular in 2017 in the regulatory limits on the discount rate used to calculate nuclear provisions in France, are referred to in notes 28.5.1 and 38.2.4.

42.1 ¥137 BILLION SAMURAI BOND ISSUE

On 20 January 2017, EDF raised ¥137 billion, i.e. around €1.1 billion, through 4 senior bonds issue on the Japanese market ("Samurai bonds") with maturities of 10 years and more:

- ¥107.9 billion bond, with a 10-year maturity and a fixed coupon of 1.088%;
- ¥19.6 billion green bond, with a 12-year maturity and a fixed coupon of 1.278%;
- ¥6.4 billion green bond, with a 15-year maturity and a fixed coupon of 1.569%;
- ¥3.1 billion bond, with a 20-year maturity and a fixed coupon of 1.870%.

With the issuance of two green tranches totalling ¥26 billion dedicated to the financing of its renewable investments, EDF has opened the Samurai green bond market, continuing its active contribution to the development of green bonds as financing instruments for the energy transition.

42.2 BOARD OF DIRECTORS' MEETING HELD ON 13 FEBRUARY 2017

During its meeting held on 13 February 2017, the Board of Directors of EDF decided to carry out a capital increase with preferential subscription rights to existing shareholders for a total amount, including issue premium, of approximately €4 billion, as announced on 22 April 2016.

EDF intends to launch this capital increase before the end of the first quarter of 2017, subject to market conditions and after having received the visa from the French *Autorité des marchés financiers* (AMF) on the prospectus. This transaction will be executed, after a new deliberation of the Board of Directors, in accordance with the delegation of authority which has been granted to it by the second resolution adopted at the extraordinary general meeting of the shareholders of the company held on 26 July 2016.

The French State, EDF's largest shareholder, has committed to subscribe for new shares in an amount of €3 billion out of the total amount of approximately €4 billion.

6.4 Statutory Auditors' report on the financial statements

This is a free translation into English of the Statutory Auditors' report on the financial statements issued in French and is provided solely for the convenience of English speaking readers.

This Statutory Auditors' report includes information specifically required by French law in such reports, whether qualified or not. This information is presented below the audit opinion on the financial statements and includes an explanatory paragraph discussing the auditor's assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the financial statements taken as a whole and not to provide separate assurance on individual account balances transactions, or disclosures.

The report also includes information relating to the specific verification of information given in the Company's management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

Year ended 31 December 2016

To the Shareholders

Following our appointment as Statutory Auditors by your General Meeting, we hereby report to you, for the year ended 31 December 2016 on:

- the audit of the accompanying financial statements of Electricité de France SA (the "Company");
- the justification of our assessments;
- the specific verification required by law.

The financial statements have been approved by the Board of Directors. Our role is to express an opinion on these financial statements based on our audit.

1. OPINION ON THE FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, using sample testing techniques or other selection methods, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting policies used and significant accounting estimates made, as well as the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Company and of the results of its operations for the year then ended in accordance with French accounting principles.

Without qualifying our conclusion, we draw your attention to the following matters set out in the notes to the financial statements:

- the impacts of the change of accounting estimate at 1 January 2016, as described in note 2.1 and relating to the extension to 50 years of the accounting depreciation period of the 900MW PWR power plants in France;
- the valuation of long-term provisions relating to nuclear electricity production, which results from management's best estimates and assumptions as described in notes 1.2.1 and 28 to the financial statements. This valuation is sensitive to the assumptions made concerning technical processes, costs, inflation rates, long-term discount rates, depreciation period of the nuclear power plants as well as forecast cash outflows. Changes in these parameters could lead to a material revision of the level of provisioning.

2. JUSTIFICATION OF ASSESSMENTS

In accordance with the requirements of Article L. 823-9 of the French commercial Code, we have made our own assessments which are brought to your attention, in relation to the following matters:

Accounting principles and policies

Notes 1.3, 1.7 and 1.16 to the financial statements describe the principles and policies used for the accounting and valuation of revenues related to energy delivered but not yet measured nor billed, the valuation of financial investments and the determination of provisions for employee benefits.

As part of our assessment of the Company's accounting principles and methods, we have verified the appropriateness of the accounting methods used by the Company and the information disclosed in the notes to the financial statements, as well as the accuracy of the implementation of these accounting methods.

Management judgments and estimates

Note 1.2 to the financial statements describes the main sensitive accounting policies for which management exercises judgment and makes estimates, based on macro-economic assumptions appropriate to the very long-term cycle of Company assets. It may be possible that future results could differ from those estimates, which were made in a context of prolonged market decline, thus resulting in difficulties to assess the economic outlook in the medium term.

Particularly, the Company describes in the notes to the financial statements the information related to:

- the valuation of investments (notes 1.7 and 18);
- the provisions for employee benefits (notes 1.2.2, 1.16 and 30), other provisions and contingent liabilities (notes 1.15 and 37);
- the methods used to account for the shortfall in the compensation and the financing mechanism for Public Energy Service Charges – *Compensation des charges de Service Public de l'Énergie* – (notes 3.3 and 18.6).

Our procedures consisted in assessing these estimates, data assumptions, and as applicable, the legal opinions on which they are based, reviewing, on a test basis, technical data and calculations performed by the Company, comparing accounting estimates of prior periods with corresponding actual amounts, reviewing the procedures for approving these estimates by management and finally verifying that the notes to the financial statements provide appropriate disclosures.

These assessments were made as part of our audit of the financial statements taken as a whole and contributed to the opinion we formed which is expressed in the first part of this report.

3. SPECIFIC VERIFICATION

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law.

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the management report of the Board of Directors, and in the documents addressed to shareholders with respect to the financial position and the financial statements.

Concerning the information given in accordance with the requirements of Article L. 225-102-1 of the French Commercial Code relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your Company from companies controlling your Company or controlled by it. Based on this work, we attest the accuracy and fair presentation of this information.

In accordance with French law, we have verified that the required information concerning the identity of the shareholders and holders of the voting rights has been properly disclosed in the management report.

Paris - La Défense and Neuilly-sur-Seine, 13 February 2017

The Statutory Auditors

KPMG Audit

Department of KPMG SA

Jacques-François Lethu

Jean-Louis Caulier

Deloitte & Associés

Alain Pons

Anthony Maarek

6.5 Five-year summary of EDF results

(Taken from EDF's corporate financial statements):

	2016	2015	2014	2013	2012
Capital at year-end					
Capital (in millions of euros)	1,055	960	930	930	924
Capital contributions (in millions of euros)					
Number of ordinary shares in existence	2,109,136,683	1,920,139,027	1,860,008,468	1,860,008,468	1,848,866,662
Number of priority dividend shares (with no voting rights) in existence					
Maximum number of future shares to be created					
by conversion of bonds					
by exercise of subscription rights					
Operations and results of the year (in millions of euros)					
Sales excluding taxes	40,857	41,553	41,717	43,423	44,106
Earnings before taxes, employee profit sharing, depreciation and provisions	9,495	7,224	8,252	6,782	7,978
Income taxes	680	(63)	577	748	460
Employee profit share for the year					
Earnings after taxes, employee profit sharing, depreciation and provisions	5,517	271	1,649	2,938	3,566
Earnings distributed			2,327 ⁽¹⁾	2,327 ⁽¹⁾	2,309 ⁽¹⁾
Interim dividend distributed	1,006	1,059	1,059	1,059	1,053
Earnings per share (€/action)					
Earnings after taxes and employee profit sharing, before depreciation and provisions	4.18	3.79	4.13	3.24	4.07
Earnings after taxes, employee profit sharing, depreciation and provisions	2.62	0.14	0.89	1.58	1.93
Dividend per share		1.10 ⁽⁴⁾	1.25 ⁽¹⁾⁽³⁾	1.25 ⁽¹⁾⁽³⁾	1.25 ⁽¹⁾
Interim dividend per share	0.50	0.57	0.57	0.57	0.57
Personnel					
Average number of employees over the year	69,494	70,769	70,153 ⁽²⁾	68,643 ⁽²⁾	64,303
Total payroll expense for the year (in millions of euros)	4,001	3,964	3,905	3,843	3,687
Amounts paid for employee benefits and similar (social security, company benefit schemes, etc.) (in millions of euros)	2,873	2,848	2,699	2,614	2,551

(1) Including the interim dividend paid out.

(2) The scope of the workforce was broadened (mainly to include apprentices). At constant scope, the figures are 66,876 for 2014 and 65,775 for 2013.

(3) I.e. €1.375 per share with loyalty dividend.

(4) I.e. €1.21 per share with loyalty dividend.

6.6 Dividend policy

6.6.1 DIVIDENDS AND INTERIM DIVIDENDS PAID WITHIN THE LAST THREE FISCAL YEARS

The amount of dividends and interim dividends paid within the last three fiscal years was as follows:

Financial year	Number of shares	Dividend per share (in euros)	Total dividends paid ⁽¹⁾ (in euros)	Dividend payment date
2013	1 860 008 468	1,25 ⁽²⁾	2 327 462 364,03 ⁽³⁾	6 june 2014
2014	1 860 008 468	1,25 ⁽²⁾	2 327 233 892,26 ⁽⁴⁾	5 june 2015
2015	1 920 139 027	1,10 ⁽⁶⁾	2 079 072 045,71 ⁽⁵⁾	30 june 2016

(1) After deduction of treasury shares.

(2) I.e. €1.375 for shares benefiting from the loyalty dividend.

(3) €1,059,290,112.42 of which paid on 17 December 2013 as an interim dividend 2013.

(4) €1,059,262,163.04 of which paid on 17 December 2014 as an interim dividend 2014.

(5) €1,058,682,286.08 of which paid on 18 December 2015 as an interim dividend 2015.

(6) I.e. €1.21 for shares benefiting from the loyalty dividend.

On 30 September 2016, the Board of Directors decided to pay an interim dividend in cash or shares of €0.50 per share relating to fiscal year 2016. The total amount of the interim dividend (excluding treasury shares) is €1,005,552,797, and was paid on 31 October 2016.

At its meeting of 3 March 2017, the Board of Directors decided to propose to the Shareholders' Meeting of 18 May 2017 the distribution of a dividend of €0.90 per share under the year 2016. Given the interim dividend of €0.50 per share paid on 31 October 2016, the balance of the dividend to be distributed for the 2016 fiscal year amounts to €0.40 per share for the shares with ordinary dividend and to €0.49 per share for the shares which benefit from loyalty dividend.

Regarding the balance, it will be proposed to the shareholders an option of payment in new shares of the company. They may exercise their option between 6 June and 20 June 2017 inclusive. For the shareholders who have not exercised their option no later than 20 June 2017, the final dividend will be paid entirely in cash. The Government has committed to exercise its option to receive the dividend in new shares.

New ordinary shares issued as a result of the capital increase confirmed by the Company will only entitle the shareholders to the payment of the balance of the dividend 2016.

Dividend will be paid on 30 June 2017 (ex-date being 6 June 2017), subject to the Shareholders' Meeting approval.

The French State announced, on 22 April 2016, that it would be paid its dividend in shares for fiscal years 2016 and 2017 (see section 7.3.8 "Ownership of the Company's capital and voting rights").

6.6.2 DIVIDEND POLICY, INCREASED DIVIDEND

The dividend distribution policy, determined by its Board of Directors, will take into account its investment needs, the economic context and all other factors considered to be relevant.

In line with the statutory modification made at the general meeting on 24 May 2011, the first loyalty dividend was paid in 2014 in regards to financial year 2013. Shareholders having held their shares at nominal value for at least two years are eligible for loyalty dividends. The number of shares giving entitlement to such increase of 10% may not exceed 0.5% of the share capital per shareholder.

The Shareholders' Meeting of 21 November 2014 amended the Company's articles of association which now provide that the Shareholders' Meeting can decide to pay any dividend, interim dividend, reserve or premium distributed or any reduction of the share capital, via the distribution of Company's assets, including financial assets.

6.6.3 PRESCRIPTION

Dividends that are not claimed within five years of the declared date of payment become time barred and are paid to the French State.

6.7 Significant change in the Company's financial or trading position

The significant events that took place between the end of the 2016 fiscal year and the date of filing of this reference document are mentioned in note 50 to the appendix of the consolidated financial statements for the fiscal year ended 31 December 2016 as to events that took place before the financial

statements were drawn up by the Board of Directors on 13 February 2017, and, for events occurring after 13 February 2017, in section 5.2 "Subsequent events" of this Reference Document.

6.8 Information relating to the allocation of funds raised through the Green Bonds issued by EDF in November 2013 and October 2015

On November 2013, the Group issued successfully a first Green Bond in euros, for a total amount of €1.4 billion. On 8 October 2015, EDF issued a second Green Bond for a total amount of US\$1.25 billion.

The commitments made by EDF as part of these two issuances follow the four principles established by the Green Bond Principles¹ namely (i) use of proceeds (ii) existing processes to assess and select eligible projects (iii) management of the proceeds and (iv) reporting.

This section describes how EDF fulfilled its commitments relating to the two first issuances. In October 2016 and January 2017, the Group proceeded with three new Green Bonds issues, following the enlargement of EDF's Green Bond Framework to include the financing of renovation and modernization investments for hydroelectric assets in France, in addition to the construction of new wind and solar power projects already eligible. The Group reporting relating to these three new issuances will begin in 2017.

USE OF PROCEEDS

As part of these two bond issues, EDF has committed to allocate the proceeds to finance the construction of renewable power generation projects developed by EDF Énergies Nouvelles (EDF EN). Projects eligible to Green Bond financing (hereinafter the "Eligible Projects") are:

- new projects meeting the eligibility criteria defined by EDF and validated by Vigeo Eiris (see below "Project Eligibility Criteria validated by Vigeo"); and/or
- existing projects meeting the eligibility criteria which have not yet started or been externally financed at the issue date that EDF EN may develop or invest in after the issue date.

Proceeds are not meant to be used to refinance existing projects or to acquire already operating businesses or projects.

PROCESS FOR EVALUATION AND SELECTION OF GREEN BOND-FINANCED ELIGIBLE PROJECTS

Each Eligible Project likely to be financed is assessed against the eligibility criteria by the Finance Division of EDF EN, based on elements provided by the teams of EDF EN in charge of project development, procurement and sustainable development.

Only projects meeting the criteria may benefit from Green Bond financing. Those projects over which EDF EN has direct control are financed in priority.

The Finance Department of EDF EN documents the entire project assessment process in order to demonstrate to an independent auditor that funded projects meet the eligibility criteria.

MANAGEMENT OF PROCEEDS

Management of the proceeds follow a strict ring-fencing principle which aims to ensure that their use is exclusively and effectively dedicated to financing of Eligible Projects.

Upon receipt by the Financing and Investments Division of EDF SA, proceeds from each issuance are invested and tracked in a dedicated sub-portfolio of treasury assets until allocation to Eligible Projects. Proceeds are invested in priority in treasury assets identified as "Socially Responsible Investments".

The allocation of Green Bond proceeds is governed by an inter-company loan agreement between EDF and a subsidiary of EDF EN exclusively dedicated to funding Eligible Projects. This scheme is intended to ensure traceability and strict ring-fencing of the funds from EDF SA's treasury until allocation to selected Eligible Projects.

REPORTING

Effective use of funds

Full allocation of the proceeds from EDF's first Green Bond issuance in November 2013 (€1.4 billion) was completed in June 2015.

On 31 December 2016, US \$1.22 billion – out of \$1.25 billion raised through the second Green Bond issued by EDF in October 2015 – had been allocated to Eligible Projects. The balance of the proceeds, i.e. US \$30 million, has been invested in a dedicated treasury portfolio, as indicated above, pending allocation to Eligible Projects.

1. The Green bond principles updated as of March 2015, are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market. For more information: <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles/>.

	Funds raised	Funds allocated to Eligible Projects	Number of projects which received Green Bond funding	Share of total investments financed by the Green Bond
Green Bond no. 1 – November 2013	€1.4bn	€1.4bn	13 ⁽¹⁾	57 %
Green Bond no. 2 – October 2015	\$1.25bn	\$1.22m	6 ⁽¹⁾	74 %

(1) Including the Roosevelt project financed by both green bonds.

These funds were allocated to the selected Eligible Project entities and are exclusively intended to the financing of construction and/or development costs of these projects.

The Eligible Projects selected for Green Bond financing as of 31 December 2016 under the November 2013 (GB1) and October 2015 (GB2) Green Bond issues are:

Project	Technology and capacity	Location	Projected year of commissioning	Funding GB1/GB2
CID Solar	Solar PV, 27MWp	USA (California)	Commissioned	GB1
Cottonwood	Solar PV, 33MWp	USA (California)	Commissioned	GB1
Ensemble éolien catalan	Onshore wind, 96MW	France (Pyrénées-Orientales)	Commissioned	GB1
Great Western	Onshore wind, 225MW	USA (Oklahoma)	Commissioned	GB2
Heartland	Biomethane, 20MW	USA (Colorado)	Commissioned	GB1
Hereford	Onshore wind, 200MW	USA (Texas)	Commissioned	GB1
Kelly Creek	Onshore wind, 184 MW	USA (Illinois)	Commissioned	GB2
La Mitis	Onshore wind, 25MW	Canada (Quebec)	Commissioned	GB1
Le Granit	Onshore wind, 25MW	Canada (Quebec)	Commissioned	GB1
Longhorn North	Onshore wind, 200MW	USA (Texas)	Commissioned	GB1
Pilot Hill	Onshore wind, 175MW	USA (Illinois)	Commissioned	GB1
Rivière du Moulin	Onshore wind, 350MW	Canada (Quebec)	Commissioned	GB1
Roosevelt	Onshore wind, 250MW	USA (New Mexico)	Commissioned	GB1 and GB2
Salt Fork	Onshore wind, 174MW	USA (Texas)	Commissioned	GB2
Slate Creek	Onshore wind, 150MW	USA (Texas)	Commissioned	GB2
Spinning Spur 2	Onshore wind, 161MW	USA (Texas)	Commissioned	GB1
Spinning Spur 3	Onshore wind, 194MW	USA (Texas)	Commissioned	GB1
Tyler Bluff	Onshore wind, 126 MW	USA (Texas)	Commissioned	GB2

As part of the management of its renewable assets portfolio, the Group may sell interests in the assets it develops. The percentage held by the Group of capacities which received a Green Bond funding as at 31 December 2016 stood at 53% for the GB1 (November 2013) and 55% for the GB2 (October 2015).

Impact of financed Eligible Projects

The table below shows three main impacts associated with the construction of renewable energy projects which received a Green Bond funding:

- the electricity generation capacity from renewable energy sources built under each project;

- the expected electricity output of each project; and
- the expected avoided CO₂ emissions from injecting this electricity output into power grids.

These impacts are presented in aggregate for both Green Bond issues: gross data correspond to the aggregate impact of projects that received funding from the Green Bond considered; net data are the sum of the weighted impacts of Eligible Projects, where weighting corresponds to the share of project investment amounts financed by the Green Bond considered.

	Total generation capacity of financed projects as at 31 December 2016 (in MW)		Expected output (in TWh/year)		Expected avoided CO ₂ emissions (in Mt/year)	
	Gross ⁽¹⁾	Net ⁽²⁾	Gross ⁽¹⁾	Net ⁽²⁾	Gross ⁽¹⁾	Net ⁽²⁾
Green Bond no. 1 – November 2013	1,755	976	7.0	4.1	3.3	1.8
Green Bond no. 2 – October 2015	1,109	814	4.3	3.1	3.0	2.1

(1) Sum of gross impacts of each project that received Green Bond funding.

(2) Sum of net impacts of each project, weighted by the project investment amount financed by the Green Bond considered.

The above impacts are established using the methodological principles below:

- generation capacity of financed projects: installed capacity at the end of the construction of each Eligible Project as defined in the project's investment memorandum and updated as appropriate during the construction phase or at project commissioning;
- expected output: generation forecast (the "P50") taken into account when the investment decision of each Eligible Project is made;
- expected avoided CO₂ emissions: the average emission factor per kWh of the electric system is estimated on the basis of the energy mix of the electric system and LCA emission factors of each generation technology. The emission factor of the project corresponds to the LCA emission factor of the project's technology. Energy mix are those published by the Environmental Protection Agency (2012) for large power networks in the

United States, Statistics Canada (2013) for networks and provinces of Canada, and the International Energy Agency (2013) for other countries. LCA emission factors of each technology correspond to the median values established by the IPCC and published in its fifth assessment report (2014). The detailed methodology is available on request at the office of the EDF group. It is important to note that (i) there is no single reference defining a methodology for calculating avoided CO₂ emissions and (ii) the expected output and, therefore avoided, CO₂ emissions are estimated forecast data and not actual data.

PROJECT ELIGIBILITY CRITERIA VALIDATED BY VIGEO

1. Assessment of the countries in which the project is located based on human rights and governance

Countries eligible to host Green Bond-financed projects must reach a minimum scoring, set by EDF Énergies Nouvelles (EDF EN), based on the Vigeo Country Rating evaluation¹. This scoring is based on the following indicators:

Criteria	Indicators/Supporting evidence
Respect, protection and promotion of Freedom and Human Rights	Integration, signature or ratification of conventions relating to (i) Human Rights, and (ii) Labour Rights
Democratic institutions	Performance indicators on: Political Freedom and stability; Prevention of corruption; Freedom of press; Independence of the judicial system; Legal certainty

2. Monitoring the environmental impact of the project

Criteria	Indicators/Supporting evidence
An environmental impact study has been undertaken (=effects on the environment and identified measures)	Existence of a study on the project's environmental impacts
Environmental specifications of the project are monitored during the construction phase	Existence of an internal reporting or signature of a contract with a third party to monitor environmental aspects
An Environment Referent has been designated for every project	Name & Function of the Environment Referent for each project
Contracts are established in compliance with the project's environmental specifications	Environmental specifications adequately reflected in the contracts

1. This Country Rating is updated every six months.

2. EDF EN considers that the United States meets the minimum requirements on both indicators and are an eligible host country.

3. Protect the health and safety of all those involved in the project

Criteria	Indicators/Supporting evidence
A Health/Protection/Safety coordinator or equivalent is planned on the site of the construction project	Name & Function of the coordinator for each of the sites of the project
Risk prevention plans are systematically provided for with each person on the project site	Risk prevention plan for each firm working on the project site

4. Promote responsible relationships with suppliers

Criteria	Indicators/Supporting evidence
The Sustainable Development Charter for EDF EN's suppliers and subcontractors is signed by each supplier/subcontractor to ensure their knowledge of it	Inclusion in the contract with suppliers and/or signature of the Sustainable Development Charter by suppliers/subcontractors
The project management by EDF EN is compatible with the principles of the EDF group's Ethical Charter	Certification of compliance with the EDF Ethical Charter signed by the project manager Existence of ethical alerts on the project
A verification of good practices and of any reputational risk and controversial issues related to financial partner(s) has been conducted before launching the project	Legal/banking evidence as to the activities, especially as to social affairs, of the financial partner(s) (EDF risk control department)
Use of proceeds in favour of the beneficiaries is tracked	€ figures on use of funding/beneficiary
There is a policy in terms of advantages and gifts received by EDF EN employees	Applicable policy relative to gifts and invitations
A binding confidentiality clause between the supplier or sub-contractor and EDF EN has been included in the applicable contracts	Confidentiality clause commitment
The consultation of suppliers is systematic for the main supply contracts, except for justified cases of one to one negotiations (including when a framework agreement exists)	Traceability of the project's purchasing process for the main supply contracts, <i>i.e.</i> representing at least two thirds of the project total suppliers' contracts value
The decisions on the awarding of contracts are formalized on the basis of objective criteria, identical for every supplier, in order to ensure a fair selection (cf. EDF EN Group Purchase Policy)	Traceability of the decision process for awarding contracts for the main supply contracts, <i>i.e.</i> representing at least two thirds of the project total suppliers' contracts value

5. Ensure the consultation with the territory's stakeholders

Criteria	Indicators/Supporting evidence
A consultation process with external stakeholders is put in place from the design stage of the project	List of discussions/consultations effected Examples: number of public meetings, information reports, etc.
Stakeholders are provided with information, at least for stakeholders surrounding the work area and site users, for the duration of the construction project	List of actions undertaken

ATTESTATION FROM ONE OF THE STATUTORY AUDITORS OF EDF SA ON THE INFORMATION RELATED TO THE ALLOCATION, AS OF 31 DECEMBER 2016, OF FUNDS RAISED FOR THE "GREEN BONDS" ISSUED BY EDF ON 25 NOVEMBER 2013 AND 8 OCTOBER 2015

This is a free translation into English of the attestation from one of the statutory auditors of EDF SA on the information related to the allocation, as of 31 December 2016, of funds raised for the "Green Bonds" issued by EDF on 25 November 2013 and 8 October 2015 originally issued in French and is provided solely for the convenience of English speaking readers.

This attestation should be read in conjunction with, and is construed in accordance with, French law and professional standards applicable in France.

To the Chairman and Chief Executive Officer,

In our capacity as statutory auditor of Electricité de France S.A. (the "Company") and in accordance with your request, we have prepared this attestation on the information related to the allocation, as of 31 December 2016, of funds raised for the "Green Bonds" issued by EDF on 25 November 2013 (the "GB 2013 Offering") and 8 October 2015 (the "GB 2015 Offering" and together with the GB 2013 Offering, the "Green Bond Offerings"), which amounts to €1,400,000,000 and US\$1,250,000,000, respectively, contained in the attached document "Information relating to the allocation of funds raised for the "Green Bonds" issued by EDF in November 2013 and October 2015", and prepared pursuant to the terms and conditions of the final terms of the Green Bond Offerings dated 25 November 2013 and 8 October 2015 (the "Final Terms").

This document, prepared under your responsibility for the purposes of the information of the "Green Bond" debt securities holders, presents an allocation of the funds raised from the Green Bond Offerings to eligible projects (the "Eligible Projects") for the period beginning as of the receipt of the funds raised from the Green Bond Offerings to 31 December 2016 (the "Allocation of Proceeds"):

- for an amount of €1.400 million in relation to the GB 2013 Offering, from 27 November 2013 to 31 December 2015, noting that the allocation of proceeds has been completed in full in June 2015;
- for an amount of US\$1,250 million in relation to the GB 2015 Offering, from 13 October 2015 to 31 December 2016.

This information was prepared based on the accounting records used for the preparation of the consolidated financial statements for the year ended 31 December 2016.

Our role is to report on:

- the compliance with the four components of the Green Bond Principles defined by the International Capital Market Association¹ being (i) Use of proceeds (ii) Existing processes for project evaluation and selection of the Eligible Projects (iii) Management of proceeds and (iv) Reporting;
- the compliance, in all material respects, of the Eligible Projects referred to in the attached document, with the eligibility criteria defined in the Final Terms;
- the tracking of the funds raised from the Green Bond Offerings, in a dedicated portfolio of financial assets, to the allocation of such funds to Eligible Projects and on the reconciliation of the amount of funds allocated to Eligible Projects as at 31 December 2016 as part of the Green Bond Offerings, with the accounting records and data underlying the accounting records;
- the compliance, in all material respects, of the methods used by the Company to estimate the CO₂ emissions avoided by the Eligible Projects financed as at 31 December 2016 with the methodology described in the section "Impact of financed Eligible Projects" of the attached document.

However, we have no responsibility:

- for challenging the eligibility criteria defined as an appendix to the Final Terms and, in particular, we give no interpretation on the terms of the Final Terms;
- for forming an opinion on the use of the allocated funds to Eligible Projects after such funds have been allocated;
- for concluding on whether the methodology used by the Company to estimate the CO₂ emissions avoided is appropriate.

In the context of our role as statutory auditor, we have audited, jointly with the other statutory auditor, the consolidated financial statements of the Company for the year ended 31 December 2016. Our audit was conducted in accordance with professional standards applicable in France, and was planned and performed for the purpose of forming an opinion on the consolidated financial statements taken as a whole and not on any individual component of the accounts used to determine the information. Accordingly, our audit tests and samples were not carried out with this objective and we do not express any opinion on any components of the accounts taken individually. These consolidated financial statements, which have not yet been approved by the Shareholders' meeting, have been audited and our report thereon is dated 13 February 2017.

Furthermore, we have not performed any procedures to identify events that may have occurred after the date of our report on the consolidated financial statements of the Company which was issued on 13 February 2017.

Our engagement, which constitutes neither an audit nor a review, was performed in accordance with professional standards applicable in France. For the purpose of this attestation, our work consisted, using sampling techniques or other methods of selection, in:

- for the information related to the Allocation of Proceeds and the compliance with the four components of the Green Bond Principles:
 - verifying the appropriate consideration of the four components of the Green Bond Principles of the International Capital Market Association being (i) the use of proceeds (ii) the existing processes for evaluation and selection of the Eligible Projects (iii) the management of proceeds and (iv) the reporting,
 - understanding the procedures implemented by the Company for producing the information contained in the attached document,
 - verifying the compliance, in all material respects, of the Eligible Projects referred to in the attached document, with the eligible criteria, as defined in the appendix to Final Terms,
 - verifying the appropriate segregation of the funds raised from the Green Bond Offerings and their exclusive allocation to Eligible Projects,
 - verifying the global allocation of the capital expenditures incurred in relation to the Eligible Projects financed by each of the Green Bond Offerings,

1. International Capital Market Association – Green Bond Principles, 2015 – Voluntary Process Guidelines for Issuing Green Bonds, 27 March 2015.

- performing the necessary reconciliations between this information and the accounting records from which it is derived and verifying that the information agrees with the data used to prepare the consolidated financial statements for the year ended 31 December 2016;
- for the estimation of the CO₂ emissions avoided
 - understanding and considering the methodology used to estimate the avoided CO₂ emissions,
 - verifying the compliance, in all material respects, of the methods used to estimate the CO₂ emissions avoided by the Eligible Projects financed during the period with the methodology described in the section "Impact of financed Eligible Projects" of the attached document
 - verifying the consistency of the information related to the estimation of the electricity output as well as the choice of emission factors used (based on the calculation of the emission factors of the applicable electrical grids where the projects are located and the choice of emission factors by technology), should it be noted that there is no single framework defining a methodology for the calculation of CO₂ emissions avoided.

On the basis of our work, we have no matters to report on:

- the compliance with the four components of the Green Bond Principles of the International Capital Market Association;
- the compliance, in all material respects, of the Eligible Projects referred to in the attached document, with the eligible criteria, as defined in the Final Terms;
- the tracking of the funds raised from the Green Bond Offerings, in a dedicated portfolio of financial assets, to the allocation of such proceeds to Eligible Projects and the consistency of the amount of allocated funds to Eligible Projects as at 31 December 2016 in the context of the Green Bond Offerings, with the accounting records and data underlying the accounting records;
- the compliance, in all material respects, of the methods used by the Company to estimate the avoided CO₂ emissions by the Eligible Projects financed as at 31 December 2016 with the methodology described in the section "Impact of financed Eligible Projects" of the attached document.

This attestation has been prepared solely for your attention within the context described above and may not be used, distributed or referred to for any other purpose.

Neuilly-sur-Seine, 6 March 2017

One of the statutory auditors

Deloitte & Associés

Alain Pons

Anthony Maarek

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General information about the Company and its capital

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7.1 General information about the Company

7.1.1 COMPANY NAME, ADDRESS AND TELEPHONE NUMBER OF THE REGISTERED OFFICE

The name of the Company is: "Électricité de France". The Company may also be legally designated by the acronym "EDF".

The Company's registered office is at 22-30, avenue de Wagram in the 8th arrondissement of Paris.

The telephone number is +33(0)1 40 42 22 22.

7.1.2 TRADE AND COMPANIES REGISTRY, APE CODE

The Company is registered with the Paris Trade and Companies Registry under number 552 081 317. Its APE code is 401E.

7.1.3 DATE OF INCORPORATION AND TERM OF THE COMPANY

EDF was incorporated pursuant to Act no. 46-628 of 8 April 1946 as a French public industrial and commercial establishment (EPIC). It was converted into a French *société anonyme* (public limited company) by the Act of 9 August 2004 and the Decree of 17 November 2004.

The Company was incorporated for a term of 99 years as from 19 November 2004, unless the Company is dissolved before such date or unless its term is extended.

7.1.4 LEGAL FORM AND APPLICABLE LEGISLATION

Since 20 November 2004, EDF has been a French *société anonyme* with a Board of Directors. It is governed by the laws and regulations applicable to commercial companies, in particular the French Commercial Code, except in the event of specific exceptions stipulated in the French Energy Code or Order no. 2014-948 of 20 August 2014 on the governance and capital transactions of companies with State holdings and by its articles of association.

7.2 Incorporation documents and articles of association

In this Reference Document, a reference to the articles of association means the Company's articles of association as approved by French Decree no. 2004-1224 of 17 November 2004 adopted under French Act no. 2004-803 of 9 August 2004 relating to the public electricity and gas service and electricity and gas companies (the "9 August 2004 Law"), which have subsequently been amended on various occasions.

7.2.1 CORPORATE PURPOSE

EDF's purpose, both in France and abroad and in compliance with the laws set out in the first article of its articles of association, is:

- to ensure the generation, transmission, distribution, supply and trading of electrical energy, and the import and export of said energy;
- to carry out the public service missions assigned to EDF by the laws and regulations, in particular by the French Energy Code, and Article L. 2224-31 of the French Local Authorities Code (*Code général des collectivités territoriales*), as well as by concession agreements, and in particular the mission to develop and operate public electricity grids and the mission to supply energy at regulated rates, and to supply back-up power to electricity producers and customers with the aim of compensating for unforeseen supply failures, and electricity to eligible customers who cannot find a supplier, while contributing to the balanced development of electricity supply by reaching the goals defined by the multi-year generation investments programme defined by the Minister for Energy;
- more generally, to engage in any industrial, commercial or service activity, including research and engineering activities, in the field of energy, for all categories of customer;

- to enhance the value of all the personal and real property assets it holds or uses;
- to create, acquire, rent or lease under a business lease, all personal property, real property, businesses and clientele, to lease, install and operate all establishments, businesses and clientele, plants and workshops relating to any one of the aforementioned purposes;
- to obtain, acquire, operate or sell all processes and patents concerning the activities that are related to any of the aforementioned purposes;
- to take part, directly or indirectly, in all transactions that may be connected to any of the aforementioned purposes, by creating new companies or undertakings, by contributing, subscribing for or purchasing equity or ownership interests, stakes, or through mergers, partnerships or in any other way whatsoever; and
- more generally, to engage in all industrial, commercial, financial transactions, whether in personal or real property, that are directly or indirectly connected, in whole or in part, to any similar or related purposes or even to any purposes that may favour or develop the Company's business.

7.2.2 FINANCIAL YEAR

Each financial year lasts for 12 months, starting on 1 January and ending on 31 December of each year.

7.2.3 APPROPRIATION OF PROFITS UNDER THE ARTICLES OF ASSOCIATION

The distributable profit consists of the net profit for the financial year, less prior losses carried forward and the various deductions provided for by the law or the articles of association, plus any retained earnings carried forward.

The General Meeting may decide to distribute amounts deducted from the reserves that are freely available to it, but must expressly state the reserve items from which the deductions are made.

After approving the financial statements and confirming the existence of distributable amounts (which include the distributable profit and any amounts deducted from the reserves mentioned above), the General Meeting can decide to distribute all or part of such amounts to the shareholders in the form of a dividend, allocate them to reserve items or carry them forward. The Board of Directors may also distribute interim dividends prior to the approval of the financial statements for the financial year, under the conditions laid down by law.

The General Meeting has the option of granting the shareholders a choice, for all or part of the dividend or interim dividend paid out, between payment in cash and payment in shares. Moreover, the General Meeting may decide to pay any dividend, interim dividend, reserve or premium that is distributed or any reduction in capital, through remittance of the Company's assets, including financial securities.

Any shareholder who can prove, at the close of a financial year, that he has held registered shares for at least two years and still holds such shares on the date of payment of the dividend declared for the said financial year, will be entitled to an increased dividend for the said registered shares, equal to 10% of the dividend paid for the other shares, including in cases where the dividend is paid in shares. The number of shares eligible for the 10% increased dividend may not exceed 0.5% of the share capital at the close of the previous financial year, for any one shareholder. The first increased dividend was paid in 2014 for the 2013 financial year (see section 6.6.2 "Dividend policy, increased dividend").

The terms governing the payment of distributions decided by the General Meeting, and the ex-dividend date of the distributed shares are fixed by the General Meeting or, failing this, by the Board of Directors, in accordance with the applicable statutory provisions. If the amount of the non-cash distributions to which a shareholder is entitled does not correspond to a whole number of shares, the said number will be rounded down to the next whole number and a balancing cash payment made to the shareholder or, if requested by the General Meeting, rounded up to the next whole number, with the difference being paid in cash by the relevant shareholder.

7.2.4 RIGHTS ATTACHED TO SHARES

Each share entitles its holder to a portion of the Company's profit and corporate assets that is proportional to the percentage of the capital that the share represents. Moreover, each share confers a voting right and the right to be represented at General Meetings in accordance with legislative, regulatory and bylaw restrictions.

On the filing date of this reference document, EDF has only issued a single class of shares.

Ownership of a share automatically entails acceptance of the articles of association and decisions adopted by General Meetings.

Pursuant to Article L. 225-123 of the French Commercial Code, as amended by Act no. 2014-384 of 29 March 2014, all fully paid-up shares that have been registered for at least two years in the name of the same shareholder will automatically entitle their holder to voting rights that are double that of the other shares. These provisions took effect on 3 April 2016. EDF's Board of Directors had decided not to submit an amendment to the articles of association to the General Meeting, preventing the application of the double voting right set out in Article L. 225-123 of the French Commercial Code.

Shareholders are only liable for losses within the limit of their contributions.

Whenever it is necessary to hold more than one share in order to exercise any right whatsoever, in the event of an exchange, reverse stock split or allocation of shares, or due to a capital increase or reduction, a merger or any other corporate transaction, owners of single shares or numbers of shares below that required may only exercise such right if they take personal responsibility for consolidating or, if necessary, purchasing or selling the requisite number of shares.

Shareholders can choose to hold shares in registered or bearer form, subject to compliance with the laws and regulations.

Shares may be registered with an intermediary under the conditions provided for in Articles L. 228-1 *et seq.* of the French Commercial Code. Intermediaries must declare their status as intermediaries who hold shares for a third party, under the conditions provided for by the laws and regulations. These provisions are also applicable to the other securities issued by the Company.

Under the conditions provided for by the laws and regulations in force, the Company is entitled to request from the central custodian of financial instruments, at any time and provided that it pays the required consideration, as applicable, the name or corporate name, the nationality, the year of birth or the year of incorporation, and the address of the holders of bearer shares that grant an immediate or deferred right to vote at its own General Meetings, as well as the quantity of securities held by each of these shareholders and, where applicable, any restrictions to which the securities may be subject. On the basis of the list provided by such custodian, the Company has the option of asking the persons or entities listed that the Company believes may be registered on behalf of third parties, for the information stated above concerning the owners of the securities.

For registered shares that grant immediate or deferred access to the capital, intermediaries that are registered under the conditions provided for in Article L. 228-1 of the French Commercial Code mentioned above, are required, within ten business days as from the request made by the Company or its agent, which may be made at any time, to disclose the identity of the owners of said securities.

7.2.5 ASSIGNMENT AND TRANSFER OF SHARES

Shares can be traded without restriction, subject to compliance with the provisions of the laws and regulations. They are registered in an account and are transmitted by transfer from one account to another.

7.2.6 CHANGES TO THE ARTICLES OF ASSOCIATION, THE CAPITAL AND VOTING RIGHTS

All changes to the articles of association, the capital or the voting rights attached to the securities that make up the capital are subject to the requirements of law, as the articles of association contain no specific provisions regarding such matters.

7.2.7 COMPOSITION AND FUNCTIONING OF THE BOARD OF DIRECTORS

The Board of Directors adopted internal rules of procedure, which are regularly updated, defining the operating procedures of the Board of Directors in addition to applicable legal and regulatory requirements and the provisions of the Company's articles of association.

These procedures are described in section 4.2.2 "Functioning of the Board of Directors".

The Group's internal rules of procedure are accessible on the Group's website (www.edf.fr).

7.2.8 GENERAL MEETINGS

7.2.8.1 Convening notices to meetings

General Meetings are convened by the Board of Directors or, in the last resort, by the Statutory Auditors or by any person empowered to do so. Meetings are held at the registered office or at any other place stated in the convening notice.

7.2.8.2 Participation in meetings and exercise of voting rights

General Meetings may be held by video conference or telecommunication means that allow shareholders to be identified. The conditions governing the type and use of such means are specified in Articles R. 225-97 to R. 225-99 of the French Commercial Code. In such cases, shareholders who participate in the meeting by such means are deemed to be present for the calculation of the quorum and majority, under the conditions specified by law.

All shareholders can attend General Meetings, regardless of the number of shares they own.

Shareholders can choose between one of the three following methods of participation: attend the meeting in person by requesting an admission card, grant authorisation (a proxy) to the Chairman of the General Meeting or to any individual or legal entity of their choice (Article L. 225-106 of the French Commercial Code), or vote remotely.

In accordance with Article R. 225-85 of the French Commercial Code, proof of the right to participate in a General Meeting is obtained by the registration of the securities in an account in the name of the shareholder or of the intermediary that is registered on the shareholder's behalf (pursuant to paragraph 7 of Article L. 228-1 of the French Commercial Code), on the second day prior to the meeting, *i.e.* at midnight, Paris time, either in the registered share accounts held by the Company (or its authorised representative), or in the bearer share accounts held by the accredited intermediary.

In accordance with Article R. 225-85 of the French Commercial Code, the registration of the securities in the bearer share accounts held by financial intermediaries is evidenced by a shareholding certificate issued by these intermediaries, where applicable by electronic means under the conditions provided for in Article R. 225-61 of the French Commercial Code, as an appendix to the postal voting form, the voting proxy or admission card request made on behalf of a shareholder or on behalf of a shareholder who is represented by the registered intermediary.

All shareholders may grant a proxy to any individual or legal entity of their choice in order to be represented at a General Meeting. Proxies, as well as any proxy revocations, must be evidenced in writing and notified to the Company. Proxies may be revoked in the same forms as those required for the designation of the proxy holder, including by electronic means if need be. The owners of shares that are properly registered in the name of an intermediary under the conditions provided for in Article L. 228-1 of the French Commercial Code may be represented by a registered intermediary under the conditions provided for in said Article.

EDF gives its shareholders the possibility of voting online, prior to the General Meeting.

Certain shares may carry double voting rights in accordance with the conditions laid down in Act no. 2014-384 of 29 March 2014 (see section 7.2.4 "Rights attached to shares").

7.2.8.3 Requests for the inclusion of items or draft resolutions on the agenda and written questions to the Board of Directors

Requests for the inclusion of items or draft resolutions on the General Meeting agenda made by shareholders who meet the conditions provided for in Article R. 225-71 of the French Commercial Code must be received by the Company by the twenty-fifth day prior to the date of the General Meeting at the latest, but may not be sent more than 20 calendar days after the publication of the prior meeting notice, in accordance with Article R. 225-73 of the French Commercial Code.

Requests for the inclusion of items on the agenda must be substantiated. The wording of the draft resolutions must accompany requests for the inclusion of such resolutions, and a brief explanation of the reasons may also be given.

On the date of the request, the authors must provide proof of owning or representing the percentage of the capital required by Article R. 225-71 of the French Commercial Code. Requests must be accompanied by proof of entry in an account. Agenda items or draft resolutions that are proposed for inclusion are only reviewed if the authors of the request submit a new certificate proving the registration of the securities in the same accounts on the second day prior to the meeting.

Each shareholder also has the option of sending the Board of Directors written questions of his or her choice. The Board of Directors will answer the questions during the meeting, or, in accordance with Article L. 225-108 of the French Commercial Code, the answer is deemed to have been given provided that it is published on the Company's website.

Written questions must be sent to the Company by registered letter with return receipt or by electronic telecommunication at the latest on the fourth business day prior to the date of the General Meeting. In accordance with Article R. 225-84 of the French Commercial Code, these questions must be accompanied by a shareholding certificate, in order to be taken into account.

7.2.8.4 Temporary disposals during meeting periods

In accordance with the provisions of Article L. 225-126 of the French Commercial Code, any person who holds, alone or together with other persons, in respect of one or more temporary disposals or any transaction that grants the right to or requires the resale or return of said shares to the assignor, a number of shares that represents more than 0.5% of the voting rights in a listed company, must inform the Company and the French Market Authority no later than midnight, Paris time, on the second business day prior to the General Meeting, and when the contract that arranges this transaction remains in force on this date, said information must include the total number of shares held on a temporary basis. In addition to the number of shares acquired, this declaration must contain the identity of the assignor, the date and the expiration of the contract that organises the transaction and, as applicable, the voting agreement.

If no information is provided to the company and the French Market Authority, the shares thus acquired are automatically stripped of voting rights for the General Meeting concerned and for all General Meetings that are held until such shares are resold or returned.

Moreover, the company representative, a shareholder or the French Market Authority may petition the Commercial Court to order the complete or partial suspension, for a maximum of five years, of the voting rights of any shareholder who fails to provide such information, regardless of whether or not the voting borrowing shareholder has exercised his or her voting rights.

7.2.9 BYLAW OR STATUTORY PROVISIONS THAT DELAY ACQUISITION OF CONTROL OVER THE COMPANY

Pursuant to Article L. 111-67 of the French Energy Code and the EDF articles of association, changes in share capital cannot result in the French State's shareholding falling below the statutory 70% threshold.

Certain shares may carry double voting rights in accordance with the conditions laid down in Act no. 2014-384 of 29 March 2014 (see section 7.2.4 "Rights attached to shares").

With the exception of the foregoing, no other provision specifically aims to prevent or delay the takeover of the Company by a third party.

7.2.10 THRESHOLD DISCLOSURE REQUIREMENTS

Pursuant to the provisions of the French Commercial Code, any individual or legal entity, acting alone or together with other persons or entities, that acquires a number of shares that represents more than 5%, 10%, 15%, 20%, 25%, 30%, 33.3%, 50%, 66.6%, 90% or 95% of the capital or voting rights must inform the Company, no later than prior to the close of business on the fourth trading day following the day on which the shareholding threshold is exceeded, of the total number of shares or voting rights owned (Article R. 233-1 of the French Commercial Code). Moreover, such individuals or legal entities must also inform the AMF of these acquisitions no later than prior to the close of business on the fourth trading day after exceeding the shareholding threshold (Article 223-14 of the AMF General Regulation). The AMF publishes threshold crossings that are notified to it.

Since 2012, cash payoff or physically-settled derivatives having a similar economic effect to detention of underlying shares, are taken into account for this calculation of threshold crossing (Article L. 233-9(l)(4) bis of the French

Commercial Code). Pursuant to AMF General Regulations, holders of these financial instruments must take into account the number of shares that carry this type of agreement and financial instruments for the calculation of their participation in the framework of their reporting obligation, and must precise, when they declare threshold crossing, their intention as to the outcome of this type of agreements and financial instruments they benefitiate.

Within the same timeframes and under the same conditions, this information must also be disclosed when the capital or voting rights fall below the thresholds stated above.

Absent a proper declaration, the shares that exceed the fraction which should have been declared in accordance with the provisions of law mentioned above will be stripped of voting rights for all General Meetings that are held during a two-year period following the date on which the effective disclosure is made.

Moreover, the Company articles of association provide that any individual or legal entity, acting alone or jointly, who acquires or ceases to hold, directly or indirectly, a number of shares that corresponds to 0.5% of the Company's capital or voting rights, or a multiple of said fraction, is required to inform the Company, by registered letter with return receipt requested, at the latest before the close of business on the fourth trading day following the crossing of such threshold, of the total number of shares, voting rights or equity interests held. The Company's articles of association state that the rules for the calculation and assimilation of shareholdings applicable to the statutory thresholds, as well as the obligations to provide information on financial instruments that are not assimilated to shares, apply to the disclosure requirements set out in the articles of association for bylaw thresholds.

Failure to comply with the above provisions is punishable by the loss of voting rights for the shares that exceed the fraction that should have been declared, for all General Meetings that are held until the expiration of a two-year period following the date of the effective threshold disclosure provided for above, if the application of this penalty is requested by one or more shareholders who hold at least 1% of the Company's capital. Such requests are recorded in the minutes of General Meetings.

7.3 Information regarding capital and share ownership

7.3.1 AMOUNT OF CAPITAL AND CHANGES IN CAPITAL

On the filing date of this reference document, the details of the Company's share capital are as follows:

Number of shares issued	2,109,136,683
Par value	€0.50 per share
Type of shares issued	common shares
Share capital amount	€1,054,568,341.50

The share capital issued by the Company has been paid up in full. The Company has not issued or authorised any preference shares.

Pursuant to the Law of 9 August 2004, EDF was converted into a *société anonyme* (public limited company) on 20 November 2004 and its capital set at €8,129,000,000, divided into 1,625,800,000 shares with a par value of €5.

The EDF General Meeting of 31 August 2005 granted full powers to the EDF Board of Directors with a view to reducing the capital by a maximum amount of €7,316,100,000, via a reduction in the par value of shares from

€5 to a minimum of €0.5. During its meeting of 27 October 2005, the Board of Directors decided to reduce the share capital by €7,316,100,000, via a €4.5 reduction in the par value of shares, which therefore decreased from €5 to €0.5. The share capital was thus reduced to €812,900,000.

During its 18 November 2005 meeting, the Board of Directors used the authority granted to it by the Combined General Meeting of 10 October 2005, and approved the increases in the Company's share capital in connection with the Open Price Offering and the Guaranteed Global Placement that were performed when the Group was first listed on the stock market. As a result, the Board of Directors increased the share capital to €906,834,514.

On 20 December 2005, Calyon (now Crédit Agricole-CIB) paid EDF the price that corresponded to the exercise of 8,502,062 warrants that the EDF Board issued to Calyon by decision taken on 18 November 2005. Consequently, the share capital was increased to €911,085,545 divided into 1,822,171,090 common shares.

The payment of dividends in shares on 17 December 2009 resulted in an increase in the share capital of €13,347,786 following the issue of 26,695,572 shares. On 21 January 2010, the share capital was thus increased to €924,433,331 divided into 1,848,866,662 common shares.

On 24 June 2011, the capital was increased to €930,406,055 divided into 1,860,812,110 common shares, via the issue of new shares as consideration for the EDF Énergies Nouvelles shares contributed to EDF in exchange for the EDF shares tendered as part of the alternative simplified public purchase or exchange offer involving EDF Énergies Nouvelles shares, which was initiated by EDF (see section 1.4.1.4.3 "EDF Énergies Nouvelles"). Then, on 28 September 2011, the capital was reduced to €924,433,331 divided into 1,848,866,662 common shares, via the cancellation of the shares purchased as part of the share buyback programme with a view to cancellation, in order to offset the dilution caused by the aforementioned offer.

On 29 July 2013, the capital was increased to €930,004,234, divided into 1,860,008,468 common shares. This increase of capital followed the decision of the EDF General Meeting of 30 May 2013 to offer each shareholder in the company the possibility to elect for the payment in new shares of a fraction of the remaining dividend to be distributed for the financial year ending 31 December 2012.

The payment of interim dividends in shares on 18 December 2015 resulted in an increase in the share capital of €30,065,279.50 following the issue of 60,130,559 shares. The share capital was thus increased from €930,004,234 to €960,069,513.50 divided into 1,920,139,027 common shares.

On 31 October 2016, the capital was increased to €1,054,568,341.50, divided into 2,109,136,683 common shares. This increase of capital followed the decision of the EDF General Meeting of 12 May 2016 to offer each shareholder in the company the possibility to elect for the payment in new shares of the remaining dividend to be distributed for the financial year ending 31 December 2016.

The payment of interim dividends in shares on 31 October 2016 resulted in an increase in the capital of €922,416,509.04 following the issue of 95,885,292 shares. The capital was thus increased from €1,006,625,695.50 to €1,054,568,341.50, divided into 2,109,136,683 common shares.

On the filing date of this reference document, other than the common shares of Company stock, there are no other securities that grant access to EDF's share capital, either directly or indirectly.

7.3.2 TREASURY SHARES AND SHARE BUYBACK PROGRAMME

A share buyback programme initially authorized by the General Meeting held on 9 June 2006, has been used by the Board of Directors within a limit of 10% of the Company's share capital and for an initial period of 18 months. This programme was continued for 12 months by the following General Meetings held since 2006, including by the General Meeting held on 12 May 2016.

7.3.2.1 Share buyback programme in force as of the filing date of the Reference Document (programme authorised by the General Meeting of 12 May 2016)

After consulting the Board of Directors' report, and in accordance with the provisions of Articles L. 225-209 *et seq.* of the French Commercial Code, the seventh resolution adopted by the General Meeting held on 12 May 2016 authorised the Board of Directors to implement a programme to buy back Company shares, capped at a maximum of 10% of the Company's capital.

This resolution immediately terminated the unused portion of the authorisation to purchase Company shares, which was granted by the seventh resolution adopted by the General Meeting held on 19 May 2015.

The aims of the share buyback programme are as follows: to deliver shares when rights are exercised that are attached to options or securities which grant immediate or deferred access to the Company's shares by all means, as well as to perform all hedging transactions with respect to the obligations of EDF (or one of its subsidiaries) that are connected with such options or securities; to retain shares for future delivery in exchange or as payment in the context of external growth or contribution operations or mergers or demergers; to allocate shares to EDF group employees, in particular, within the framework of any share purchase or bonus share award plans under the terms stipulated by law and, in particular, by Articles L. 225-197-1 *et seq.* of the French Commercial Code or Articles L. 3332-18 *et seq.* of the French Labour Code; to reduce the Company's capital by cancelling all or part of the shares purchased; and, finally, to ensure the liquidity of EDF shares via an investment services provider, under a liquidity agreement that is consistent with the Code of Ethics recognised by the *Autorité des Marchés Financiers* (French Market Authority).

Purchases of Company shares may involve any number of shares, provided that the number of shares that the Company purchases during the buyback programme does not exceed 10% of the shares that make up the Company's existing share capital on the date of the General Meeting, and provided that the number of shares that the Company holds at any given time does not exceed 10% of the shares that make up the Company's capital.

These shares may be acquired or transferred, under the conditions and within the limits, in particular in terms of volumes and price, provided for by the laws and regulations in force on the date of the relevant transactions, by any means, such as on the market or over the counter, including via block trades (purchases or sales), by the use of derivative financial instruments or notes or securities that grant access to Company shares, or by implementing option strategies, under the conditions stipulated by the market authorities and at such times as determined by the Board of Directors or any person who is acting on the Board's behalf. This authorisation may be used during public takeover bids, within the limits permitted by the applicable regulations.

The General Meeting has set at €30 the maximum purchase price per share¹ and at €2 billion the maximum amount of funds allocated to the implementation of the programme, and has granted the Board of Directors full powers, with the right of delegation, to use this authorisation.

The authorisation was granted for a maximum of 18 months as from the General Meeting of 12 May 2016, and will therefore end on 12 November 2017, unless the General Meeting of 18 May 2017 adopts the new programme described in section 7.3.2.3 below.

1. The Board of Directors may, however, adjust the aforementioned purchase price if premiums, reserves or profits are capitalised, which results either in an increase in the par value of the shares or the creation and award of bonus shares, and in the event of a stock split or reverse stock split, or any other transaction involving the shareholders' equity, in order to take into account the impact of these operations on share value.

7.3.2.2 Summary of the Company's trading in its own shares during the 2016 financial year

Number of treasury shares held at 31 December 2016	2,669,215
Percentage of capital held through treasury shares at 31 December 2016	0.1266%
Carrying value of the portfolio at 31 December 2016 ⁽¹⁾ (in euros)	29,369,170.22
Market value of the portfolio at 31 December 2016 ⁽²⁾ (in euros)	25,838,001.20
Number of shares cancelled over the past 24 months	0

(1) Valued at the purchase price.

(2) Based on the closing price at 31 December 2016, i.e. €9.680.

Liquidity contract

From 25 July 2012, EDF engaged Oddo Corporate Finance to implement a new liquidity agreement that complies with the Charter of Ethics of the *Association française des marchés financiers* (AMAFI) as approved by the French market authority (AMF). The following assets were allocated to this liquidity contract: 1,350,000 EDF shares transferred from the former liquidity contract and €50 million in cash.

In 2016, EDF paid the following commissions on its liquidity contracts: €80,000 to Oddo Corporate Finance.

Number of shares bought and sold during the 2016 financial year

During the 2016 financial year, EDF purchased, within the framework of its liquidity contracts, a total of 10,882,823 treasury shares and sold 10,524,361 shares. The average share purchase price was €10.825 and the average share sale price was €11.0318.

Portfolio breakdown at 31 December 2016

At 31 December 2016, the Company held a total of 2,669,215 treasury shares. 2,618,621 of these shares (or 0.1242% of its share capital) are held under the liquidity contract, and the remaining 50,594 shares (0.0024% of its share capital), were acquired on the market with a view to being allocated to employees within the framework of the "ACT 2007" bonus share award plan, but were not actually allocated.

On this date, EDF's subsidiaries did not hold any shares, either directly or indirectly.

Post-closing transactions

Between 1 January 2017 and 28 February 2017, the Company acquired 1,490,055 treasury shares for an average unit value of €9.3325, and sold 1,373,885 shares for an average unit value of €9.3930.

7.3.2.3 Description of the programme submitted to the General Meeting of 18 May 2017 for authorisation

As stated above, the authorisation described in section 7.3.2.1 will end on 12 November 2017, unless the General Meeting of 18 May 2017 adopts the resolution described below.

In accordance with the draft resolution prepared during the Board of Directors' meeting of 13 February 2017, the Combined General Meeting of 18 May 2017 will be asked to authorise a share buyback programme, the characteristics of which are similar to the programme authorised by the General Meeting of 12 May 2016, in particular with regard to the objectives of this programme, the limits on the number of shares that can be bought back, as well as the maximum amount that may be allocated to the share buyback programme (€2 billion), subject to any changes that may be made to the programme in connection with the new MAR rules. The maximum purchase price is set at €30.

7.3.3 CAPITAL AUTHORISED BUT NOT ISSUED

The following table presents a summary of the delegations of authority and authorisations to increase or reduce the share capital that are in force on the filing date of this reference document, which the Board of Directors was granted by the Combined General Meeting of 12 May 2016, as amended by the Combined General Meeting of 26 July 2016, and the extent to which they have been used at 31 December 2016:

**STATUS OF THE AUTHORISATIONS ADOPTED BY THE COMBINED GENERAL MEETING OF 12 MAY 2016,
AS AMENDED BY THE COMBINED GENERAL MEETING OF 26 JULY 2016**

Securities concerned / type of issue	Term ⁽¹⁾ of the authorisation and expiration	Maximum nominal increase or reduction in capital (in millions of euros)	Use made of the authorisations (in millions of euros)
Delegation of authority to the Board to increase the capital with maintenance of the shareholders' preferential subscription right Capital increase, all securities	26 months 26 September 2018	480 ⁽²⁾	none
Delegation of authority to the Board to increase the capital, via a public offering, with cancellation of the shareholders' preferential subscription right Capital increase, all securities	26 months 12 July 2018	95 ⁽²⁾	none
Delegation of authority to the Board to make offers for private placements ⁽³⁾ with cancellation of the shareholders' preferential subscription right Capital increase, all securities	26 months 12 July 2018	95 ⁽²⁾ and 20% of the share capital per year	none
Authorisation for the Board to increase the number of securities to be issued in the event of a capital increase, with or without preferential subscription rights Capital increase, all securities	26 months 12 July 2018	15% of the amount of the initial issue ⁽²⁾	none
Delegation of authority to the Board to increase the capital through the capitalisation of reserves, profits, premiums or otherwise	26 months 12 July 2018	1,000	none
Delegation of authority to the Board to increase the capital as consideration for a public exchange bid initiated by the Company	26 months 12 July 2018	95 ⁽²⁾	none
Delegation of authority to the Board to increase the capital to compensate in-kind contributions ⁽⁴⁾	26 months 12 July 2018	10% of the Company's capital up to a maximum of 95 ⁽²⁾	none
Delegation of authority to the Board to increase the capital for the benefit of savings plan members Issues reserved for the personnel	26 months 26 September 2018	10	none
Authorisation for the Board to reduce the capital by cancelling treasury shares	26 months 12 July 2018	10% of the capital by 24-month periods	none
Authorisation for the Board, in the event of an increase of capital, via private placements, with cancellation of the shareholders' preferential subscription right, to decide the issue price at its discretion	26 months 26 September 2018	10% of the capital by 12-month periods	none
Delegation of authority to the Board to carry out increases of capital reserved for a category of beneficiaries, with cancellation of the shareholders' preferential subscription right	18 months 26 January 2018	10	none

(1) As from 12 May 2016, date of the Combined General Meeting with the exception of the delegation of authority to the Board to increase the capital with maintenance of the shareholders' preferential subscription right, the delegation of authority to the Board to increase the capital for the benefit of savings plan members, the authorisation for the Board to decide the issue price at its discretion in the event of an increase of capital with cancellation of the shareholders' preferential subscription right and the delegation of authority to the Board to carry out increases of capital reserved for a category of beneficiaries, with cancellation of the shareholders' preferential subscription right, which were adopted by the Combined General Meeting of 26 July 2016.

(2) The nominal aggregate limit on the share capital increase of €480 million provided for in the second resolution submitted to the General Meeting of 26 July 2016, applies to all capital increases, with the exception of capital increases through capitalisation of reserves, premiums, profits or otherwise and capital increases that are reserved for savings plan members.

(3) Offers governed by Article L. 411-2 II of the French Monetary and Financial Code, in that they are exclusively intended for persons who provide investment portfolio management services on behalf of third parties or qualified investors or a restricted circle of investors acting on their own behalf.

(4) Article L. 225-147 of the French Commercial Code.

AUTHORISATIONS TO BE SUBMITTED TO THE COMBINED GENERAL MEETING OF 18 MAY 2017 FOR APPROVAL

The table set out below shows the authorisations to be submitted for approval to the Combined General Meeting of 18 May 2017, in accordance with the draft resolutions decided by the Board of Directors on 13 February 2017.

Securities concerned / type of issue	Term of the authorisation and expiration	Maximum nominal increase or reduction in capital <i>(in millions of euros)</i>	Use made of the authorisations <i>(in millions of euros)</i>
Delegation of authority to the Board to carry out increases of capital reserved for a category of beneficiaries, with cancellation of the shareholders' preferential subscription right	18 months 18 November 2018	10	none

7.3.4 OTHER EQUITY SECURITIES

On the filing date of this reference document, other than the common shares of Company stock, there are no other securities that grant access to EDF's share capital, either directly or indirectly.

7.3.5 NON-EQUITY SECURITIES

On 18 April 1996, EDF implemented a programme to issue debt securities in the form of Euro Medium Term Notes (called the "EMTN" programme). Since this date, this programme has been regularly renewed.

On 6 October 2016, EDF successfully raised 2.655 billion US dollars from 2 senior bonds subscribed for by twenty or so investors on the Taiwanese market ("Formosa bonds"):

- \$491 million, with a fixed coupon of 4.65%, 30-year bond;
- \$2.164 billion, with a fixed coupon of 4.99%, 40-year bond.

On 6 October 2016, EDF also successfully launched a senior multi-currency bond issue of approximately €3 billion in four tranches:

- €1.75 billion, with a fixed coupon of 1%, 10-year green bond;
- €750 million, with a fixed coupon of 1.875%, 20-year bond;
- CHF400 million, with a fixed coupon of 0.3%, 8-year bond;
- CHF150 million, with a fixed coupon of 0.65%, 12-year bond.

This third Green Bond issue, in an amount of €1.75 billion, is the largest tranche of Green Bonds issued to date and means that EDF has already issued the equivalent of more than €4 billion in Green Bonds over a three-year period to support its expansion in the renewable energies field.

On 20 January 2017, EDF successfully raised ¥137 billion, corresponding to approximately €1.1 billion¹, through 4 senior bonds issued on the Japanese market ("Samurai bonds"):

- ¥107.9 billion, with a fixed coupon of 1.088%, 10-year bond;
- ¥19.6 billion, with a fixed coupon of 1.278%, 12-year green bond;

- ¥6.4 billion, with a fixed coupon of 1.569%, 15-year green bond;
- ¥3.1 billion, with a fixed coupon of 1.870%, 20-year bond, which is the longest bond maturity ever issued on the Samurai market.

With the issue of two green tranches, in a total amount of ¥26 billion to be used to finance its renewable investments, EDF opens the Samurai Green market and thus continues to actively participate in the development of Green Bonds as tools to finance the energy transition.

These operations will contribute to the financing of the Group's investment strategy and falls within the scope of the policy to extend the maturity of its debt.

A description of the Group's bond debt is provided in note 38 to the consolidated financial statements at 31 December 2016.

7.3.6 INFORMATION ON THE CAPITAL OF EVERY GROUP MEMBER THAT IS THE SUBJECT OF A CONDITIONAL OR UNCONDITIONAL AGREEMENT

The acquisition and disposal commitments involving securities in subsidiaries are described in note 44 to the consolidated financial statements for the financial year ended 31 December 2016.

With the exception of these commitments to acquire and dispose of securities and any other commitments that are described in section 1 "Presentation of the EDF group" of this reference document, EDF has not made any promises to purchase or sell that would make it possible to acquire or dispose of, as applicable, all or part of the capital of the Company or of any of its subsidiaries, as defined in Article L. 233-1 of the French Commercial Code.

7.3.7 PLEDGE OF THE COMPANY'S SECURITIES

To the Company's knowledge, none of the Company's common shares that make up its share capital have been pledged.

1. According to the exchange rate on 20 January 2017.

7.3.8 OWNERSHIP OF THE COMPANY'S CAPITAL AND VOTING RIGHTS

For the past three financial years, EDF's share capital has been owned as follows as at 31 December of each year:

	Position as at 31/12/2016			Position as at 31/12/2015			Position as at 31/12/2014		
	Number of shares	% of capital	% of voting rights ⁽¹⁾	Number of shares	% of capital	% of voting rights ⁽¹⁾	Number of shares	% of capital	% of voting rights ⁽¹⁾
State	1,805,952,345	85.62	85.73	1,630,870,545	84.94	85.04	1,571,433,448	84.49	84.56
Institutional and private investors	267,417,384	12.68	12.70	255,445,264	13.30	13.32	254,927,584	13.70	13.72
Employee shareholdings	33,097,739 ⁽²⁾	1.57	1.57	31,512,465 ⁽³⁾	1.64	1.64	31,965,255 ⁽⁴⁾	1.72	1.72
Treasury shares	2,669,215	0.13	–	2,310,753	0.12	–	1,682,181	0.09	–
TOTAL	2,109,136,683	100.00	100.00	1,920,139,027	100.00	100.00	1,860,008,468	100.00	100.00

(1) These percentages do not include the double voting rights that may have been acquired under Article L. 225-123 of the French Commercial Code.

(2) This number includes 28,771,251 shares (representing 1.36% of the capital) based on the definition of employee shareholdings under Article L. 225-102 of the French Commercial Code (shares held by EDF's employees and former employees through the "Actions EDF" FCPE of the EDF group's savings plan). This number also includes almost 4.3 million shares, representing 0.21% of the capital, held as directly or administered registered shares, with no lock-in periods or whose lock-in periods have expired, by employees or former employees.

(3) This number includes 27,122,068 shares (representing 1.41% of the capital) based on the definition of employee shareholdings under Article L. 225-102 of the French Commercial Code (shares held by EDF's employees and former employees through the "Actions EDF" FCPE of the EDF group's savings plan and the EDF International Group's savings plan). This number also includes almost 4.4 million shares, representing 0.23% of the capital, held as directly or administered registered shares, with no lock-in periods or whose lock-in periods have expired, by employees or former employees.

(4) This number includes 27,443,950 shares (representing 1.48% of the capital) based on the definition of employee shareholdings under Article L. 225-102 of the French Commercial Code (shares held by EDF's employees and former employees through the "Actions EDF" FCPE of the EDF group's savings plan and the EDF International Group's savings plan). This number also includes almost 4.5 million shares, representing 0.24% of the capital, held as directly or administered registered shares, with no lock-in periods or whose lock-in periods have expired, by employees or former employees.

To the Company's knowledge, no shareholder other than the French State directly or indirectly holds more than 5% of the capital and voting rights.

The Company conducted a study on identifiable bearer shares as at 31 December 2016, which allowed it to examine the ownership of its capital and the geographical location of its shareholders on this date. The table set out below summarises this information as at 31 December 2016 and 31 December 2015:

	As at December 31, 2016		As at December 31, 2015	
	Number of shares held	% of capital	Number of shares held	% of capital
State	1,805,952,345	85.62	1,630,870,545	84.94
Institutional investors in Europe (other than France)	55,533,724	2.63	70,200,663	3.66
Institutional investors in the rest of the world	105,599,615	5.01	94,897,592	4.94
Institutional investors in France	44,821,849	2.13	46,657,296	2.43
Private shareholders	61,462,195	2.91	43,689,713	2.28
Employee shareholders	33,097,739	1.57	31,512,465	1.64
Treasury shares	2,669,215	0.13	2,310,753	0.12
TOTAL	2,109,136,683	100.00	1,920,139,027	100.00

Following the allotment of double voting rights attached to 1,571,433,448 shares held as directly registered shares by the State for at least two years since the coming into force of French Act no. 2014-384 of 29 March 2014 designed to recapture the real economy, the State has notified a holding of 1,805,952,345 EDF shares and 3,377,385,793 EDF voting rights at 28 February 2017 (representing 85.62% of the capital and 90.69%¹ of the voting rights of EDF).

On 15 February 2016, the *Agence des Participations de l'État* (APE) announced that the State had agreed to approve the resolution to be

proposed to the General Meeting by the Board of Directors for the payment of the balance of the 2015 dividend, in an amount of €0.53 per share, and to elect for the payment in shares of the balance of the 2015 dividend. If this resolution was approved by the General Meeting of 12 May 2016, the ownership of the capital and voting rights described above could change.

Moreover, on 22 April 2016, the State announced that it would receive its dividend in the form of shares for 2016 and 2017.

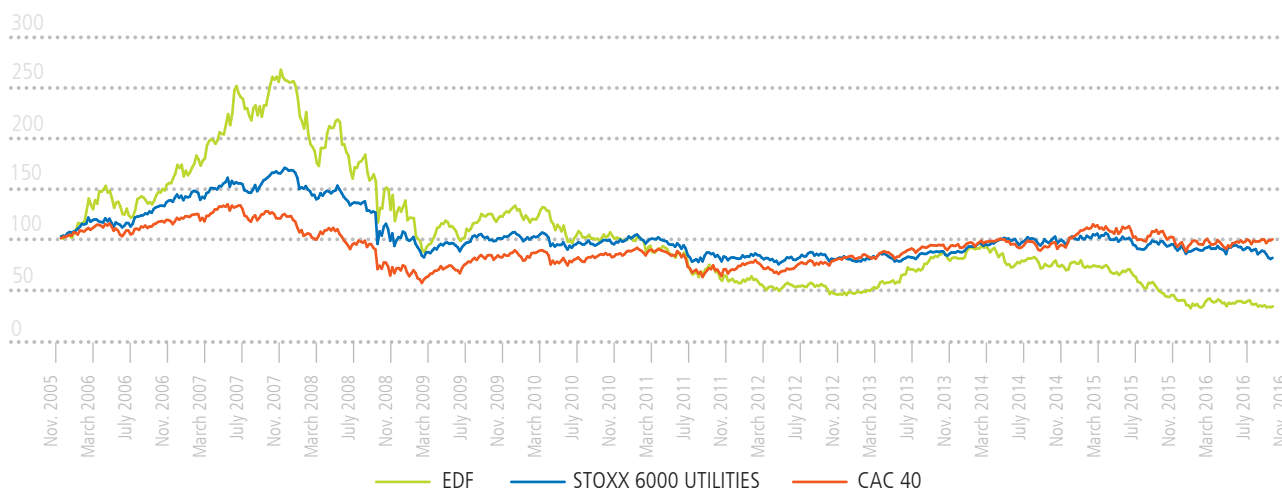
7.3.9 AGREEMENTS WHOSE IMPLEMENTATION COULD LEAD TO A CHANGE IN CONTROL

To EDF's knowledge, there are no agreements whose implementation could subsequently lead to a change in the Company's control. Moreover, pursuant to Article L. 111-67 of the French Energy Code, the State may not hold less than 70% of EDF's capital.

7.4 Market for the Company's shares

The Company's shares have been listed for trading by Euronext Paris (Compartment A) since 21 November 2005, under ISIN code FR 0010242511, Reuters code (EDF.PA) and Bloomberg code (EDF:FP).

The following graph shows the changes in the Company's share price between 21 November 2005 and 30 January 2017 (base 100 as at 21 November 2005):



(Source: Bloomberg)

The following table shows the share price and volume of EDF shares traded between 1 January 2016 and 30 January 2017 on the Euronext Paris stock market:

	Transactions		Closing price (in euros)	
	(in millions of shares)	(in millions of euros ⁽¹⁾)	High	Low
2017				
January 2017	42,060	389,944	9,750	8,829
2016				
December 2016	53,773	543,464	11,205	9,678
November 2016	43,860	438,134	10,280	9,782
October 2016	37,262	381,581	10,880	9,980
September 2016	36,079	401,348	11,975	10,380
August 2016	30,338	348,024	11,920	11,085
July 2016	39,123	432,825	11,705	10,445
June 2016	51,276	562,116	11,900	9,695
May 2016	38,718	453,596	12,545	11,300
April 2016	58,663	653,116	12,545	9,500
March 2016	76,732	776,193	10,850	9,697
February 2016	72,625	769,902	12,010	9,190
January 2016	53,509	642,179	12,820	11,015

(1) The transactions expressed in millions of euros correspond to the monthly sum of the daily number of securities traded, multiplied by the market closing price on the same day (Source: Euronext).

2016

In 2016, EDF's share price decreased by 28.7%. The French CAC 40 index increased by 4.9%, while the Euro Stoxx Utility sector index decreased by 8.9%.

At 30 December 2016, the closing price of the EDF share was €9.680 (€13.575 at 31 December 2015). Its highest closing price in 2016 was €12.820 on 5 January 2016 and its lowest closing price was €9.190 on 24 February 2016.

At 30 December 2016, EDF's market capitalisation totalled €20.42 billion (compared to €26.07 billion at 31 December 2015).

2017

Between the start of 2017 and 31 January 2017 inclusive, EDF's share price fell by 5.8%, the CAC 40 index decreased by 2.3% and the Euro Stoxx Utility (SX6P) sector index decreased by 4.4%.

At 31 January 2017, the closing price of the EDF share was €9.120. Its lowest closing price in 2017, through 31 January 2017 inclusive, was €8.829 on 11 January 2017 and its highest closing price was €9.750 on 3 January 2017.

At 31 January 2017, EDF's market capitalisation totalled €19.24 billion.

7.5 Related party transactions

In addition to the information set out below, the details of the transactions concluded by the Company with related parties, as defined by the IFRS, in respect of the 2016 financial year, are contained in notes 23 and 48 to the consolidated financial statements for the financial year ended 31 December 2016.

The information on the regulated agreements and commitments referred to in Article L. 225-38 of the French Commercial Code is contained in the Statutory Auditors' special report, which is reproduced in section 7.5.4 to this reference document.

7.5.1 RELATIONS WITH THE FRENCH STATE

As of 31 December 2016, the French State held 85.62% of the share capital and 85.73% of the voting rights in EDF. Pursuant to the Article L. 111-67 of the French Energy Code, the state must remain the owner of at least 70% of its capital. The French State thus has the option, as the majority shareholder, of reviewing corporate decisions that require the approval of the shareholders and, in particular, of determining the result of the shareholders' vote for all issues over which General Meetings have authority.

The regulations applicable to EDF, as a result of its majority ownership by the French State, are described in section 1.5 "Legislative and regulatory environment".

The relations with the French State are also described in note 48 to the consolidated financial statements for the financial year ended 31 December 2016.

7.5.2 RELATIONS WITH ENGIE (EX-GDF SUEZ)

The missions of the common service shared by the two subsidiaries of the EDF and Engie groups, which are respectively in charge of the distribution of electricity and gas, Enedis and GRDF, as defined by Article L. 111-71 of the French Energy code, are in the electricity and gas distribution sector: construction of structures, project management work, operation and maintenance of networks, and counting operations. It does not have legal personality. The organizational and functional rules are described in section 1.4.4.2.3 "Service shared by Enedis and GRDF".

7.5.3 RELATIONS WITH PUBLIC SECTOR COMPANIES

Relations with public sector companies mainly concern the AREVA group. Transactions with AREVA concern upstream of the nuclear fuel cycle, the end of the cycle and the maintenance of plants and equipment purchase. These relations are primarily described in sections 2.3 "Dependency factors", 1.4.1.1.4 "The nuclear fuel cycle and related issues", 1.4.1.1.5 "Preparing for the future of the nuclear fleet in France" – "Operating life of the EDF's PWR fleet", 1.4.1.2.2 "Update on the Flamanville EPR project" and 1.4.1.1.6 "Decommissioning of nuclear power plants" and in note 48 to the consolidated financial statements for the financial year ended 31 December 2016.

In addition to the agreements described hereinabove, EDF and AREVA signed, in 2015 and 2016, two non-binding memoranda of understanding providing for the acquisition by EDF of the exclusive control of AREVA NP, the creation of a dedicated company, 80% owned by EDF, aimed at optimizing the design and management of new reactors projects and the signing of a strategic and overall industrial partnership. In accordance with the terms of these memoranda, a contract setting out the terms of the acquisition by EDF of the exclusive control over an entity ("New NP"), a fully owned subsidiary of AREVA NP, was signed on 15 November 2016. The completion of the transaction remains subject to several conditions precedent (see section 1.4.1.2.3.4 "Memoranda of understanding and share transfer agreement between EDF and AREVA").

7.5.4 STATUTORY AUDITORS' REPORT ON REGULATED AGREEMENTS AND COMMITMENTS

This is a free translation into English of the Statutory Auditors' special report on regulated agreements and commitments with third parties that is issued in the French language and is provided solely for the convenience of English speaking readers. This report on regulated agreements and commitments should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France. It should be understood that the agreements reported on are only those provided by the French Commercial Code and that the report does not apply to those related party transactions described in IAS 24 or other equivalent accounting standards.

Shareholders' Meeting held to approve the financial statements for the year ended 31 December 2016

To the Shareholders,

In our capacity as Statutory Auditors of Electricité de France SA (the "Company"), we hereby report to you on regulated agreements and commitments.

The terms of our engagement require us to communicate to you, based on information provided to us, the principal terms and conditions of those agreements and commitments brought to our attention or which we may have discovered during the course of our audit, without expressing an opinion on their usefulness and appropriateness or identifying such other agreements and commitments, if any. It is your responsibility, pursuant to Article R. 225-31 of the French Commercial Code (Code de Commerce), to assess the interest involved in respect of the conclusion of these agreements and commitments for the purpose of approving them.

Our role is also to provide you with the information stipulated in Article R. 225-31 of the French Commercial Code relating to the implementation during the past year of agreements and commitments previously approved by the Shareholders' Meeting, if any.

We conducted the procedures we deemed necessary in accordance with the professional guidelines of the French National Institute of Statutory Auditors (Compagnie Nationale des Commissaires aux Comptes) relating to this engagement. These procedures consisted in agreeing the information provided to us with the relevant source documents.

Agreements and commitments submitted to the approval of the shareholders' meeting

Agreements and commitments authorized during the year

Pursuant to Article L. 225-40 of the French Commercial Code, the following agreements and commitments, which were previously authorized by the Board of Directors have been brought to our attention.

1. Appointment of BNP Paribas by EDF as "Global Coordinator" in conjunction with the contemplated share capital increase (the "Offering")

Persons concerned: Mrs. Laurence Parisot, director of EDF SA and BNP Paribas.

Nature, purpose, terms and reasons: The share capital increase with preferential subscription rights which is contemplated to be completed in March 2017 will be covered by a guarantee and placement agreement ("Underwriting Agreement") which will be signed on the day the Offering will be launched, between the Company and a banking syndicate led by BNP Paribas as one of the Global Coordinators and one of the guarantors. Under the terms of this Underwriting Agreement, the guarantors, acting jointly and not severally liable, will commit to have a third party subscribe or, by default, subscribe all of the shares, which would remain unsubscribed following the subscription period of the Offering, notwithstanding the fact that, under the terms of the Offering and the subscription commitment of the French State, this guarantee shall not be construed as a performance guarantee as defined by Article L. 225-145 of the French Commercial Code.

The draft Underwriting Agreement provides that the compensation to be received by the guarantors in the form of an underwriting fee amounting to 1.0% of the difference between the gross proceeds of the offering less the proceeds of the subscription commitment of the French State, to be allocated between the guarantors, pro rata, based on their respective commitment guarantees. In addition, the Company could decide to pay a discretionary incentive fee in an amount corresponding to 0.3% of the difference, as defined above. The underwriting fee and the discretionary fee shall be payable on the closing date, by deduction from the gross proceeds of the Offering.

The Board of Directors, which has authorized this draft agreement during its meeting on 21 June 2016, has concluded that the signing of the agreement is justified by the contemplated share capital increase for which the Company had to appoint banks as Global Coordinators. After a tender process, for which more than 20 banks have been auditioned, the Company has selected 4 Global Coordinators, amongst which is BNP Paribas, as noted above.

2. Appointment of Société Générale by EDF as "Global Coordinator" in conjunction with the contemplated share capital increase (the "Offering")

Persons concerned: Mr. Jean-Bernard Lévy, Chairman and Chief Executive Officer of EDF SA and director of Société Générale.

Nature, purpose, terms and reasons: The share capital increase with preferential subscription rights which is contemplated to be completed in March 2017 will be covered by a guarantee and placement agreement ("Underwriting Agreement") which will be signed on the day the Offering will be launched, between the Company and a banking syndicate led by Société Générale as one of the Global Coordinators and one of the guarantors.

The terms and compensation of Société Générale as a guarantor are the same as those of BNP Paribas, which are described in paragraph 1. above.

The Board of Directors, which has authorized this draft agreement during its meeting on 21 June 2016, has concluded that the signing of the agreement is justified by the contemplated share capital increase for which the Company had to appoint banks as Global Coordinators. After a tender process, for which more than 20 banks have been auditioned, the Company has selected 4 Global Coordinators, amongst which is Société Générale, as noted above.

3. Acquisition by EDF of a majority equity stake conferring exclusive control of the activities of AREVA NP

Persons concerned: The French State, represented by Mr. Martin Vial at the Board of Directors, shareholder whose voting rights exceed 10% of EDF SA and AREVA SA, and Mr. Christian Masset, director of EDF SA and AREVA SA.

Nature, purpose, terms and reasons: Following the memorandum of understanding which was signed on 28 July 2016, this agreement, signed on 15 November 2016, stipulates the terms of the sale of a majority stake conferring exclusive control of an entity ("New NP"), a 100% subsidiary of AREVA NP, that will combine the AREVA group's activities relating to nuclear reactors and equipment design and manufacturing, fuel assemblies, and installed base services of the Company. The contracts for the EPR Olkiluoto 3 project and the resources required to complete the project, as well as certain contracts relating to components forged in Le Creusot plant, will stay within AREVA NP, in AREVA SA's scope.

Contractual obligations related to the discovery of anomalies in the quality inspection of equipment manufactured at the Le Creusot plant, and, if need be, the Saint-Marcel and Jeumont plants, will remain guaranteed by AREVA SA.

The Board of Directors, which has authorized this agreement during its meeting on 15 November 2016, has concluded that the signing of the agreement is justified by the rebuilding of the French nuclear industry, with EDF as lead. This will enable the group to be more efficient in carrying out major projects such as the "Grand Carénage" of the nuclear fleet and the construction of new nuclear plants, and also be more competitive to conquer new international markets.

4. Contemplated partial sale of the capital of RTE to the Caisse des Dépôts and CNP Assurances, including the signing of a loan agreement for the joint venture (C25), a share purchase agreement and a shareholders' agreement

Persons concerned: The French State, represented by Mr. Martin Vial at the Board of Directors, having one representative at the Board of Directors of CNP Assurances.

Nature, purpose, terms and reasons: This agreement, signed on 14 December 2016 between EDF, as one party, and Caisse des Dépôts and CNP Assurances, as the other party, sets the terms and conditions of the acquisition by Caisse des Dépôts and CNP Assurances of a 49.9% indirect stake in RTE, as well as the modalities of a long-term partnership to foster the development of RTE. The final agreed value was set at €8.2 billion for 100% of RTE equity (EDF will potentially benefit from a value complement of up to €100 million).

The balance of EDF's stake in the joint-venture (50.1%) will remain allocated to the portfolio of dedicated assets intended to cover expenses related to the back-end of the nuclear cycle.

The Board of Directors, which has authorized this agreement during its meeting on 14 December 2016, has concluded that the signing of the agreement is justified by the strategy of EDF to focus its financial resources on priority investments, for the benefit of the energy transition and in accordance with the strategic framework announced at the beginning of 2016.

5. Agreement signed between the French State, EDF, the *Caisse des Dépôts*, CNP Assurances and C25 in relation to the governance of the joint venture (C25) and RTE

Persons concerned: The French State, represented by Mr. Martin Vial at the Board of Directors, shareholder whose voting rights exceed 10% of EDF SA, one of the contracting party and having one representative at the Board of Directors of CNP Assurances.

Nature, purpose, terms and reasons: The purpose of this agreement signed between EDF, the *Caisse des Dépôts*, CNP Assurances, C25 and the French State, is to formalise the commitment of the French State to limit the number of its representatives at the Supervisory Board of RTE to two.

The Board of Directors, which has authorized this agreement during its meeting on 14 December 2016, has concluded that the signing of the agreement is justified, in particular, by the commitment of the French State aiming at ensuring the representation of the new shareholders at the Supervisory Board of RTE, by limiting the number of its representatives to two and reinforcing the certification application to the Commission de Régulation de l'Énergie (CRE).

Agreements and commitments previously approved by the shareholders' meeting

Pursuant to Article R. 225-30 of the French Commercial Code, we have been informed that the following agreements and commitments, previously approved by Shareholders' Meetings of prior years, have remained in force during the year.

Agreements with AREVA NP

Your Company entered into three agreements with AREVA NP in 2007 with respect to the following services:

- construction of the nuclear boiler for the Flamanville 3 EPR nuclear plant;
- maintenance and servicing of boilers as part of the third ten-year inspection of the 900MW-type nuclear plants in France;
- advance booking of forged parts for EPR reactors constructed abroad.

Total consideration for these agreements and their amendments initially amounted respectively to €1.465 million (of which €278 million was recorded in 2016), €122 million (of which €3 million was recorded in 2016) and €212 million (no amount was recorded in 2016).

Paris - La Défense and Neuilly-sur-Seine, 27 February 2017

The Statutory Auditors

KPMG Audit

Department of KPMG SA

Jacques-François Lethu

Jean-Louis Caulier

Deloitte & Associés

Alain Pons

Anthony Maarek

7.6 Material contracts

The information on the regulated agreements and commitments referred to in Article L. 225-38 of the French Commercial Code is contained in the Statutory Auditors' special report, which is reproduced in section 7.5.4 of this reference document, section 7.5.4 of the 2015 reference document and appendix C of the 2014 reference document.

Except for the contracts which may be described in chapters 1 and 5 of this reference document or in the notes to the consolidated statements for the financial year ended 31 December 2016, in chapters 1 and 5 of the 2015 reference document or in the notes to the consolidated statements for the financial year ended 31 December 2015, in chapters 6 and 9 of the 2014 reference document and in the notes to the consolidated financial statements for the financial year ended 31 December 2014, including the contracts described hereunder, EDF signed no material contracts other than those concluded in the normal course of business over the last two years preceding the filing of this reference document, the 2015 reference document and the reference document 2014.

7.6.1 MATERIAL CONTRACTS ENTERED INTO IN 2016

Material contracts entered into by the Group in 2016, other than those concluded in the normal course of business are the following ones:

- final agreements relating to the Hinkley Point C project, entered into on 29 September 2016, with the British Government and CGN following the authorization of the final investment decision by EDF's Board of Directors on 28 July 2016 (see sections 1.4.5.1.2.5 "Nuclear new build business" and 5.1.3.5.1 "Hinkley Point: signature of the final agreements" and note 3.2 to the consolidated financial statements for the financial year ended 31 December 2016);
- a share transfer agreement relating to the acquisition of AREVA NP's activities through the acquisition of an interest in New NP, (a fully owned subsidiary of AREVA NP) representing 51% to 75% of the share capital and voting rights, entered into between EDF SA, AREVA and AREVA NP on 15 November 2016. A draft of shareholders' agreement was attached to the share sale agreement, relating to the governance of New NP, authorized by the Board of Directors on 15 November 2016 (see sections 1.4.1.2.3.4 "Memoranda of understanding and share transfer agreement between EDF and AREVA" and 5.1.3.5.2 "EDF and AREVA sign binding agreements for the sale of AREVA NP's activities" and note 3.4 to the consolidated financial statements at 31 December 2016);
- an investment agreement (and its appendices) entered into between EDF SA, Caisse des dépôts and CNP Assurances on 14 December 2016 providing for the indirect partial sale of the shares in Réseau de Transport d'Électricité – RTE authorized by the Board of Directors on 14 December 2016 (see sections 1.4.4.1 "Transmission – Réseau de Transport d'Électricité (RTE)" and 5.1.3.9.1 "EDF, Caisse des Dépôts and CNP Assurances: signature of a binding agreement for a long-term partnership with RTE" and note 3.5.1 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016);
- a compensation protocol relating to the closing of the Fessenheim plant approved on 24 January 2017 by EDF's Board of Directors (see sections 1.4.1.1.6 "Decommissioning of nuclear power plants" and 5.1.3.16.4 "Compensation protocol for the closure of the Fessenheim plant" and note 3.7 in the appendix to the consolidated financial statements for the financial year ended 31 December 2016).

7.6.2 MATERIAL CONTRACTS ENTERED INTO IN 2015

Material contracts entered into in 2015, other than those conducted in the normal course of business, by the Group, are the followings¹:

- an agreement signed 30 June 2015 with EP Energy concerning the sale of 95,6% of the Hungarian company Budapesti Erőmű Zrt (BE Zrt) (see section 1.4.5.3.2 "Central and Eastern Europe", section 5.1.3.4.2.7 "Finalisation of the sales of Budapesti Erőmű Zrt (BE Zrt) and Energie Steiermark Holding AG (Estag)" and note 5.1 to the consolidated financial statements of the financial year ended 31 December 2015);
- an agreement in date of 10 July 2015 signed with Macquarie Infrastructure and Real Assets concerning the sale by the Group of 25% of its shares in the Austrian company Energie Steiermark Holding AG (Estag) (see section 1.4.5.3.1 "Northern Europe", section 5.1.3.4.2.7 "Finalisation of the sales of Budapesti Erőmű Zrt (BE Zrt) and Energie Steiermark Holding AG (Estag)" and note 5.2 to the appendix to the consolidated financial statements ended 31 December 2015);
- a non-binding memorandum of understanding was signed 30 July 2015 formalizing the state of advancement of the discussions related to the partnership project between AREVA and EDF (see section 1.4.1.2.3.2 "Memorandum of Understanding with AREVA");
- a strategic investment 21 October 2015 with China General Nuclear Power Corporation (CGN) for the construction and operation of two EPR reactors on the Hinkley Point C site (see section 1.4.1.2.3.1 "Hinkley Point C EPR" and 1.4.5.1.2.5 "Nuclear New Build business" – "Hinkley Point C (HCP)").

7.6.3 MATERIAL CONTRACTS ENTERED INTO IN 2014

Material contracts entered into in 2014, other than those conducted in the normal course of business, by the Group, are the followings²:

- agreement between EDF and EPH finalised on 27 November 2013 regarding the sale to EPH of a 49% stake in Stredoslovenska Energetika a.s. (SSE) (see chapter 5 of this reference document and note 3.7.1 to the consolidated financial statements for the year ended 31 December 2014);
- agreement with Exelon regarding CENG finalised on 1st April 2014 (see section 9.2.2.2.2 "Final agreement with Exelon concerning CENG" and section 6.3.3.2.2.1 "Existing Nuclear business unit: Constellation Energy Nuclear Group (CENG)");
- agreement between EDF and Veolia Environnement finalised on 25 July 2014 regarding the taking over by the EDF group of all of the Dalkia's activities in France (see section 6.4.1.3.1.4 "Termination of the partnership with Veolia Environnement" and note 3.1 to the consolidated financial statements for the year ended 31 December 2014);
- finalisation of the agreement between Edison, EDF Énergies Nouvelles and F2i for the creation of a new operator in the renewable energy sector announced on 6 November 2014 (see sections 6.3.2.3.1 "Electricity generation business", 9.2.2.2.6 "finalisation of the agreement between Edison, EDF Énergies Nouvelles and F2i" and note 3.2.2 to the consolidated financial statements for the year ended 31 December 2014).

1. The references of this section refer to 2015 Reference Document.

2. The references of this section refer to 2014 Reference Document.



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8.1 Person responsible for the Reference Document and the Certification

8.1.1 PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

Jean-Bernard Lévy, Chairman and Chief Executive Officer of EDF.

8.1.2 CERTIFICATION FROM THE PERSON RESPONSIBLE FOR THE 2016 REFERENCE DOCUMENT CONTAINING THE ANNUAL FINANCIAL REPORT

Having taken all reasonable care to ensure that such is the case, I certify that, to the best of my knowledge, the information contained in this Reference Document accurately reflects the facts and contains no omission likely to affect its meaning.

I certify that, to the best of my knowledge, the financial statements are prepared in accordance with accounting standards and that they give a true and fair view of the assets and liabilities, financial position and the income of the Company and of all the companies included in the consolidation, and that the management report (*Rapport de gestion*) presents a true and fair view of the business trends, income and financial position of the Company and of all the companies included in the consolidation and a description of the main risks and uncertainties they face.

I have obtained a letter from the Statutory Auditors certifying that they have verified the financial and accounting information provided in this Reference Document and that they have read the document in entirety. This letter contains no observation.

Jean-Bernard Lévy,
Chairman and Chief Executive Officer of EDF

8.2 Auditors

8.2.1 STATUTORY AUDITORS

Deloitte et Associés

185, avenue Charles-de-Gaulle, 92200 Neuilly-sur-Seine, represented by Messrs. Alain Pons and Anthony Maarek.

KPMG SA

Tour EQHO, 2, avenue Gambetta, CS 60055, 92066 Paris - La Défense cedex, represented by Messrs. Jacques-François Lethu and Jean-Louis Caulier.

The Statutory Auditors were initially appointed by decision of the Shareholders' Meeting of 6 June 2005 for a period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2010.

Their terms of office were renewed by decision of the Combined Shareholders' Meeting of 24 May 2011 for a new period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.

The aforementioned Auditors consequently certified the financial statements reproduced in this Reference Document.

It will be proposed to the Combined Shareholders' Meeting of the 18 May 2017 to renew the appointment as Statutory Auditors of Deloitte et Associés and KPMG SA for a new period of six fiscal years until the Ordinary Shareholders' Meeting held to deliberate on the financial statements ending 31 December 2022.

8.2.2 DEPUTY AUDITORS

BEAS

195, avenue Charles-de-Gaulle, 92200 Neuilly-sur-Seine.

KPMG Audit IS

Tour EQHO, 2, avenue Gambetta, CS 60055, 92066 Paris - La Défense cedex.

The term of office of the company BEAS, initially appointed as Alternate Auditors by decision of the Shareholders' Meeting of 6 June 2005 for a period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2010, was renewed by decision of the Combined Shareholders' Meeting of 24 May 2011 for a new period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.

The company KPMG Audit IS was appointed as Alternate Auditors by decision of the Combined Shareholders' Meeting of 24 May 2011, replacing SCP Jean-Claude André, for a period of six fiscal years expiring at the end of the Shareholders' Meeting ruling on the financial statements covering the fiscal year closing 31 December 2016.

8.3 Documents available to the public

The Company's press releases, annual reports, including historical financial information relating to the Company and any related updates filed with the AMF, are available on the Company's website: <http://finance.edf.com/finance-41326.html>, and a copy may also be obtained at the Company's registered office at 22-30, avenue de Wagram in Paris, France.

All of the regulated information published by the Company, pursuant to Article 221-1 *et seq.*, in the AMF's General Regulation, is available at

the following address: <http://finance.edf.com/actualites-et-publications/publications/information-reglementee/sommaire-44493.html>.

Finally, the documents and information referred to in Article R. 225-73-1 of the French Energy Code, are available on EDF web site in the section dedicated to Shareholders' Meetings.

8.4 Financial communication calendar

2016 Annual Results	14 February 2017
First quarter 2017 revenue	9 May 2017
Annual General Shareholders' Meeting ⁽¹⁾	18 May 2017
Half year 2017 Results	28 July 2017

(1) Subject to the Board's decision.

The Company has imposed a 15 days embargo period prior to the announcement of the annual and half-year results and before the quarterly results ("quiet period") during which no new information regarding the business development and EDF's results have to be issued to financial

analysts and investors so as to avoid the release of incomplete financial information enabling the recipients to anticipate EDF's results prior to their official publication.

8.5 Concordance tables

8.5.1 CONCORDANCE TABLE WITH THE ANNEX I OF REGULATION (CE) NO. 809/2004

Concordance table with the information required by the appendix I of regulation (CE) no. 809/2004 of 29 April 2004:

	Reference Document sections
1. Persons responsible	Section 8.1
1.1. Name and positions of the persons responsible	Section 8.1.1
1.2. Declaration by the persons responsible	Section 8.1.2
2. Statutory Auditors	Section 8.2
2.1. Names and addresses of the issuer's auditors	Section 8.2
2.2. Change in auditors, where applicable	n.a.
3. Selected financial information	Introduction: Key figures
3.1. Historical financial information	Section 6.5
3.2. Interim financial information	n.a.
4. Risk factors	Section 2.1
5. Information about the issuer	Chapters 1 and 7
5.1. Selected history and development of the issuer	Section 1.1
5.1.1. Legal and commercial name of the issuer	Section 7.1.1
5.1.2. Place of registration of the issuer and its registration number	Section 7.1.2
5.1.3. Date of incorporation and the length of life of the issue	Section 7.1.3
5.1.4. Domicile and legal form of the issuer, legislation under which the issuer operates, its country of incorporation, and the address and telephone number of its registered office	Section 7.1.4
5.1.5. Important events in the development of the issuer's business	Sections 5.1.2 / 5.1.3
5.2. Investments	Section 1.3.3
5.2.1. Past principal investments	Section 1.3.3.1
5.2.2. Principal investments in progress	Section 1.3.3.2
5.2.3. Future principal investments for which commitments have been taken by governing bodies	Sections 1.3.3.2 / 5.1.3.5
6. Business overview	Section 1.4
6.1. Principal activities	Section 1.4
6.2. Principal markets	Section 1.4
6.3. Exceptional factors	n.a.
6.4. Extent to which the issuer is dependent	Section 2.3
6.5. Competitive position	Sections 1.4.2.1.2 / 1.4.5.1.2.4
7. Organizational structure	Section 1.2.1
7.1. Brief description of the Group	Section 1.2.1
7.2. List of significant subsidiaries	Section 1.2.1
8. Property, plant and equipment	Section 1.7
8.1. Material property, plant and equipment	Section 1.7
8.2. Environmental issues	Sections 1.7 / 3.2 / 3.4.2
9. Operating and financial review	Chapter 6
9.1. Financial position	Chapter 6
9.2. Operating results	Chapter 6.1
9.2.1. Significant factors materially affecting the issuer's income from operations	Section 5.1.2 / 5.1.3
9.2.2. Explanation of material changes in net sales or revenue	Section 6.7
9.2.3. Policies or factors that have materially affected, directly or indirectly, the issuer's operations Strategy or factor of governmental, economical, budgetary, monetary or political nature, that has influenced or which may significantly influence, directly or indirectly, the issuer's operations	Sections 1.3.1 / 1.3.2

		Reference Document sections
10.	Capital resources	Chapters 6 and 7
10.1.	Issuer's capital resources	Sections 7.2 / 7.3
10.2.	Source and amounts of cash flows	Chapter 6.1 – Note 43
10.3.	Borrowing requirements and the funding structure of the issuer	Chapter 6.1 – Note 38
10.4.	Restrictions on the use of capital resources	n.a.
10.5.	Information regarding the anticipated sources of funds	n.a.
11.	Research and development, patents and licenses	Section 1.6
12.	Trend information	Sections 5.2 / 5.3 / 5.4
12.1.	Most significant recent since the end of the last fiscal year	Section 5.2
12.2.	Information on events that are reasonably likely to have a material effect on the issuer's prospects	Section 5.4
13.	Profit forecasts or estimates	Section 5.4
14.	Administrative, management, and supervisory bodies and Executive Management	Chapter 4
14.1.	Members of the administrative and management bodies	Sections 4.2.1 / 4.3.1
	Name, professional address and functions	Sections 4.2.1 / 4.3.1
	Nature of any family relationship	Section 4.4
	Expertise and experience	Sections 4.2.1 / 4.3.1
	Absence of conviction	Section 4.4.2
14.2.	Conflicts of interest	Section 4.4.3
15.	Compensation and benefits	Section 4.6
15.1.	Compensation paid and benefits in kind	Sections 4.6.1 / 4.6.2
15.2.	Amounts set aside or accrued to provide pension, retirement	Section 4.6.1.1.3
16.	Board practices	Section 4.2.2
16.1.	Date of expiration of the current terms of office	Section 4.2.2.1
16.2.	Members of the administrative or management bodies' services contracts	Section 4.4.4
16.3.	Information about Audit and Remuneration committees	Section 4.2.3
16.4.	Statement of compliance with the corporate governance regime in force	Section 4.1
17.	Employee	Section 3.3
17.1.	Number of employees	Section 3.3.1
17.2.	Shareholdings and stock options	n.a.
17.3.	Arrangements for involving the employees in the capital of the issuer	n.a.
18.	Major shareholders	Section 7.3
18.1.	Major shareholders holding more than 5% of the share capital	Section 7.3.8
18.2.	Breakdown of voting rights	Section 7.2.4
18.3.	Controlling shareholder	Section 7.3
18.4.	Agreements whose implementation could lead to a change of control	Section 7.3.9
19.	Related-party transactions	Section 7.5
20.	Financial information concerning the issuer's assets and liabilities, financial position and profits and losses	Chapters 5 and 6
20.1.	Historical financial information	Section 6.6
20.2.	Pro forma financial information	n.a.
20.3.	Financial statements	Chapter 6
20.4.	Auditing of historical annual financial information	Chapter 6
20.5.	Date of the latest financial information	n.a.
20.6.	Interim and other financial information	Chapter 6
20.7.	Dividend policy	Section 6.6
20.8.	Disputes and litigation	Section 2.4
20.9.	Significant change in the issuer's financial or trading position	Section 6.7

		Reference Document sections
21.	Additional information	Chapters 6 and 7
21.1.	Share capital	Chapter 6.1 – note 27; Section 7.3
	Amount of subscribed share capital, number of fully paid issued shares and par value per share	Section 7.3.1
	Number of shares authorized	Section 7.3.3
	Information on shares not representing the share capital	n.a.
	Number, book value and nominal value of the shares held by the issuer	Section 7.3.2
	Information on convertible or exchangeable securities or securities with subscription warrants	n.a.
	Information on conditions governing any right of acquisition and/or obligation right attached to authorized but unissued share capital or any endeavour to increase the share capital	Sections 7.2.4 / 7.2.5 / 7.3.3
	Information about the share capital owned by any member of the Group which is under option or subject to a conditional or unconditional agreement to be put under option and characteristics of such options	Section 7.3.6
	History of the Company's share capital	Section 7.3.1
21.2.	Articles of association	Section 7.2
22.	Material contracts	Section 7.6
23.	Third party information, statements by experts and declarations of interest	n.a.
23.1.	Identity	n.a.
23.2.	Certificate	n.a.
24.	Documents on display	Section 8.3
25.	Information on investments	Section 4.5.1

8.5.2 CONCORDANCE TABLE WITH THE MANAGEMENT REPORT

This Reference Document includes the elements of the Board of Directors' management report relating to the 2016 fiscal year as provided for in Articles L. 225-100 *et seq.* of the French Commercial Code. The management report is composed of the sections of the Reference Document referred to in the following table:

Required topics	Reference texts	Reference document sections
Situation and activity of the Group		
Objective and exhaustive analysis of the Company's and Group's business, results and financial situation	L. 225-100, L. 225-100-2, L. 232-1, L. 233-6 and L. 233-26 of the French Commercial Code	Chapter 5
Key events arising between the end of the fiscal year and the date the management report was written	L. 232-1 and L. 233-26 of the French Commercial Code	Section 5.2
Foreseeable development and future prospects of the situation of the Company and the Group	L. 232-1 and L. 233-26 of the French Commercial Code	Section 5.4 Section 5.5
Key indicators of financial and non-financial performance relevant to the particular business of the Company and the Group	L225.100 and L. 225-100-2 of the French Commercial Code	Section 3.4.3
Description of the major risks and uncertainties and and indication on the use of financial instruments for the Company and the Group	L. 225-100 al. 4 and 6 and L. 225-100-2 al.2 and 4 of the French Commercial Code	Section 2.1 Section 4.7
Acquisition of significant equity holdings during the reporting period in Companies having their registered office on the French territory	L. 233-6 al.1 of the French Commercial Code	Section 1.4.1.2.3.4
Research and development activities	L. 232-1 and L. 233-26 of the French Commercial Code	Section 1.6

Required topics	Reference texts	Reference document sections
Corporate Governance/ Executives officers		
List of all mandates and positions held in all group's companies by each executive officer during financial year	L. 225-102-1 of the French Commercial Code	Section 4.2 Section 4.3
Remuneration and benefits of all kinds paid by the Company during the financial year to each executive officer	L. 225-102-1 of the French Commercial Code	Section 4.6 Section 7.5 Section 7.6 Note 48 to the consolidated statements
Agreements concluded between a manager or a major shareholder and a subsidiary	L. 225-102-1 of the French Commercial Code	
Information on operations made on the Company's shares by managers' transactions and related persons	L. 621-18-2 of the French Monetary and Financial Code	Section 4.5.2
Attribution and conservation of stock-options by the executive officers	L. 225-185 of the French Commercial Code	n.a.
Attribution and conservation of free shares to executive officers	L. 225-197-1 of the French Commercial Code	Section 4.6.2
Share ownership and capital stock		
Structure and change of the Company's share capital	L. 233-13 of the French Commercial Code	Section 7.3
Acquisition and disposal by the Company of its own shares	L. 225-211 of the French Commercial Code	Section 7.3.2.2 Section 3.3.3.1 Section 7.3.8
Status of employees participation in the share capital	L. 225-102 al 1 of the French Commercial Code	
Shares acquired by employees in the context of employees buyout	L. 225-102 al 2 of the French Commercial Code	n.a.
References to potential adjustments for the securities giving access to the share capital in the case of share repurchases or financial operations	R. 228-90 and R. 228-91 of the French Commercial Code	n.a.
Information likely to impact a public offer	L. 225-100-3 of the French Commercial Code	Section 7.2.8
Amount of dividend paid out over the past three fiscal years	243 bis of the French General Tax Code	Section 6.6.1
Environmental, labour and social information		
Environmental information	L. 225-102-1 al 5 and 6 and R. 225-105 of the French Commercial Code	Section 3.2
Specifics Information concerning companies using at least one site filed as Seveso "high threshold"	L. 225-102-2 of the French Commercial Code	Section 3.2
Labour information	L. 225-102-1 al 5 and 6 and R. 225-105 of the French Commercial Code	Section 3.2
Social information	L. 225-102-1 al 5 et 6 and R. 225-105 of the French Commercial Code	Section 3.2
Other information		
Additional tax information	223 <i>quater</i> and 223 <i>quinquies</i> of the French General Tax Code	n.a.
Injunctions or fines as a result of anti-competitive practices	L. 464-2 of the French Commercial Code	n.a.
Information concerning suppliers payment periods	D. 441-6-1 of the French Commercial Code	Section 5.1
Summary table of the outstanding delegations given by the annual general meeting to perform capital increases	L. 225-100 al 7 of the French Commercial Code	Section 7.3.3
Table showing the Company's results over each of the last five financial periods	R. 225-102 of the French Commercial Code	Section 6.5
Report of the President of the Board of Directors on the preparation and organisation of the work of the Board and on the internal control procedures adopted by the Company.	L. 225-37 of the French Commercial Code	Section 4.7
List of the existing subsidiaries	L. 232-1 of the French Commercial Code	Section 5.1.8
Amount of intercompany loans granted	L. 511-6 of the French Commercial Code	Section 1.2.2
Information on pension's commitments and other lease benefits.	L. 225-102-1 of the French Commercial Code	Section 3.3.3.2

8.5.3 CONCORDANCE TABLE WITH THE ANNUAL FINANCIAL REPORT

This Reference Document includes the 2016 annual financial report prepared pursuant to Articles L. 451-1-2 of the French Monetary and Financial Code (*Code monétaire et financier*) and 222-3 of the AMF General Regulations. The annual financial report is composed of the sections of the Reference Document referred to in the following table:

Topics	Reference document sections
Certification from the person responsible of the annual financial report	Section 8.1.2
EDF annual financial statements	Section 6.3
Statutory Auditors' Report on the EDF annual financial statements	Section 6.4
EDF group consolidated financial statements	Section 6.1
Statutory Auditors' Report on the EDF group's consolidated financial statements	Section 6.2
Management report	Section 8.5.2
Fees paid to Statutory Auditors	Note 52 fo the appendix to the consolidated accounts

8.5.4 CONCORDANCE TABLE WITH THE REPORT OF THE CHAIRMAN OF THE EDF BOARD OF DIRECTORS ON CORPORATE GOVERNANCE, INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES

This Reference Document includes all the elements of the EDF Board of Directors' report pursuant to Article L. 225-37 of the French Commercial Code. The Chairman of the Board of Director's report is composed of the sections of the Reference Document referred to in the following table:

Topics	Reference document sections	Pages
Composition of the Board of Directors, application of the balanced representation between women and men principle in the Board and conditions of preparation and organisation of the Board's work	4.2	233
Limitation of powers of the Chairman and Chief Executive Officer	4.2.2.3	250
Internal control and risk management procedures implemented by the Group	2.2	127
Reference to the Corporate Governance Code	4.1	232
Specific procedures relating to the participation of shareholders in General meeting	7.2.7	510
Guidelines and rules approved by the Board of Directors for the determination of the executives officers' compensation and benefits	4.6	261
Informations about Article L. 225-100-3 of the French Commercial Code	7.3	512

Glossary

ANDRA <i>(Agence nationale pour la gestion des déchets radioactifs)</i>	In France, radioactive waste is managed by the National Agency for Radioactive Waste Management (ANDRA), a public industrial and commercial institution created under the French Law of 30 December 1991.
ASN <i>(Autorité de sûreté nucléaire)</i>	On behalf of the Government, the Nuclear Safety Authority (ASN) supervises nuclear safety and radiation protection in France to protect workers, patients, the public and the environment from the risks related to the use of nuclear power. It is responsible in particular for the external oversight of nuclear facilities in France. The ASN is an independent administrative authority comprised of over 300 people. At the national level, the ASN is represented by the Directorate-General for Nuclear Safety and Radiation Protection (DGSNR).
Assembly/Fuel	Nuclear fuel is in the form of an assembly made up of an array of 264 fuel rods, bound together by a rigid structure made of tubes and grids. Each fuel rod consists of a water-tight zirconium tube into which uranium oxide pellets are piled, constituting the fuel. The assemblies are loaded side by side into the reactor vessel – 205 assemblies are required for a 1,500MW reactor – to make up the core of the reactor. During operation, these assemblies are crossed by bottom to top with primary water which heats on contact and carries this energy to the steam generators.
Balancing Mechanism	Created by RTE on 1 April 2003, the balancing mechanism allows it to use power reserves that can be mobilised in the event of an imbalance between supply and demand.
Becquerel (Bq)	International legal unit for measuring radioactivity. The Becquerel (Bq) is equal to one disintegration per second. The activity represented by this unit is so low that multiples of it are used: the MBq (megabecquerel or million Becquerels) and the GBq (gigabecquerel or billion Becquerels).
Cogeneration	Generation technique for combined electricity and heat production. The advantage of cogeneration is the ability to capture the heat produced by the fuel whereas in traditional electricity generation this heat is lost. This process also allows the same facility to meet the heating (hot water or steam) and electricity needs of both industrial and local authority customers. This system improves the energy efficiency of the generation process and reduces fuel use by an average of 20%.
Combined-Cycle Gas	The most recent technology for generating electricity in a natural gas-fired plant. A combined cycle is made up of one or more combustion turbines and a steam turbine allowing for an improved yield. The syngas is routed to the combustion turbine, which generates electricity and very hot exhaust gases (effluents). The heat from the exhaust gases is recovered by a boiler, thus producing steam. Part of the steam is then recovered by the steam turbine to generate electricity.
Congestion	Situation in which an interconnection linking the national transmission grids cannot absorb all of the physical flows resulting from international exchanges required by market operators due to a shortage of capacity in the interconnection and/or the national transmission grids involved.
CRE <i>(Commission de Régulation de l'Énergie)</i>	The French Energy Regulatory Commission (CRE) was created on 30 March 2000 to ensure the proper functioning of the electricity and gas market. The CRE, an independent body, regulates the opening of the French energy market. It ensures that all of the generators and eligible customers have non-discriminatory access to the network. Within its jurisdiction, this body supervises and authorises, settles any disputes and, if required, imposes sanctions. For a detailed description of its powers, see section 1.5.3.2 "French legislation: Energy Code".
Disruption	Voluntary reduction of electrical power by a customer, in exchange for compensation. It is called "diffused" when it is due to the aggregation of small consumption sites.
Distribution network	Downstream of the transmission network, medium- and low-voltage distribution networks serve end-users (residential, local authorities, SMEs, SMLs, etc.).
Electricity supply	Electricity demand can be broken down into four types of consumption: <ul style="list-style-type: none"> ■ the "basic" (or "ribbon") supply of electricity, which is generated and consumed throughout the year; ■ "semi-basic" supply is the electricity generated and consumed over the winter period; ■ "peak" supply corresponds to periods of the year when electricity generation or supply is in heavy demand; ■ "lace" supply is a complement to "ribbon" supply.

Enrichment	Process to increase the fissile content of an element. In its natural state uranium is 0.7% uranium 235 (fissile) and 99.3% uranium 238 (non fissile). To enable its efficient use in a pressurised water reactor, it is enriched with uranium 235 whose proportion is increased to around 4%.
Enriched uranium	Uranium, whose isotope 235 content, the only fissile material, has been increased from its low natural level (0.7%) to approximately 4% for pressurised water reactor fuel.
Entity Responsible for Balance	Entities with which RTE signs a contract for the financing of shortfalls between forecast and actual consumption and the production of a portfolio of users brought together by the balance responsible entity which plays a role of insurer covering the potential losses arising from the many differences between over- and under-supply.
ERU (enriched reprocessed uranium)	To be used in a reactor, reprocessed uranium (RepU), even if containing more fissile uranium than in its natural state, must be further enriched. It is therefore called re-enriched uranium (ERU).
EPR	European Pressurised Reactor. The latest generation of reactors currently under construction (known as generation 3), it is the result of Franco-German cooperation, and offers advanced safety, environmental and technical performance.
Fluorination (conversion)	Also called "conversion", fluorination allows for the purification of uranium compounds and their transformation into uranium hexafluoride (UF ₆), allowing their enrichment using current techniques.
Fuel Cycle	The nuclear fuel cycle encompasses all industrial operations in France and abroad which enable the supply of the fuel to generate energy in a reactor, then to unload and process it. The cycle can be broken down into three stages: <ul style="list-style-type: none"> ■ upstream: the processing of concentrates from uranium ore, the conversion, enrichment and production of fuel (which takes more than two years); ■ the core of the cycle corresponding to the use of fuel in the reactor: receipt, loading, operation and discharging (which takes three to five years); ■ downstream: pool storage, reprocessing of spent fuel in reactors of recoverable material, vitrification of highly radioactive waste, then temporary storage of the waste before storage.
Greenhouse gases	Gas that retains a portion of the solar radiation in the atmosphere and for which an increase in emissions due to human activity (man-made emissions) causes an increase in the earth's average temperature and plays an important role in climate change. The Kyoto Protocol covers the seven following principal greenhouse gases: carbon dioxide (CO ₂), methane (CH ₄), nitrogen protoxide (N ₂ O), hydrofluorocarbons (HFC), perfluorated hydrocarbons (PFC), sulfurhexafluoride (SF ₆) and, since 2013, nitrogen trifluoride (NF ₃).
IAEA	International Atomic Energy Agency based in Vienna (Austria).
Interconnection	Electricity transmission infrastructure that allows for exchanges of energy between different countries, by connecting the transmission network of one country to that of a neighbouring country.
Intermediate Storage	Intermediate stage in the process of managing nuclear waste. It involves placing waste packages in a facility to ensure, for a given period of time, their isolation from contact with man and the environment with the intention of retrieving them for a further stage in the waste management process. Intermediate storage facilities are designed, built and managed by the producers of such waste (EDF, AREVA NC (ex-COGEMA) and CEA) and are close to areas where waste is conditioned.
LDC	French Local Distribution Companies. Local Distribution Companies sell and deliver electrical energy to end users located in their exclusive service area.
LNG (Liquefied Natural Gas)	Natural gas turned into liquid form by reducing its temperature to -162°C allowing for a reduction by 600 in its volume.
Man-sievert	Unit expressing the collective equivalent dose. A man-sievert is the collective dose from exposure of 1,000 men to 1mSv (millisievert).
Metering	A system allowing for the recording, at a given network connection point, of the volumes of electricity transmitted or distributed (power, frequency, active and reactive energy).
MW/MWh	The MWh is the energy unit generated by a facility and is equal to the facilities' power, expressed in MW, multiplied by the duration of operations in hours. <p>1MW = 1,000 kilowatts = 1 million watts</p> <p>1MWh = 1MW generated in one hour = 1 megawatt-hour</p> <p>1GW = 1,000MW = 1 billion watts</p> <p>1TW = 1,000GW</p>

MWh cumac	The MWh cumac is the certificate energy unit of counting which corresponds to the cumulative energy savings aggregated on the operations' lifetime.
Non-interconnected zones	Zones in France which are not connected to metropolitan France (Corsica and overseas departments).
Nuclear safety	Nuclear safety includes all of the technical, organisational and human measures which are intended to prevent accident risks and to limit the effects of an accident, and which are taken at every stage of the life of a nuclear power plant (from design to operation and finally to decommissioning).
Nuclear tranche	Electrical production unit consisting of a nuclear boiler and a turbo-alternator generator. A nuclear tranche essentially consists of its reactor type and the power of its turbo-alternator generator. EDF nuclear plants include two or four tranches, and occasionally six.
Plant availability	Fraction of power available, out of theoretical maximum energy, counting only technical non-availability. The availability coefficient (Kd) is defined as the ratio between annual actual generation capacity (or amount producible annually) and maximum theoretical generation capacity, where maximum theoretical generation capacity = installed capacity × 8,760h. The Kd, which counts only technical non-availability, i.e., scheduled shutdowns, unplanned outages and testing periods, characterises a plant's industrial performance. For EDF's nuclear fleet in France, the maximum theoretical generation capacity is of 553TWh (63.1GW × 8,760h).
Plutonium (Pu)	Element with the atomic number of 94 (number of neutrons) and no naturally occurring isotopes (elements whose atoms possess the same number of electrons and protons – thus the same chemical properties – but a different number of neutrons). Plutonium 239, a fissile isotope, is produced in nuclear reactors from uranium 238.
Producible hydropower generation	Maximum energy that hydropower facilities may produce using contributions under normal hydraulicity conditions. However, generation from hydroelectric facilities does vary, sometimes markedly, from one year to the next depending on hydraulicity (rainfall and snowfall). In dry years, the generation index may vary by 20% or more from the standard level.
Radiation protection	At a power plant, ionising radiation sources are numerous: the fuel itself, equipment activated by neutron flux (particularly that which is close to the core, such as tanks or lids) and particles from corrosion of the primary circuit of reactors and carried by the primary fluid. The level of exposure of a person is quantified by the dose equivalent in Sieverts (Sv). The total dose equivalents, called dosimetry and expressed in man-sieverts, is used as an indicator of dose received by all participating persons. The mobilisation of ground players has allowed a continuous improvement of performance on the protection of employees against the effects of ionising radiation.
Renewable energies	Energies for which production does not require extinction of the initial resource. They include hydro, wind, solar, marine (the energy produced by marine waves and currents), geothermal (energy derived from the heat below the earth's magma) energies, and bio-mass (energy derived from living matter, particularly wood and organic waste). They often include energy from the incineration of household or industrial waste.
Reprocessing	Reactor burnt fuel reprocessing aimed at separating materials that can be recycled (uranium and plutonium) from final waste.
RepU (reprocessed uranium)	Reprocessed uranium (RepU), uranium derived from spent fuel reprocessing, differs from natural uranium as it contains slightly more uranium 235 and more uranium isotopes. It is recyclable and RepU fuel assembly refuelling is commonly used in reactors.
Series	In the nuclear field, a series of plants means a set of nuclear plants with identical generation capacity. EDF's PWR model is divided into three series of available electrical power: the 900-MW series (34 tranches of approximately 900MW each), the 1,300-MW series (20 tranches) and the 1,450-MW series (4 tranches).
STEP	An energy transfer pumping station (STEP) is a plant with two reservoirs, one higher and one lower, connected via pumps to push the water up and turbines to produce energy.
Storage	Storage consists in placing packages of radioactive waste in a facility, ensuring their long-term management, i.e., under safe conditions allowing for long-term risk control.
Systems services	Systems Services are services provided to users (consumers or electricity producers) through the joint action of the electricity transmission network operator RTE and the producers. They are intended to regulate frequency and voltage in order to maintain the balance between electric consumption and production at all times. They are created by RTE from elementary contributions from producers, i.e. primary and secondary reserves provided to RTE. RTE remunerates the producers for these auxiliary services before re-invoicing these services via the tariff to use the network under the rules defined by the Union for the Coordination of Transmission of Electricity (UCTE).
Therms (th)	One therm is equivalent to 1,163kWh or 4,186 million joules.

Transmission network

Network providing for the transmission of electrical power at high and very high voltages from the generating sites to the distribution networks or industrial sites directly connected to it; this includes the major interconnection transmission network (400,000 volts and 225,000 volts) and the regional distribution networks (225,000 volts, 150,000 volts, 90,000 volts and 63,000 volts).

Uranium

In its natural state, uranium is a mix containing three main isotopes (elements whose atoms have the same number of electrons and protons, thus the same chemical properties, but a different number of neutrons):

- uranium 238, 99.3% fertile;
- uranium 235, 0.7% fissile;
- uranium 234.
- Uranium 235 is the only natural fissile isotope, a quality which justifies its use as an energy source.

Vitrification

Process of immobilisation in a glass structure concentrated solutions of high-level waste by mixing at high temperature with glass paste.

Waste

The nuclear generation of 1MWh of electricity (equivalent to the monthly consumption of two households) produces around 11g of total waste across all categories.

Short-lived waste represents more than 90% of the total, but contains only 0.1% of the radioactivity of waste. Accordingly, based on their level of radioactivity, they are separated into two sub-categories: low-level waste and very-low-level waste.

Long-lived medium and high-level waste are produced in low quantity (less than 10% of the total quantity), but they contain almost all of the radioactivity of the waste (99.9%).

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