WORLD ENERGY COUNCIL

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Embracing New Frontiers

Turkish Energy Market Outlook

Achievements, Overview and Opportunities

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Deloitte.

This report is prepared with contributions from Deloitte.

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Presentation of the Chair

Hasan Murat Mercan
Chair
Organising Committee,
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The World has been going through a challenging era, marked by slowdown in economic growth in many parts of the World, strong social changes, turmoil especially in the countries in Turkey's close vicinity, dramatic fall in oil prices and climate change. Turkey, being at the center of the oldest civilizations, and ongoing regional challenges, have mastered the art of sustaining its growth and attractiveness in difficult times, through its strong determinism, social capital and robust natural resources.

Figures in the last 15 years reveal that Turkey is one of the few countries with sustained economic growth supported by increasing population, industrialization and urbanization. Turkey's energy demand will double during the next decade, which calls for an investment requirement of minimum 100 billion USD. This economic growth and increase in energy demand will be supported with secure and sustainable sources.

Turkey's energy strategy can be summarized as meeting the growing energy demand of Turkey in the most sustainable way: sustainable in both economic terms and in environmental terms. The Ministry's one of the top priorities is utilizing our local and renewable sources and providing security of supply in a competitive and transparent way. In this highly interactive world, we believe that this strategy can only be achieved at its best with collaboration both at intergovernmental and investor level.

Turkey has implemented a radical liberalization process for its energy markets. The market is performing under the supervision of an independent and autonomous body, Energy Market Regulatory Authority. Turkey's energy market legislation is mostly in alignment with the European Union. The regulated segments of the business including electricity and gas transmission and distribution networks have been operating under state of the art and transparent tariff mechanisms. All the critical infrastructure is open to third party access meaning that connecting to the system as a user or actor is strictly secured under arms-length conditions. Public consultation and good stakeholder management is at Turkey's heart of our energy policy. Securing Turkey's attractiveness as a safe investment haven is one of the top priorities, thus, we will observe continuous improvement of investment climate of the country.

The opportunities to invest in energy sector in Turkey are endless. Strategic and mega investment projects are the top agenda items. Among such opportunities, nuclear power plant investments, high capacity lignite power plants, international gas and oil pipeline projects, high installed capacity renewable energy projects, natural gas underground storage, LNG and FSRU projects take the lead. Projects that will also create synergies in development of domestic technology will certainly prevail. Turkey's electricity distribution business require vast amount of investment. The Regulator has approved investment budget of USD 6.3 billion and an OPEX budget of USD 12 billion for the period covering 2016-2020. More investment is required beyond 2020. Gas distribution is also an area with substantial private sector involvement and potential for growth. On the other hand, privatization of gas distribution in İstanbul is a major investment opportunity. It would be wise for infrastructure operating firms to take part in electricity and gas distribution with predictable and sustainable incomes. Retail markets in Turkey in electricity, gas and petroleum are very attractive due to the increasing and young population and further steps to be taken in opening all these markets to full competition. Turkey also has a very developed mobile infrastructure and this infrastructure can easily be leveraged to unlock the potential of the retail markets. It is worthwhile to underline once more that making best use of renewable energy resources, with a focus on solar and wind, is crucial. The model that has been introduced recently on development of large scale renewable energy areas, namely YEKA, should be very closely pursued by the investors. It is an obvious fact that the cheapest energy is the unused energy, therefore implementation of energy efficiency investments in this era of improving and even disruptive technological improvements is vital. In this context, several energy efficiency projects are implemented, ranging from projects on improving energy efficiency in industry, to the market transformation of energy efficient appliances.

Turkey lies in a unique fertile land, which has been home to endless opportunities in the last ten millennia. Today is no exception. Turkey's energy sector, as well as other locomotives of the national economy, presents countless opportunities for investors, from energy generation to energy efficiency, from distribution investments to natural gas storage, not only for Turkey’s demand but also for the whole region’s welfare. We invite all the distinguished players in energy and related sectors globally to collaborate with us to supply our increasing demand and be our partner in operating assets, investing in the infrastructure and developing our domestic technology together.

Executive Summary

1/ Macroeconomic View

Turkey is one of the fastest growing economies among EU and OECD member countries, thanks to successfully implemented macroeconomic policies and structural reforms. After a decrease during the 2009 global economic crisis, Turkish economy bounced back with strong growth rates and than settled into a more sustainable pace of 4.1% in 2013, 2.9% in 2014 and 4.0% in 2015 in real TL terms.

Owing to the prominent economic performance, Turkey attracted around USD 160 billion of foreign direct investment between 2003 and 2015 and Turkish economy is expected to attract USD 70 billion of FDI within the next 4 years. As of 2016, more than 50,000 foreign companies have operations in Turkey.

2/Turkey's Energy Overview

Turkey with its increasing economy experiences sustained growth in energy demand. Majority of the primary energy need is met by natural gas, followed by coal and petroleum. More than half of these primary sources are used for electric power sector.

With an average per capita energy consumption level lower than that of OECD countries, Turkey's energy demand is expected to continue its increasing trend.

3/ Electricity Market Overview

Electricity market in Turkey has gone through a major restructuring process which was initiated in early 1990s and later gained pace and stability with issuing of the Electricity Market Law in 2001. This restructuring process developed on 2 main pillars of liberalization of the market and privatization of the public assets and attracted extensive investments to meet increasing electricity demand of Turkey.

Merchant investments by private sector together with privatizations substantially decreased the public dominance of the market. Market opening ratio also increased and reached to a level of 86%. As of 2016, Turkey has a mature electricity market with required market places in place, a regulatory framework in alignment with EU legislation, private sector involvement and a very high level of market opening.

Electricity Market - Value Chain: In an era of slowed down economic growth globally, Turkey still provides several opportunities in its electricity value chain with an increasing demand and further growth potential.

Turkey has a well developed generation fleet that needs to be enhanced with increasing demand in a wide range of technologies and fuels. The state owned transmission system in Turkey provides a reliable highway for the whole electricity value chain with a total length of 56,744 km as the end of 2015. The wholesale market is already developed and mature with several functional and liquid market places. Electricity distribution is fully privatized with further potential for mergers and acquisitions and an investment need of USD 6.29 billion for 2016-2020 period. Due to its dynamic and growing population with great enthusiasm in mobile technologies and increasing environmental consciousness, retail business in Turkey provides great potential for the suppliers.

Electricity Demand - Development: Electricity demand has been growing impressively in line with economic developments, driven by industrialization and urbanization. During the last 15 years Turkey's electricity demand grew at a CAGR of 5%. Turkey is one of the fastest growing countries among OECD members in terms of electricity consumption. However, on average, per capita electricity consumption is still much less compared to OECD average. This situation together with the population growth expectations shows a great potential in further electricity demand growth.

Installed Capacity (Natural Gas, Lignite, Hard Coal, Hydroelectric, Renewable Energy, Nuclear Energy): Developing economy and increasing demand fueled the electricity generation investments. Intensive liberalization efforts and market based price signals attracted considerable merchant investment and consequently installed capacity significantly increased since 2008. As of July 2016, installed capacity of Turkey has reached to 77 GW. The highest capacity addition was in 2013, with ca. 7.0 GW

The installed capacity is dominated by hydro and natural gas fired power plants followed by coal and other renewable sources. Increasing share of local and renewable sources is at the heart of the development strategy of installed capacity.

The investment requirement of the market due to rapid increasing demand has been mostly met by merchant natural gas fired power plants. Natural gas plants comprise ca. 34.0% of current capacity and 37.9% of the electricity generation in 2015. CCGTs are expected to preserve their dominant position in the following years, considering their importance for system security.

Lignite fired power plants have always been indispensable element in Turkey's generation mix as a local energy source. Local coal draws attention with privatizations and greenfield investments in conjunction with the Government

supports. In total, 4,302 MW of lignite fired power plants with a value of USD 8.2 billion have been transferred to private sector without providing any sovereign guarantee. The Ministry has also been conducting intense negotiations for Afşin-Elbistan, Konya Karapınar, Çayırhan and Afyon Dinar sites with national and international investors. These sites will be assigned to investors through competitions with purchase guarantee at least for 10 years and will enjoy regional investment incentives scheme. On 06/04/2016, 6446 Electricity Market Law has been amended and TETAŞ has been enabled to make power procurements from operational lignite fired power plants.

By the end of 2015, installed capacity including imported coal fired plant together with local hard coal is 7.1 GW capacity and their generation constitutes 16.0% of total generation. Hard coal fired power plants with favorable dark spreads provide profitable and feasible operation to its investors.

Effective utilization of Turkey's rich hydro resources as clean and local energy source constitutes great importance inline with strategic targets presented in Supply Security Strategy Paper. Current installed capacity is ca. 26 GW and strategic target is to reach 34 GW by 2023 whereas the economical hydro potential of Turkey is ca. 36 GW.

In order to avoid the risks linked to both energy dependence and developing a sustainable energy model, the Government is committed to promoting alternative solutions based mainly in local and renewable sources. Feed-in tariff as a power purchase guarantee known as Renewable Energy Resources Support Mechanism (YEKDEM) is presented to renewable energy investors. Renewable energy support mechanism secures a reliable and consistent income for the investors and consequently eases the financing with better conditions.

Local equipment manufacturing and localization strategy of the Government constitutes strategic importance in conjunction with its direct positive effects on job creation, enterprise development and consequently GDP and current deficit. Within the scope of YEKDEM, local equipment usage is enabled to benefit from additional incentives.

New Investment Model for Renewables, YEKA (Renewable Energy Resource Area) Mechanism, has been introduced in order to further support renewable energy investments and incentivize local manufacturing of renewable generation assets.

Nuclear power plants will contribute to the diversification of energy resources and security of supply. At this point, Turkish Government has been taking concrete steps regarding the addition of nuclear power plants to its fuel mix with two intergovernmental agreements.

Generation privatizations constitute great importance to reduce market share of the state owned generation company. 6.7 GW of capacity has been privatized hitherto and total privatization income has been USD 10.48 billion. The privatizations process is still continuing, 7-9 GW capacity is expected to be privatized.

Electricity - Transmission: Turkey has a well established transmission infrastructure which is enlarged and improved by renewal and development projects. The Transmission system is owned and operated by the state monopoly TEİAŞ, under supervision of EMRA. Turkey's transmission system has interconnections with neighboring countries of Turkey and also with ENTSO-E. As of 2016, TEİAŞ became an observer member of ENTSO-E. The connection is expected to further increase the import and export volumes.

Electricity - Distribution: Electricity distribution in Turkey is conducted by 21 regional monopolies. Successfully completion of distribution sector liberalization process handed over 21 distribution regions to private sector with USD 13 billion privatization revenue in total.

Turkey has a big network serving 39.7 million customers. Due to growing electricity demand and delayed investments, the network require vast amount of expansion and renewal investment. In total, USD 6.29 billion electricity distribution investment budget has been approved by EMRA for the period of 2016-2020.

Electricity distribution business in Turkey provide incomes through performed investments, operational efficiencies and decreasing technical and non-technical losses.

Transformation of distribution sector and introduction of smart systems are bringing new opportunities for product and technology providing companies. Turkey is working on its 2020 Smart Grid Roadmap and it is estimated that ca. USD 11.2 billion will be invested to smart grid implementation by 2035.

Electricity Wholesale - Market: The trading environment in Turkish electricity market has gone through a consistent

development. Today, Turkish electricity market includes all necessary market places and services that provide reliable investment signal in a timely and transparent manner and provide necessary tools for the participants in the market. Day Ahead Market which provide the reference market price, has reached to 99.3 TWh trade volume and increased by CAGR of 24% in the period between 2012-2015.

Electricity Retail - Market: Thanks to its young, dynamic and growing population with great enthusiasm in mobile technologies and increasing environmental consciousness, electricity retail business in Turkey is an attractive environment. In line with gradual market opening and developments in electricity trading environment, Turkey offers great opportunities for retail companies to have significant market share in the untapped retail market.

4/ Natural Gas Market Overview

Natural gas market in Turkey is going through a development process characterized by security of supply, full third party access to infrastructure and more private sector involvement. Issuing of the Natural Gas Market Law in 2001 was a major step in establishing a liberal competitive market with private participation. As a result of several efforts, private sector involvement has increased at import & wholesale and distribution & retail segments. Market opening ratio also increased to cover all consumers other than households. As of 2016, Turkey has a natural gas market mostly in line with EU legislation with some more implementation steps to be taken in its development journey.

Natural gas is mainly used in heating, industry and electricity generation. In 2015, natural gas usage in electricity generation prevails with 40%. Turkey is the 5th largest country in Europe in terms of natural gas consumption with 48 bcm and still has potential for growth.

Turkey is an import dependent country in terms of gas supply however Turkey is surrounded by countries with major natural gas reserves. Natural gas is imported from Russia, Azerbaijan and Iran through pipelines and Algeria and Nigeria in LNG form, all through long term contracts. 10 bcm of natural gas, which was originally imported by BOTAŞ have been taken over by private sector companies. Possible renewal of current BOTAŞ contracts by private sector companies provides an extensive playground for private sector players and new comers.

With the ongoing and planned investments, Turkey has a well developed and resilient natural gas transmission grid. Turkish natural gas transmission system with a total pipeline length of ca. 13,000 km is one of the biggest transmission systems in Europe. The natural gas transmission system is owned and operated by BOTAŞ.

In Turkey there is one underground storage facility and 2 LNG terminals. The ongoing and planned investments for underground storage, FSRU and LNG re-gasification facilities will enhance supply security, flexibility of system operations and support Turkey's vision to establish a natural gas trading center. The growth potential of the market puts forward further investment requirements in this area.

By its geographical position, Turkey is located between the natural gas producer countries with total ca. 113 tcm reserves and large consumption nodes such as EU countries with total 435 bcm demand. This provide Turkey the potential to develop a natural gas trading center to help improve natural gas supply security of both Turkey and Europe.

The greenfield natural gas distribution tenders have been a great success and supported rapid increase in usage of environment friendly natural gas throughout the country. The projections reveal that, with increasing penetration rates, natural gas demand of households and industry will be the prevailing areas of natural gas demand increase in the coming years. Turkey offers outstanding opportunities with its developing gas retail sector to domestic and international investors, as the country experiences a steady infrastructure development and constructs a countrywide gas network.

5/ Coal Market Overview

Coal is an important source for meeting primary energy demand of Turkey. According to Turkish coal balance 2014, coal consumption reached 95.9 million tons and 68% of it was met by local sources and the remaining demand was supplied by coal imports.

Turkey has 1.3 billion tons of hard coal reserves. In the recent years, reserve volume of major hard coal fields remained at the same level while lignite reserves increased from 9.3 billion tons to 15.5 billion tons.

Hard coal is mainly used in conversion sector. Turkish hard coal supply has shown steady growth in recent years and reached to 35.4 million ton in 2015. In order to meet increasing hard coal demand, Turkish hard coal supply leaned to imports and as a result import ratio in hard coal supply reached to 96%.

Turkish lignite reserves are used in conversion sector as the fuel of lignite power plants operated by state owned and private electricity companies. As the end of 2015, private sector holds 54% of the total lignite production.

In parallel with development in hard coal power plant investments and lignite power plant privatizations, coal consumption of conversion & energy sector increased to 78 million tons and compensated the total coal consumption loss in the industry and household & services. As a result of political support to use more local resources for electricity generation, lignite consumption in electricity generation is expected to further increase.

6/ Petroleum Market Overview

Petroleum consumption in Turkey with 32.5 Mtoe takes the third place in primary energy consumption after natural gas and coal. Oil production in Turkey met ca. 9% of crude oil consumption and ca. 7% of total petroleum consumption of 2015.

Turkey is located in a region that includes 70% of the explored oil and gas reserves all over the globe. Therefore, Turkey has a geographical advantage for both transportation and exploration of oil. Turkey is leading in terms of number of exploration activities within EU countries however compared to the rest of the world, number of active oil rigs in Turkey low, showing a potential in oil exploration.

Turkey supplies crude oil to international refineries through BTC and IT pipelines by transporting extracted oil from Middle East and Caspian Regions. Ceyhan Marine Terminal with ca. 200 million tons of annual capacity has a potential to be an oil trading center by integrating Russian, Caspian and Iraqi oil with international markets.

Turkey is differentiated from Mediterranean countries with sophisticated refineries and continuous refinery investments in conjunction with increasing demand on complex petroleum products both in national and international markets. Although more than half of the petroleum imports is crude oil, with the help of sophisticated refineries in Turkey, all of the petroleum product exports are in the form of value added refined petroleum products.

Turkey experiences growth in several sectors like transportation, automotive and aviation which consequently increases domestic petroleum products demand. Globally known petroleum distribution companies as well as local companies are active in distribution market. These distribution companies offer merger and acquisition opportunities to the investors and TP Petroleum Distribution Company is currently going through a privatization process.

With its growing demand and geographical location, Turkey outshines as a prominent market for petroleum sector investments especially in areas of exploration, refinery and trade.

7/ Energy Efficiency and Climate Change

As an emerging market, Turkey's increasing energy consumption raises the importance of energy efficiency due to costly imports in energy supply. To promote energy efficiency investments, Turkey is introducing complementary legislation and action plans to create opportunities for investors to participate in energy efficiency activities. Turkey's aim to boost energy efficiency in various sectors provides vast investment opportunities for local and foreign investors and benefits from various financing agreements.

As an emerging market, Turkey, whose greenhouse gas emissions contributes to global cumulative at a level less than 1%, is ready to join the global fight with climate change. In order to reduce its CO2 emissions and fight against the climate change, Turkey acceded to the UNFCCC and then became Party to the Kyoto Protocol. In 2015, Turkey submitted its Intended Nationally Determined Contributions (INDC). According to the INDC, Turkey is expected to reduce its 2020 emission level from 1,185 million tons of CO2 to 940 million tons of CO2 in line with the Paris pledge. As an emerging market, in order to achieve CO2 emission targets stated in the INDC, Turkey aims to increase the energy savings, energy efficiency, share of renewable energy and carbon certifications.

8/ Energy Sector Incentives Scheme

Investors in the energy industry are encouraged with various types of tax incentives with the aim to support and orient investments in conformity with the objectives of Turkish Government, to reduce the regional disparities within Turkey, create new employment opportunities, and to realize the international competitiveness and environmental protection.

The investment incentive scheme in Turkey is structured around 4 main pillars of "General", "Regional", "Large Scale" and "Strategic" investments. These incentive schemes provide benefits in several areas covered in the last section of this report.

1. Macroeconomic Overview of Turkey


82%
50%
15%
$
$
$

Gross Domestic Production of Turkey

GDP Growth

Turkey is the 18th largest economy in the world with a GDP of USD 799 billion in 2014 and USD 718 billion in 2015, which represents a growth of 4.0% in real Turkish Lira (TL) terms.

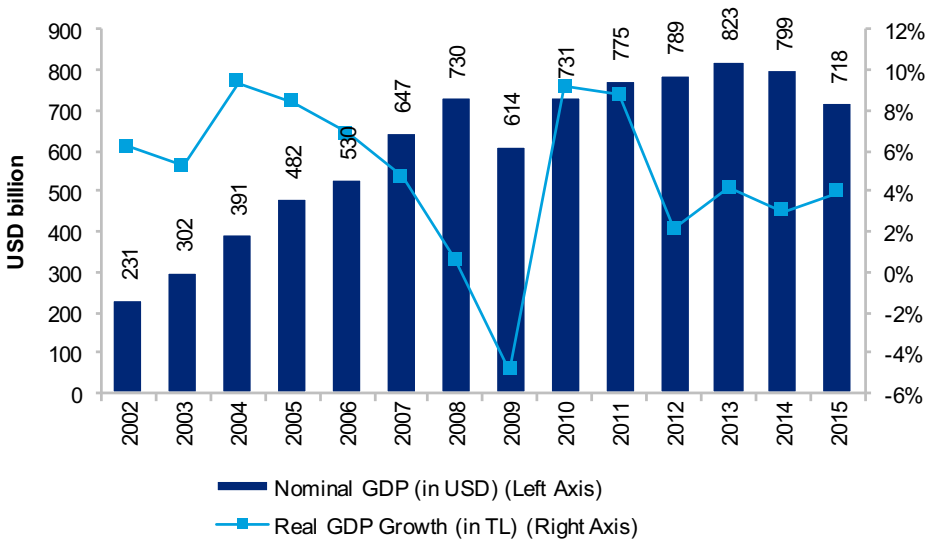
After suffering from the effects of the global economic turmoil in 2009, Turkish economy bounced back with strong growth rates of 9.2% and 8.8% in 2010 and 2011, respectively. The growth then settled into a more sustainable pace of 2.2% in 2012, 4.1% in 2013 and 2.9% in 2014 in real TL terms.

Between 2006 and 2015, European Union countries and OECD member countries have grown with the CAGR of 0.7% and 1.1%, respectively. In comparison, GDP in Turkey has grown with a CAGR of 3.5% during this last decade, which makes Turkey one of the fastest growing economies among the EU and OECD member countries.

In terms of purchasing power parity, a continuous increase with higher pace was experienced with a CAGR of 6.3% through the last decade.

Turkey is one of the fastest growing economies among EU and OECD member countries, thanks to successfully implemented macroeconomic policies and structural reforms.

GDP Growth of Turkey



Source: TurkStat, EIU

Foreign Direct Investments

With respect to 2003 volumes, annual Inward Direct Investment values have increased about 10 times with recent reforms and regulations.

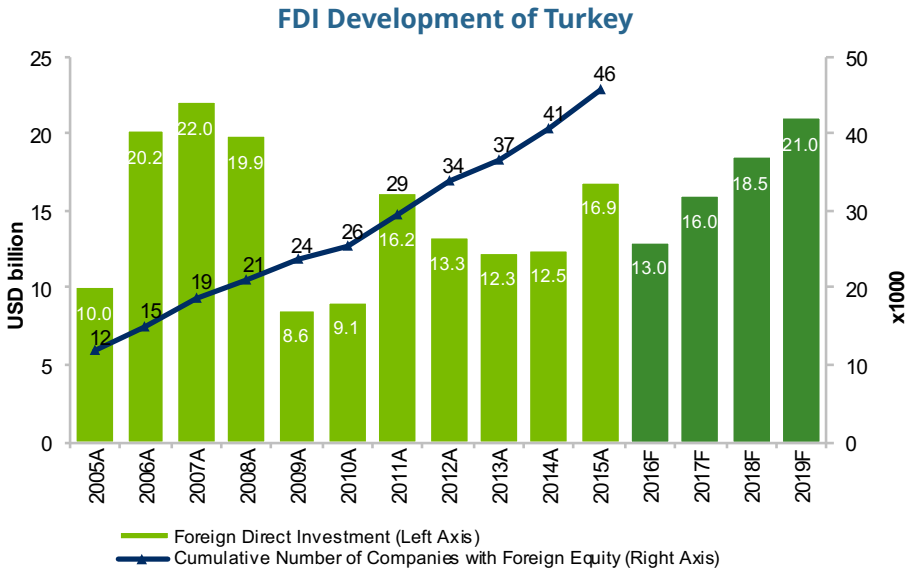
Owing to the prominent economic performance, Turkey attracted around USD 160 billion of foreign direct investment between 2003 and 2015 and Turkish economy is expected to attract USD 70 billion of FDI within the next 4 years.

Energy, Manufacturing, Financial & Insurance Activities and Retailer Trade sectors are the leading ones which constitute 80% of the total FDI inflow of Turkey.

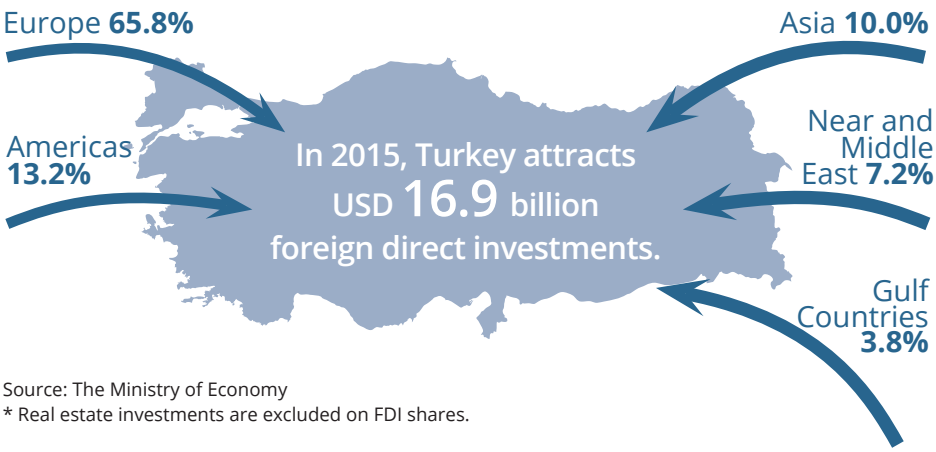
In the last decade, Turkey has enhanced its regulations for foreign investors and become an attractive investment market. In 2016, more than 50,000 companies with foreign equity have operations in Turkey.

European countries have the biggest share comprising 68% of FDI inflows. Investors from North America, Middle East and Gulf countries follow constituting 22% of FDI inflows.

There is a steady increase in the number of investors, as well. By the end of June 2016, more than 50,000 companies with foreign equity operate in Turkey.



Source: The Ministry of Economy, IMF, UNCTAD, CBRT, ISPAT



Source: The Ministry of Economy
* Real estate investments are excluded on FDI shares.

2. *Turkey's Energy Outlook*

Primary Energy Sources

Source: Natural gas surpasses other primary energy sources with its 33.4% share. Natural gas is a major source for electric power sector. The share of natural gas in primary energy sources stagnated in 2015 in conjunction with the decreasing usage in electric power sector. Residential and commercial usage constitutes 26%. 18% of consumed natural gas is utilized for industry where iron and steel industries take the lead in consumption.

Coal constitutes 32.1% share in primary energy sources and takes the second place. Coal is mainly used for electric sector with 58% share. Industrial sector consumes 29% of coal. Cement, iron and steel are the main areas for industrial consumption of coal.

The third largest energy source is petroleum with 24.7% share in primary energy sources. Petroleum is mainly utilized in transportation sector with a 79% consumption rate. On-road vehicles are the supreme actors in petroleum usage in transportation, with cars, buses, trucks etc.

Renewables and hydro sources constitute the smallest part with 9.8% share. Renewables and hydro are mainly utilized for electric power and residential & commercial sectors with 54% and 43%, respectively.

Sector: Electric power sector is the leading sector in primary energy consumption with 43.8% share. Main primary energy sources of electric power sector are natural gas and coal with 41% each.

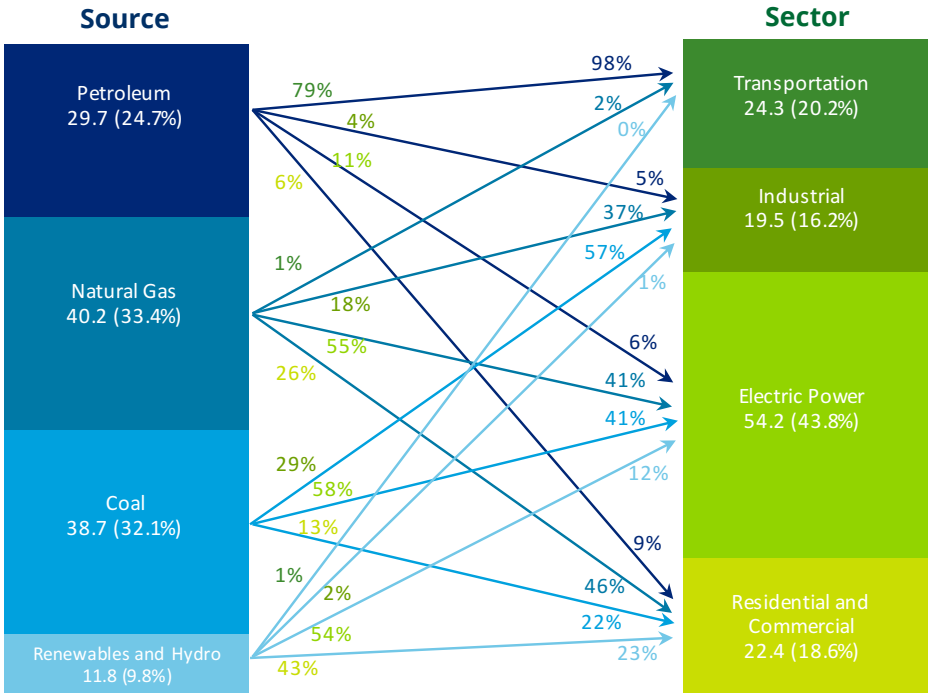
Transportation is the second largest sector with 20.2% share. Petroleum is a crucial source for transportation sector where 98% consumption of transportation supplied by petroleum.

Residential and commercial sector is the third largest sector with 18.6% share. Biggest source of residential and commercial sector is natural gas with 46%. Renewables and hydro, and coal comes after natural gas with 23% and 22%, respectively.

Industry sector has the least energy usage with 16.2% share among other sectors. Coal is the main source with 57% and natural gas is the second largest source for industry with 37%. Cement, iron and steel are the main sub-sectors for energy consumption in industry.

Turkey's Primary Energy Supply by Source and by Sector, 2014

Total Primary Energy Supply was ca. 124 Mtoe in 2014.



Note1: Non-energy usage petroleum consumption (3.13Mtoe/1.2%) is not included in the analysis.
Note2: 0.3% of transportation sector consumption is supplied by renewables sources.
Source: MENR

Import of Primary Energy Sources

Fossil fuel reserves of Turkey are highly limited compared to its demand therefore majority of energy demand is supplied by imports.

Energy supply of Turkey is dependent on imports. During the last decade, three quarters of Turkey's primary energy consumption was met by imported resources.

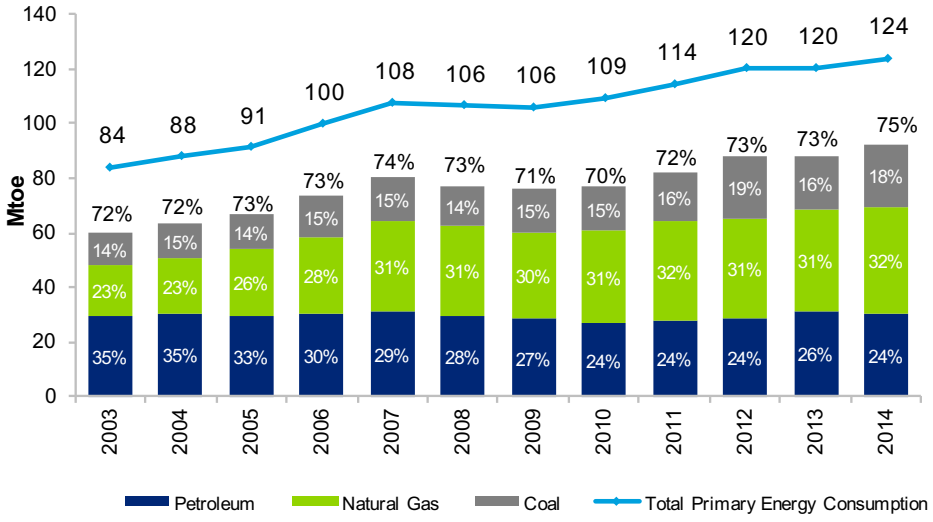
In the recent years, use of natural gas has increased due to increasing residential penetration rates and number of natural gas fired power plants. On the other hand, share of petroleum in primary sources decreased to 25% from 35%. Coal imports constitute ca. 15% of Turkish primary energy consumption throughout the last decade.

In 2014, one fourth of primary energy consumption was met from domestic production. Local coal, mostly low calorific value, and renewable sources constitute most of the domestic production.

Although energy consumption of Turkey increases consistently, average per capita energy consumption level of OECD countries is higher than that of Turkey.

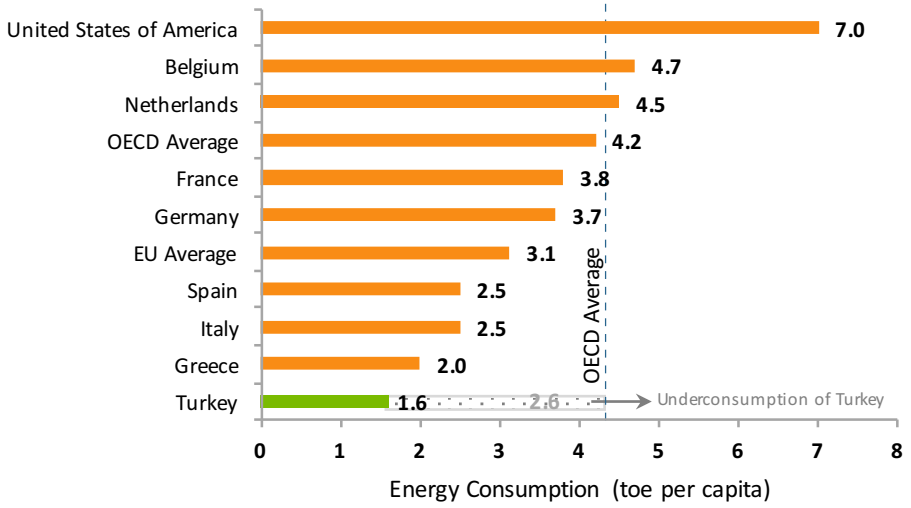
While average OECD primary energy consumption per capita was 4.2 toe in 2015, a Turkish citizen consumes 1.6 toe energy in average.

Import Share of Turkish Primary Energy Consumption



Source: MENR

Energy Consumption per Capita in 2015

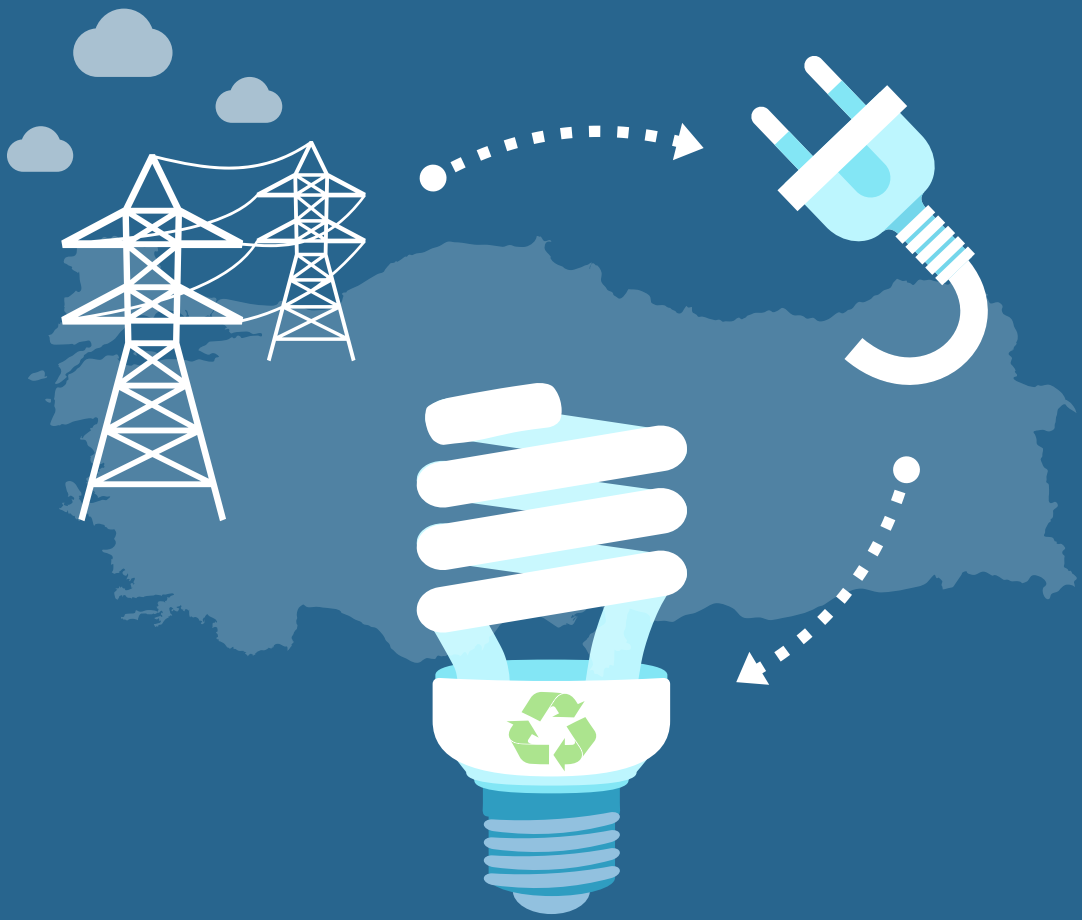


Source: EIU

With increasing urbanization and industrialization, Turkey has great potential for energy consumption increase.

According to the 10th Development Plan, Turkey is expected to increase its primary energy consumption to 1.92 (toe per capita) by 2018.

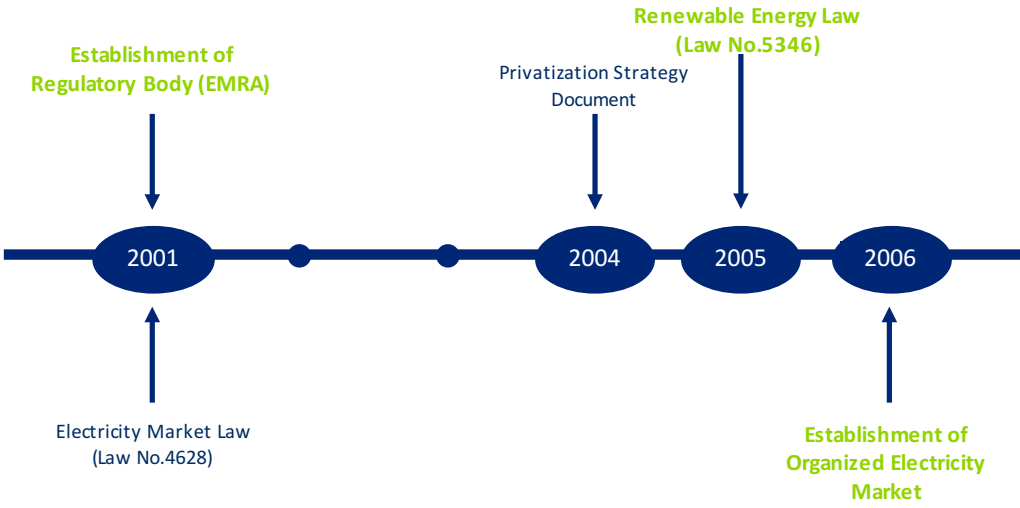
3. Electricity Market Overview



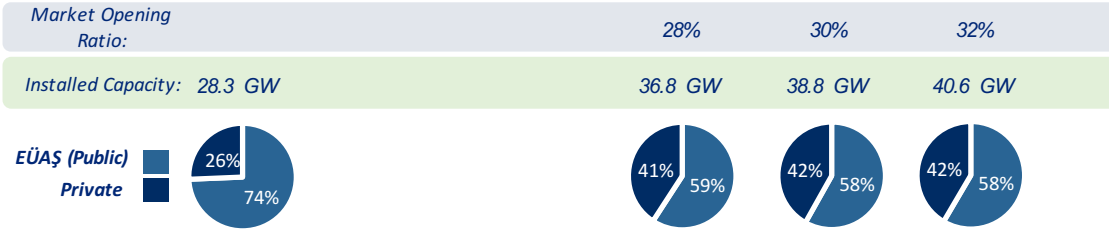
Liberalization Timeline of Turkish Electricity Market

Electricity Market in Turkey has gone through a major restructuring process which was initiated in early 1990s and later gained pace and stability with issuing of the Electricity Market Law at the start of the new millennium. This restructuring process developed on two main pillars; liberalization of the market and privatization of the public assets.

Since the Electricity Market Law was put into force in 2001, several steps have been taken in achieving the targets of the law. Some of the major steps taken in this journey are covered in the timeline given below.



Source: Deloitte Analysis



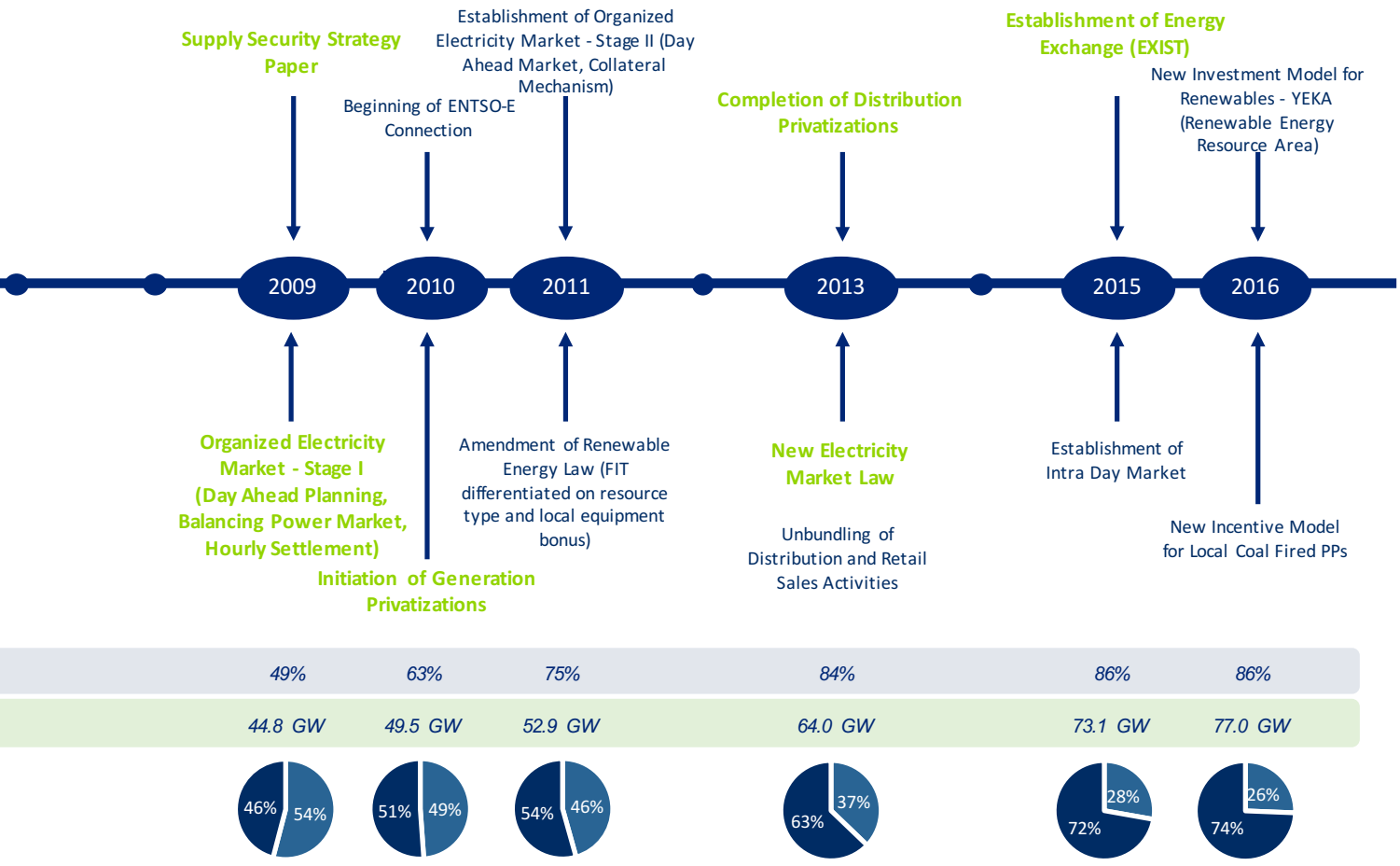
2001: The Electricity Market Law is the main legislation setting the ground for development of a financially sound and transparent electricity market operating in a competitive environment under provisions of civil law. The main aim of the law is delivery of sufficient, good quality, low cost and environment friendly electricity to consumers and to ensure the autonomous regulation and supervision of the market. With this Law, an independent Energy Market Regulatory Authority was established. A licensing scheme was introduced which enabled private players to participate in the market.

2004: The laws and regulations issued were supported with High Planning Council Decisions, so called "Strategy Papers". The theme of the 1st Strategy Paper was "Electricity Sector Reform and Privatizations". This strategy paper put forward a detailed plan for privatization of electricity distribution and generation assets.

2005: In 2005, Renewable Energy Law was issued. Consequently, one year later, in 2006, renewable energy investments based on this legislation started.

2006: On 08/01/2006, the first Organized Electricity Market started to operate with Balancing Mechanism only. Even in its early form, this mechanism started to generate market based prices for electricity and this was a very successful step for attracting merchant power producers to invest in this growing and promising market.

2009: On 12/31/2009, 1st Stage of Organized Electricity Market including Day Ahead Planning, Balancing Power Market and Hourly Settlement was initiated.
In 2009, 2nd Strategy Paper with "Supply Security and Supply Diversification" theme was published.



2010: In 2010, privatization process of State Owned Generation Company (EÜAŞ) assets was initiated with the aim to fully privatize the assets, except the ones with strategic importance (large hydro power plants). As the first step to integrate Turkish electricity grid with Europe, ENTSO-E test connection was initiated, in 2010.

2011: On 12/31/2011, 2nd Stage of Organized Electricity Market was started, Day Ahead Market and Collaterals Mechanism came into force. In 2011, Renewable Law was amended and feed-in tariff was differentiated for different type of sources and local equipment bonus was introduced. Non-hydro renewable investments have become more attractive with the introduced amendments.

2013: New Electricity Market Law was issued in 2013 with the aim to increase reliability and transparency of the market. In 2013, privatization process of distribution companies were successfully completed and the distribution and retail activities were unbundled. This was a major step achieved for full market opening.

2015: The market operations were carved out from TEİAŞ and independent energy exchange (EXIST) was established, in 2015. In 2015, Intra Day Market started to operate. This market place further increased market sophistication and provided additional means for balancing especially for renewables.

2016: In 2016, New Investment Model for Renewables, YEKA (Renewable Energy Resource Area) Mechanism, has been introduced in order to support renewable energy investments and incentivize local manufacturing of renewable generation assets. As one of the strategic investment areas, TETAŞ has been enabled to make power procurements from operational lignite fired power plants, starting from 2016.

Electricity Market Value Chain

In an era of slowed down economic growth globally, Turkey still provides several opportunities in its electricity value chain with an increasing demand and further growth potential.

Turkey's resources and geography, suitable to develop supply portfolio with wide range of technologies, provide opportunities to investors experienced or interested in different areas of power generation.

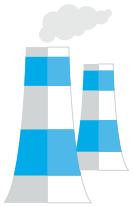
The state owned transmission system in Turkey provides a reliable highway for the whole electricity value chain.
Total longitude of transmission lines is 56,744 km as the end of 2015. As of 2016, TEİAŞ became the first observer member of ENTSO-E.

Establishment of Energy Exchange Istanbul (EXIST), has been a great step in achieving further progress in the already developed and mature wholesale electricity market in Turkey.

Electricity distribution is fully privatized with further potential for mergers and acquisitions. This segment of the value chain provides great potential with a regulator approved investment need of USD 6.29 billion and OPEX budget of USD 12.0 billion for 2016-2020 period.

Thanks to its young, dynamic and growing population with great enthusiasm in mobile technologies and increasing environmental consciousness, retail business in Turkey provides great potential for the suppliers. In the last decade, annual electricity consumption increased with the CAGR of 5%.

Generation



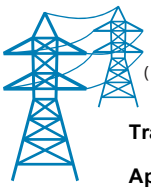
Gross Generation: 261.8 TWh

Aprx. Internal Consumption: 5%

Aprx. Net Gen. 248.7 TWh

Installed capacity of Turkey has reached to 77.0 GW as the end of July 2016.

Transmission

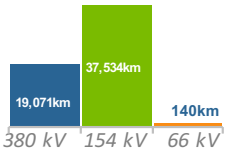


(≥36kV)

Transmission Losses: 2%

Aprx Losses: 5.2 TWh

Length of transmission lines



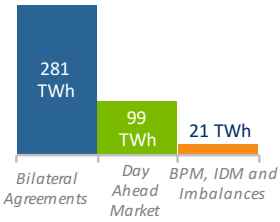
Wholesale

Import: 7.1 TWh

Export: 3.2 TWh

Net: 3.9 TWh

Market Volumes



Distribution

(<36kV)

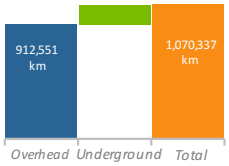
Distribution Technical & Non-Technical Losses: 14%

Aprx. Losses: 34.5 TWh

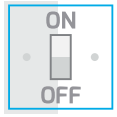
# of Distribution Companies: 21

# of Subscribers: ca. 39.7 million

Length of distribution lines



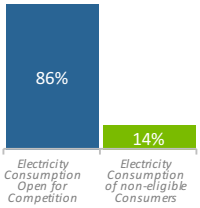
Retail



Gross Consumption: 265.7 TWh

Aprx. Net Cons: 214.2 TWh

Market Opening Ratio



Competitive
Regulated

Note: All data represents 2015 values.

Electricity Demand Development

Electricity demand has been growing impressively in line with economic developments, driven by industrialization and urbanization. Economic growth together with population growth expectations show a great potential in further electricity demand growth.

In 2015, ca. 266 TWh of electricity is supplied to the domestic market, corresponding to 3.3% annual growth from 2014 figure of 257 TWh. The CAGR of gross electricity demand for the period 2000-2015 is 5.0%, for the last five years (2010-2015) this ratio is 4.8%.

Peak electricity demand has a similar trend with slightly higher growth rate. Peak demand has more than doubled since 2000 and CAGR is ca. 5.5%.

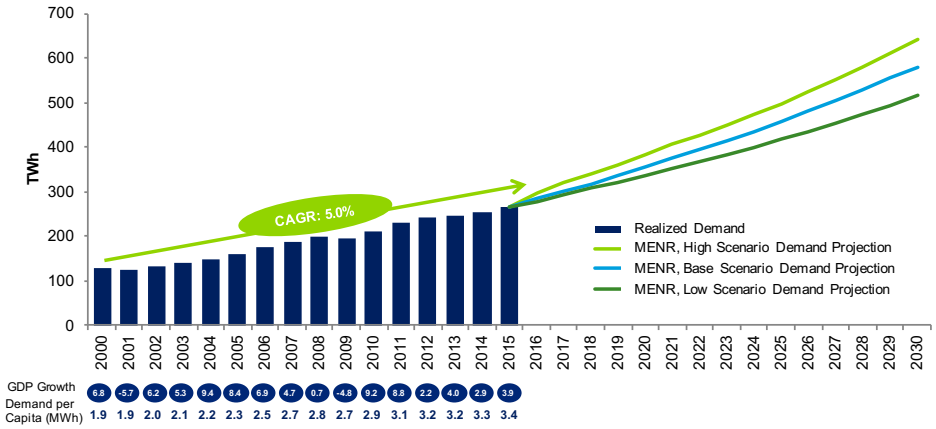
As of MENR base scenario demand projection, electricity consumption will be more than doubled in 15 years by reaching 581 TWh from current level of 266 TWh.

Turkey is one of the fastest growing countries among OECD members in terms of electricity consumption. However, on average, per capita electricity consumption is still much less compared to OECD average.

In 2015, average per capita consumption for OECD member countries is ca. 7.8 MWh, while it is around 3.0 MWh in Turkey. This is another viewpoint showing growth potential of Turkey's electricity consumption.

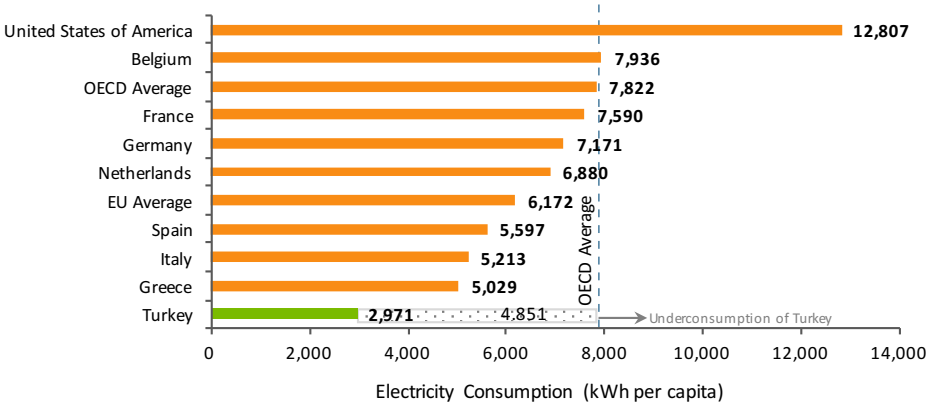
Turkey's ever increasing electricity demand trend will be preserved with growing GDP, industrialization and urbanization supported by structural reforms.

Gross Electricity Demand in Turkey, 2000-2030



Source: TEİAŞ, MENR, TurkStat

Net Electricity Consumption per Capita in 2015



Source: World Development Indicators

Installed Capacity

Developing economy and increasing demand fueled the electricity generation investments. Installed capacity in Turkey has increased by more than seven times since 1984. As of July 2016, installed capacity of Turkey has reached to 77 GW.

Hydro and lignite fired power plants were the initial investment priorities and Turkey's generation mix was hydro dominated. With the increasing investments to especially natural gas fired power plants, share of the thermal capacity increased gradually in the last decade.

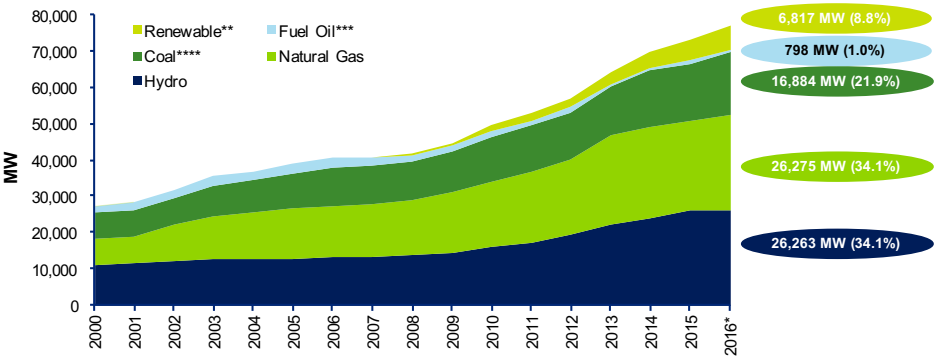
Existence of long term natural gas import contracts, cheaper per MW investment costs compared to other technologies, flexibility in site selection, and technological fit for cycling operation have paved the way for natural gas installed capacity to expand faster than other technologies during the last decade.

Renewables are starting to gain visible share in the generation mix. This trend is expected to continue with the addition of new wind, geothermal, solar and biomass power plants.

Existing lignite plants are facing efficiency and availability problems due to aging equipment. Recently strategy paper on Energy Efficiency has set goals to increase efficiencies. Moreover, lack of investments in new lignite plants have resulted in a declining share of lignite based generation. The Government aims to change this through the new investment incentive mechanism specific to local coal fired PPs and PPA awards to operational lignite fired plants.

Developing economy and increasing demand fueled the electricity generation investments.

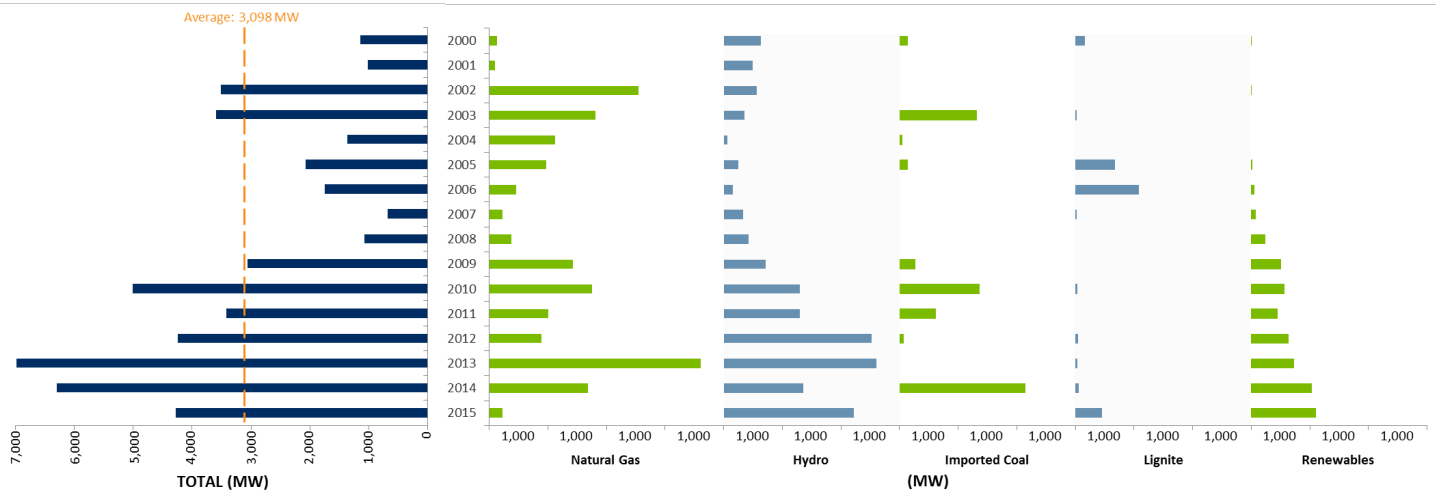
Historical Installed Capacity by Primary Energy Resources, 2000-2016*



*As the end of July 2016
** Includes Wind, Solar, Geothermal and Waste and other renewable power plants
*** Includes Diesel, Asphaltit and Naphta firing power plants
**** Includes all kinds of local and imported coal firing power plants
Source: TEİAŞ, Deloitte Analysis

Installed Capacity

Historical Additional Installed Capacity Development, 2000-2015



Source: MENR, Deloitte Analysis

Between 2000 and 2015, on average ca. 3.1 GW of new capacity has been added to the generation mix of Turkey each year.

The highest capacity addition was in 2013, with ca. 7.0 GW and natural gas fired power plants constitute 3.6 GW of the commissioned capacity. In 2015, 4.3 GW of new capacity was commissioned.

As a result of intensive liberalization efforts and the price signals in the market, the investments significantly increased since 2008.

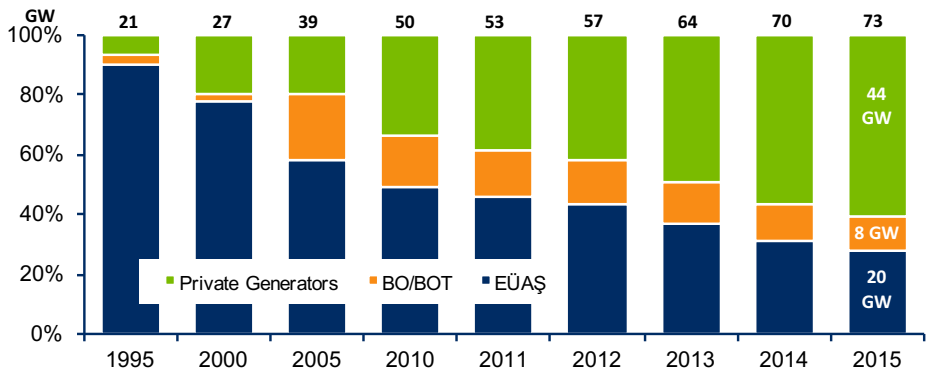
As a reference, since 2014, in the last 2.5 years, the newly commissioned capacity corresponds to 20% of the installed capacity.

As the end of 2015, the share of private generators, in installed capacity, has reached to ca. 72% and it is expected to increase with ongoing privatizations and upcoming private sector investments. EÜAŞ will only keep strategic power plants ca. 8 GW.

Renewable investments (excluding hydros) are quite new in Turkey's generation mix, a majority of the investments have been carried out within the last decade. Considering the policy level support for renewables and local resources, these investments are expected to be accelerated.

As a result of intensive liberalization efforts and the price signals in the market, the investments significantly increased since 2008.

Historical Installed Capacity Development by Ownership, 1995-2015



Source: TEİAŞ, Deloitte Analysis

Natural Gas Fired Power Plants

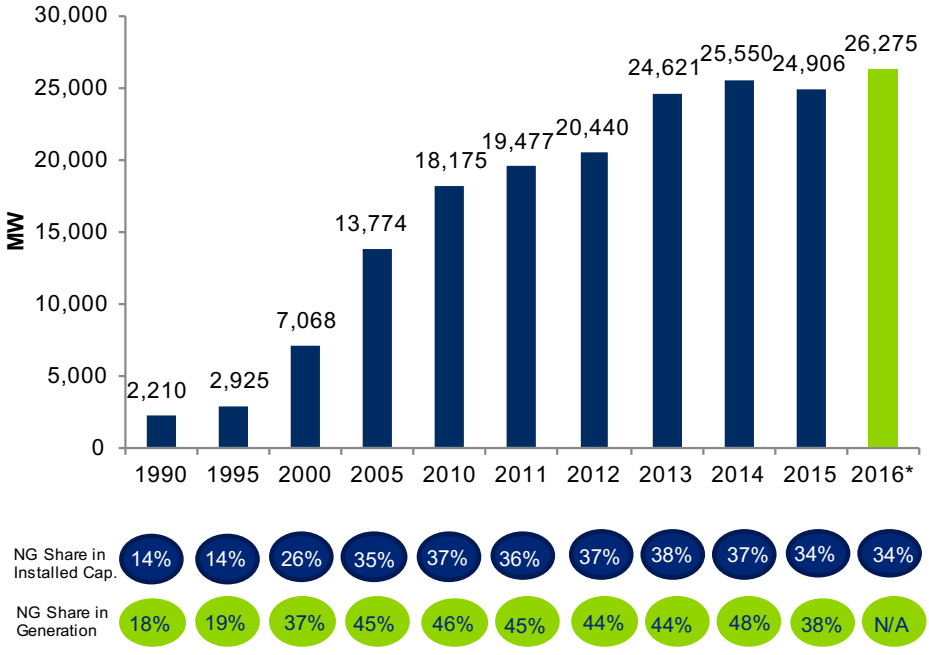
With the liberalization of the sector and establishment of the organized market combined with the increasing demand and resulting need for generation assets, Turkish electricity market has become an attractive haven for the national and international investors. Accordingly, considerable amount of merchant investment, mostly natural gas fired power plants emerged in order to meet the investment need of the market.

Since 2010, ca. 8 GW of additional natural gas capacity was commissioned. There are still major projects expected to be commissioned before 2018.

Natural gas plants comprises ca. 34.0% of current capacity and 37.9% of the electricity generation in 2015. Although, their utilization may decrease with favorable hydrology, CCGTs constitute great importance for the system security and relieving congestions due to their flexibility. Consequently, CCGTs are expected to preserve their existence and importance in the future. Concordantly, a capacity mechanism will be introduced to the market and natural gas fired power plants will be the main resource to assure supply and system security with this mechanism. The Ministry and Authority is working on the mechanism details.

CCGTs are expected to preserve their dominant position in the following years, considering their importance for system security.

Installed Capacity Development – Natural Gas (1990 – 2016*)



*As the end of July 2016
Source: TEİAŞ

Lignite Fired Power Plants

Lignite fired power plants have always been indispensable element in Turkey's generation mix as a local energy source. According to 2015 figures, installed capacity accounts for ca. 8.7 GW and generation constitutes for 12.0% of the total generated electricity in Turkey.

Apart from 620 MW TOR Çayırhan Plant, almost all capacity was operated by EÜAŞ until 2013. In 2013 and 2014, privatizations of Seyitömer, Kangal, Yatağan, Yeniköy, Kemerköy, Soma B, Orhaneli, and Tunçbilek were realized. In total, 4,302 MW of lignite fired power plants with a value of USD 8.2 billion have been transferred to private sector without providing any sovereign guarantee.

The Ministry has been conducting intense negotiations for Afşin-Elbistan, Konya Karapınar, Çayırhan and Afyon Dinar coal sites with national and international investors. These sites will be assigned to investors through competitions with underbidding method. TETAŞ will provide power purchase guarantee for at least 10 years to the applicant that offers the lowest electricity purchase price. The Environmental Impact Assessment, expropriation and other permit and license related procedures will be completed before the tenders by the public entities.

Lignite fired power plant investments, as a local energy resource, are defined as "priority" by the government policies and included in Region V of the Regional Investment Incentives Scheme to enjoy different tax and social security premium advantages, land acquisition rights and other financial supports. The details of the Support Scheme is further discussed in the final section of this report.

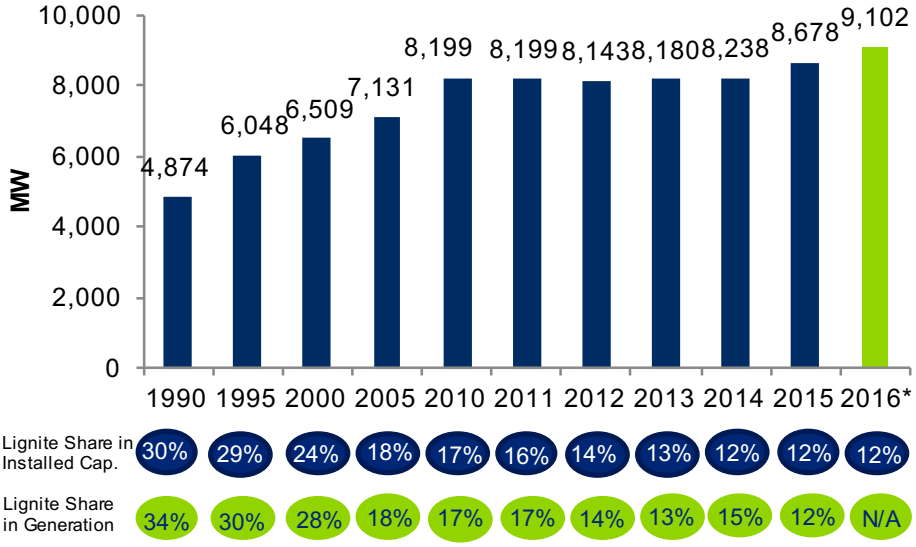
On 06/04/2016, 6446 Electricity Market Law has been amended and TETAŞ has been enabled to make power procurements from operational lignite fired power plants. The procurement price is set to 63 USD/MWh (185 TL/MWh) for 2016 which is ca. 1.5 fold of current market price levels.

ca. 15.6 billion tons / ***Amount of lignite reserve to contribute to economy***

With governmental supports, electricity generation with local coal draws attention as a prominent investment area.

Non-operational Lignite Sites and Reserves

Installed Capacity Development – Lignite (1990 – 2016*)



*As the end of July 2016
Source: TEİAŞ

Hard Coal Fired Power Plants

Turkey is not rich in terms of hard coal; and hence, most of the capacity is depending on imported hard (steam) coal. By the end of 2015, installed capacity including imported coal fired plant, local hard coal fueled plants and dual fuel firing plants (solid and liquid) is 7.1 GW. Imported coal fired plants together with hard coal, generated 16.0% of the total electricity in 2015.

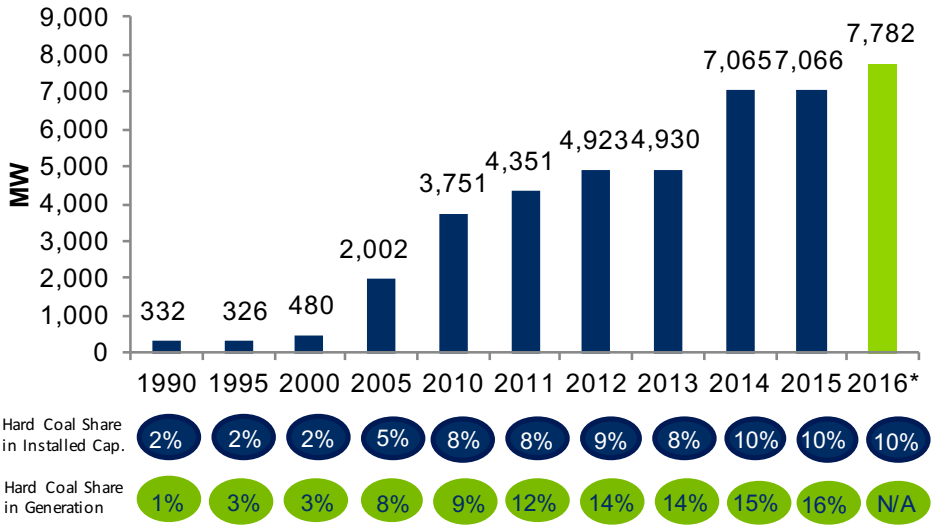
Since 2009 ca. 4.7 GW of new imported coal plants have been commissioned and the capacity is also expected to increase. As imported coal fired PPs create an advantage in terms of fuel cost and low coal supply risk, investors tend to develop base load imported coal fired projects.

The dark spread is realized as 31.7 USD/MWh* in 2015. In August 2016, additional import tax is imposed on imports of thermal coal for generation from major exporters. The tax on thermal coal imports causes a 5.4 USD/MWh downward shift on dark spread. However, the dark spread is still favorable and encourages the investments.

The imported coal plants in Turkey usually import coal from either South Africa, Russia or Colombia. Due to logistics reasons new license applications condense around coastal areas; namely, İzmir, Çanakkale and Adana. US coal recently started gaining market share in Turkey as the hard coal prices in US declined due to the effects of shale gas in US.

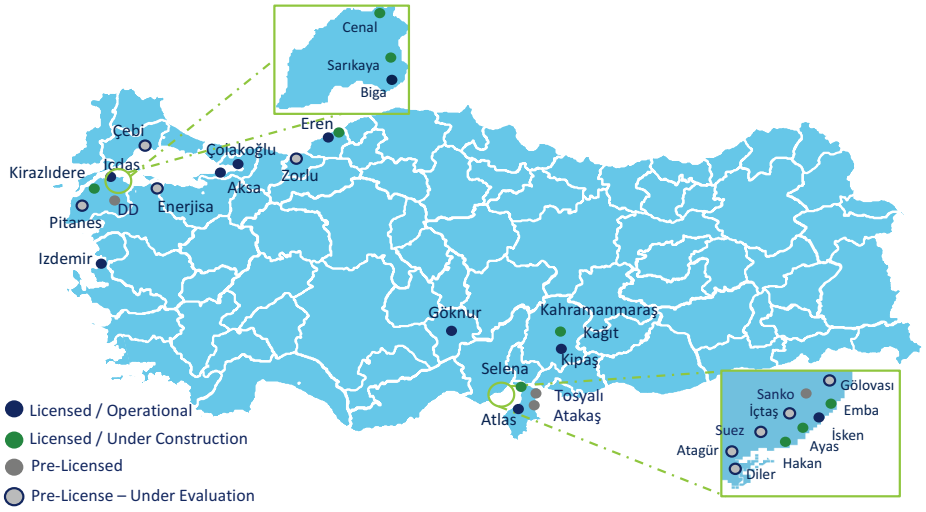
Hard coal fired power plants with favorable dark spreads provide profitable and feasible operation to its investors.

Installed Capacity Development – Hard Coal** (1990 – 2016***)



** Includes local and imported hard coal fired capacities *** As the end of July 2016 Source: TEİAŞ

Map of Some Operational and Prospective Imported Coal Fired PPs



Note: Projects are located according to the disclosed cities. However, exact locations of projects may change.
Source: EMRA, Deloitte Analysis

*It is assumed that efficiency of coal fired power plant is 40% and lower heating value of coal is 6000 kcal/kg.

Hydroelectric Power Plants

Turkey is rich in terms of hydro resources. As a clean and local energy resource, hydroelectric power have been an investment priority and supported throughout the development of electricity market in Turkey. This is reflected in investments and the capacity has grown with CAGR of 10.3% in last 5 years.

Installed capacity of hydro plants has reached 25.9 GW (35.4% of total installed capacity) at the end of 2015 and hydro plants have met ca. 67.1 TWh (25.6% of total electricity generation) electricity demand of Turkey in 2015.

According to EMRA in January 2016, 282 hydro projects are under construction with a total capacity of ca. 7.8 GW. 2023 targets of the Government aims to reach 34 GW capacity in hydros.

Since hydro sources have considerable share in energy mix, hydrology has a crucial impact on the generation scheme and system security. Hydroelectric dams can benefit from higher market prices and consequently get higher revenues operating as peaker plants.

Economical hydro potential of Turkey is calculated as ca. 36 GW of capacity and ca. 130 TWh/year of generation. Reaching up to 34 GW of hydro capacity is within Turkish Government's 2023 targets.

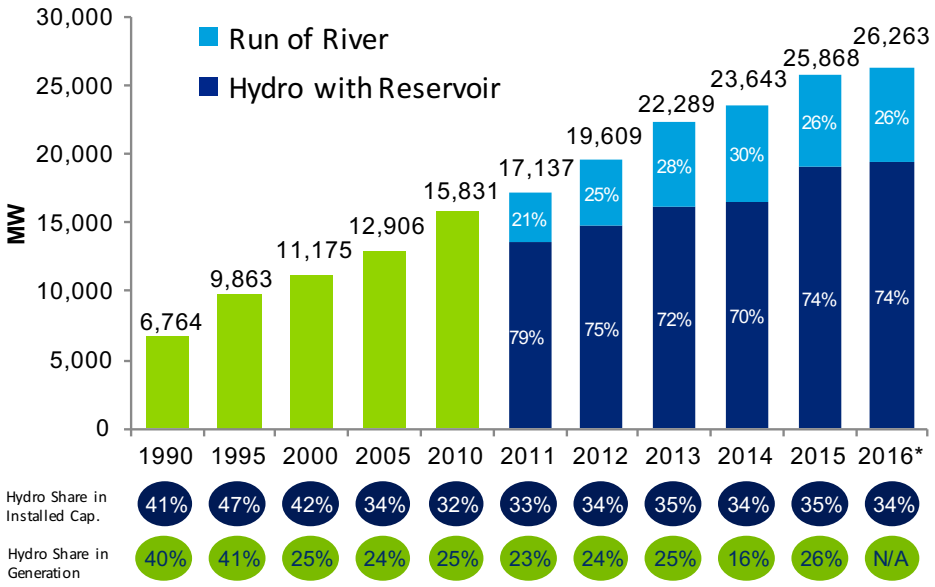
Small hydro electric power plants can benefit from Renewable Energy Resources Support Mechanism (YEKDEM) purchase guarantee for 10 years and local equipment tariff for 5 years. The details are available in the Renewable Energy Section.

34 GW / *2023 Target*

8 GW / *New Hydro Capacity to be Commissioned*

Effective utilization of Turkey's rich hydro resources as clean and local energy source constitutes great importance inline with strategic targets presented in Supply Security Strategy Paper.

Installed Capacity Development – Hydro (1990 – 2016*)



Note: Installed capacity difference between Hydro with Reservoir and Run of River type plants is not illustrated until 2011.
*As the end of July 2016
Source: TEİAŞ

Renewable Energy

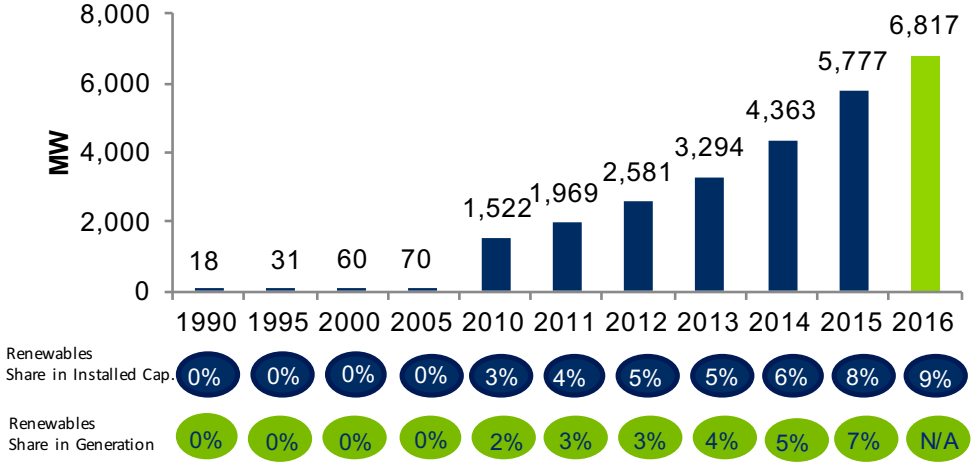
According to the government policies, new capacity investments, supply diversity (the need for local and renewable sources) and maximizing energy efficiency are critical points for Turkey in conjunction with the increasing primary energy demand. In order to avoid the risks linked to both energy dependence and developing a sustainable energy model, the Government is committed to promoting alternative solutions based mainly on local and renewable sources. Therefore, Turkey has initiated a forward looking and innovative energy policy in which renewable energy plays a significant role.

Total installed capacity of renewables has reached 5.8 GW (7.9% of total installed capacity) at the end of 2015 and renewable plants met ca. 17.0 TWh (6.5% of total electricity generation) electricity demand of Turkey in 2015.

In parallel with Turkey's long term strategy, Government has established very ambitious objectives for 2023 regarding electricity generation based on high availability of renewable energy resources: hydro, wind, solar, geothermal, etc. This shall increase the share of non-hydro renewable energy in electricity generation capacity to at least 27GW in 2023.

Solar Energy stands out as a promising investment area owing to Turkey's advantageous position in solar radiation and sunshine duration in the global context and among European Countries. Considering the available land area with solar radiation and sunshine duration, Turkey is regarded to have the highest solar energy potential in Europe along with Spain. The Southeast and the Mediterranean regions are the most favorable regions with 2,993 and 2,956 hours of average sunshine duration and 1,460 kWh/m^2 and 1,390 kWh/m^2 of average solar radiation, respectively.

Installed Capacity Development – Renewables (1990 – 2016*)



Source: TEİAŞ
*As the end of July 2016

27 GW / *2023 Target*

20 GW / *New Renewables Capacity to be Commissioned*

ca. USD 29 billion / *Investment Requirement*

In order to avoid the risks linked to both energy dependence and developing a sustainable energy model, the Government is committed to promoting alternative solutions based mainly in local and renewable sources.

Renewable Energy - RER Support Mechanism

The development of renewable energy sources and the promotion of energy efficiency measures are two of the priorities of Turkish energy policy.

Feed-in tariff as a power purchase guarantee is presented to renewable energy investors in conjunction with the Government's support policy for renewable energy resources. This mechanism is known as Renewable Energy Resources Support Mechanism (YEKDEM).

Who can benefit from YEKDEM?

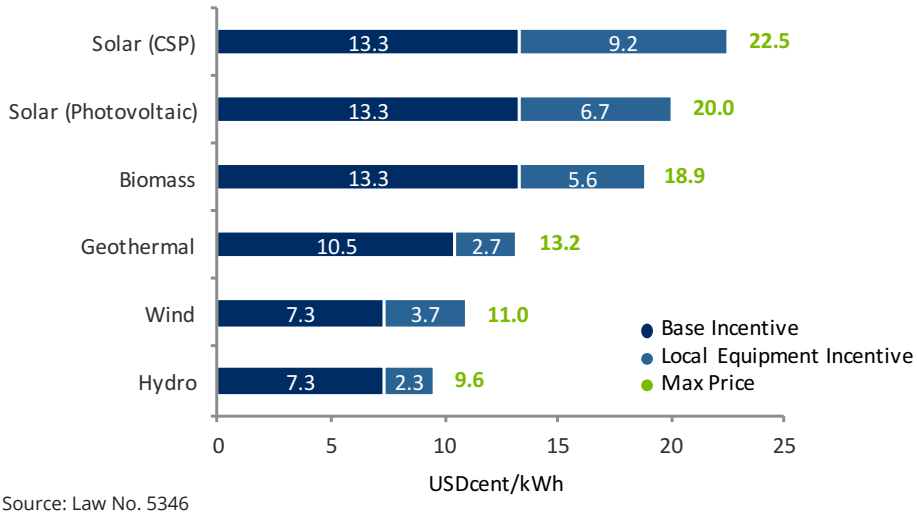
Generation Companies with License: Renewable energy generation facilities that started operation after 05/18/2005 or before 12/31/2020 can benefit from YEKDEM purchase guarantee for 10 years and local equipment tariff for 5 years.

Unlicensed Generation: In order to promote distributed generation, unlicensed generation has been introduced and incentivized in the scope of Renewable Energy Resources Support Mechanism.

Legal entities or real persons having renewable energy generation facilities without holding a license can benefit from the mechanism for 10 years via incumbent RetailCo in their region. Generation without a license is currently limited to capacities <1.0 MW.

Renewable energy support mechanism secures a reliable and consistent income for the investors and consequently eases financing with better conditions.

Feed-in Tariff (USDcent/kWh)



Source: Law No. 5346

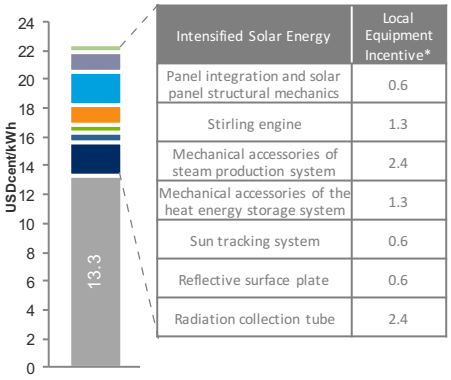
Renewable Energy - Local Equipment Incentives

The incentive scheme has been established to promote the use of local equipment and development of a national industry.

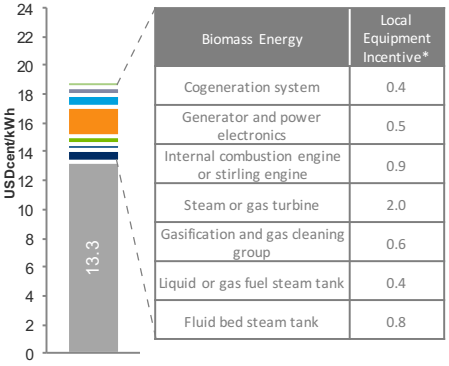
Investments of local equipment manufacturing for renewable energy generation assets are defined as "priority" by the government policies. These investments are included in Region V of the Regional Investment Incentives Scheme and consequently enjoy different tax and social security premium advantages, land acquisition rights and other financial supports. The details of the Regional Investment Incentives Scheme is further discussed in the final section of this report.

Inline with the consistent policies and support mechanisms, renewable energy equipment manufacturing market is expected to flourish and eventually start exporting to African, East Europe and Middle East markets in conjunction with Turkey's strong potential, reputation for reliable manufacturing and geographical location.

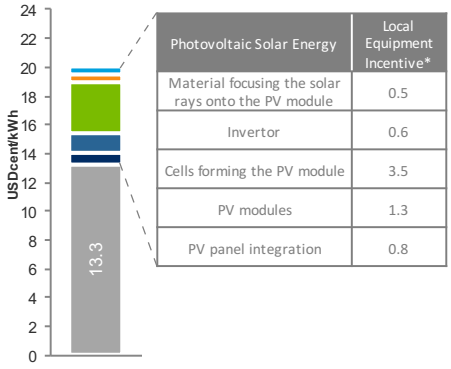
Local equipment manufacturing and localization strategy of the Government constitutes strategic importance in conjunction with its direct positive effects on job creation, enterprise development and consequently GDP and current deficit.



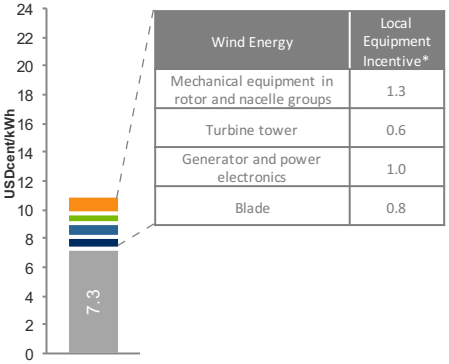
Intensified Solar Energy	Local Equipment Incentive*
Panel integration and solar panel structural mechanics	0.6
Stirling engine	1.3
Mechanical accessories of steam production system	2.4
Mechanical accessories of the heat energy storage system	1.3
Sun tracking system	0.6
Reflective surface plate	0.6
Radiation collection tube	2.4



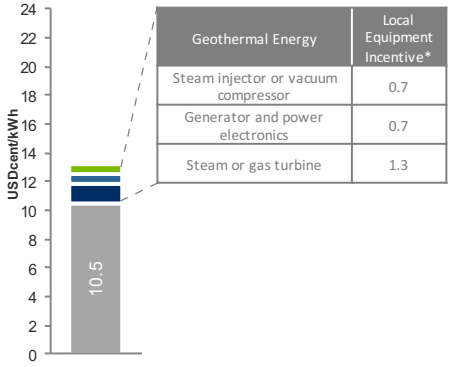
Biomass Energy	Local Equipment Incentive*
Cogeneration system	0.4
Generator and power electronics	0.5
Internal combustion engine or stirling engine	0.9
Steam or gas turbine	2.0
Gasification and gas cleaning group	0.6
Liquid or gas fuel steam tank	0.4
Fluid bed steam tank	0.8



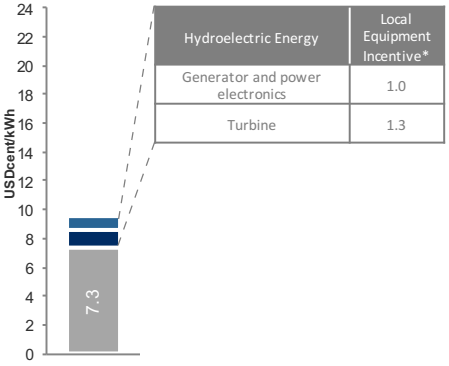
Photovoltaic Solar Energy	Local Equipment Incentive*
Material focusing the solar rays onto the PV module	0.5
Invertor	0.6
Cells forming the PV module	3.5
PV modules	1.3
PV panel integration	0.8



Wind Energy	Local Equipment Incentive*
Mechanical equipment in rotor and nacelle groups	1.3
Turbine tower	0.6
Generator and power electronics	1.0
Blade	0.8



Geothermal Energy	Local Equipment Incentive*
Steam injector or vacuum compressor	0.7
Generator and power electronics	0.7
Steam or gas turbine	1.3



Hydroelectric Energy	Local Equipment Incentive*
Generator and power electronics	1.0
Turbine	1.3

* Local equipment incentive prices are the incentives for domestically produced equipment and valid for 5 years. As per the recent draft amendment version of the regulation local component YEKDEM support (corresponds to local equipment incentives) for unlicensed generation facilities was removed.
Source: Law No. 5346

Renewable Energy – Investment Support Scheme

Inline with the local and renewable generation support policy of the Government, other renewable energy incentives and supports are provided besides guaranteed feed-in tariff.

Renewable Energy Resource Areas (YEKA)

New Investment Model for Renewables, YEKA (Renewable Energy Resource Area) Mechanism, has been introduced in order to support renewable energy investments and incentivize local manufacturing of renewable generation assets.

Public and government owned lands that are categorized as highly suitable for the renewable energy generation are defined as YEKA. YEKA is expected to create new opportunities for renewable energy sector and investors. According to YEKA Regulation;

Incentives For Renewable Energy Resources:

- Renewable energy investments shall be exempt from customs tariff and value added tax for their investment costs (imported solar panels are not within the incentive scope)
- Lower license fees
  - Only 10% of licensing fees
  - Annual license fee exemption for the first eight years of the operations
- Network connection priorities
- Simplified project preparation and land acquisition procedures
- For the first ten years of the investment and operation periods, 85% discount is applied to the cost of right of easement, usage right and rent

Incentives For Energy Resources:

The following incentives shall be provided for the legal entities with generation license to be commissioned until 12/31/2020:

- 50% discount shall be applied over the system transmission system usage fee for five years starting with the commissioning of the plant.
- During the investment period of the generation plants, transactions and documents related to the generation plant investment shall be exempt from stamp tax and charges.

Advantages

- The General Directorate of Renewable Energy is responsible for completing;
  - necessary measurements,
  - technical studies,
  - pre-feasibility studies,
  - transportation infrastructure of YEKAs.
- TEİAŞ is responsible for completing;
  - energy transmission facilities
  - electrical infrastructure plans
- Simplified procedures are provided to obtain land permission.

Necessities

- Having a local manufacturing facility and using local equipment will be mandatory for YEKA tenders as per draft YEKA regulation.
- Collateral is required for applying YEKA tenders. The exact amount will be defined for each tender.

Assignment Process

- Projects within YEKA are assigned to private entities with tenders. (According to the draft YEKA regulation, underbidding method is used for the tenders. The connection capacity usage right is given to the applicant that offers the lowest electricity purchase price.)
- License will be granted to the successful bidder.

Nuclear Energy

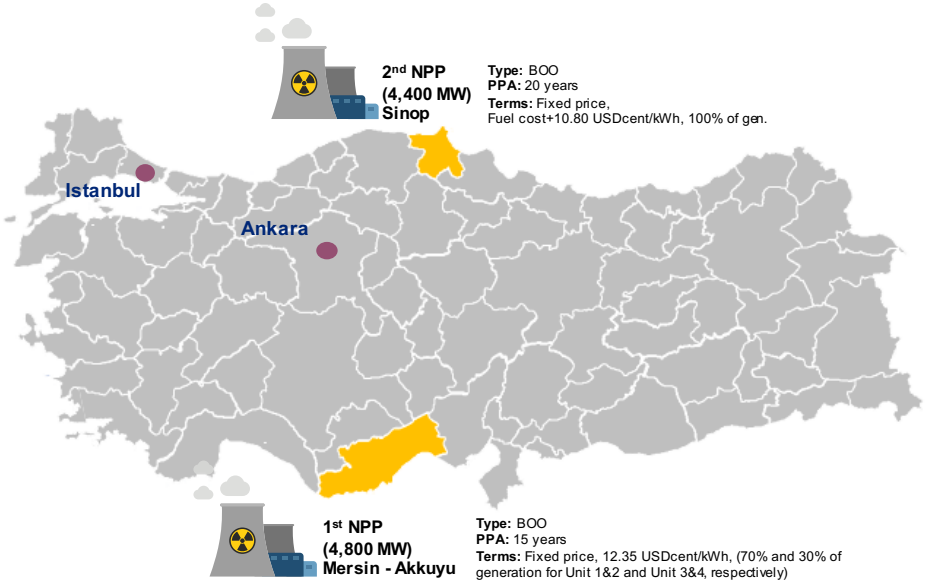
Nuclear power plants will contribute to the diversification of energy resources and security of supply. At this point, Turkish Government has been taking concrete steps regarding the addition of nuclear power plants to its fuel mix.

An agreement with Russian Atomstroyexport has been made to build the first nuclear power plant in Mersin. Akkuyu NPP is expected to start operations in 2023.

Second NPP will be established in Sinop by a Japanese – French consortium with 51% share and EÜAŞ with 49% share. An intense process is ongoing to establish the project company.

There are ongoing negotiations for the third nuclear power plant.

Inline with the Government's localization policies local industry is expected to attract USD 8 billion investment related to nuclear technology.



Generation Privatization Timeline

Turkish electricity market has gone through a major restructuring and liberalization process. Enabling market liberalization, privatizations constitute great importance to reduce market share of the state owned generation company. Therefore, the Ministry has showed great effort to accelerate the process.

In order to put forward a detailed plan for privatization of electricity distribution and generation assets, Privatization Strategy Paper was prepared by High Planning Council, in 2004. The liberalization and reform process of the sector can only be accelerated and enabled by limiting the controlling power of state entities over the market. 2015-2019 MENR Strategic Plan also points this issue and states that electricity generation of EÜAŞ will be limited to 20% of Turkey's electricity generation by 2019.

Between 2008 and 2012 HEPP portfolio which includes 52 small hydro power plants were tendered. From these plants, USD 457 million of total revenue were collected for ca. 170 MW. It corresponds to ca. 2.7 million USD/MW.

After the privatization of small HEPPs, Privatization Authority started tendering ca. 6 GW of EÜAŞ's thermal power plants. Privatizations and transfers have been completed between 2013 and 2015.

4.3 GW of lignite fired power plants have been transferred to private sector and USD 8.2 billion in total which equaled to 1.9 million USD/MW are collected.

In July 2015, it was announced that 5 portfolio group consisting of 9 HEPPs will be privatized and 3 more groups that includes 4 HEPPs were added to this list as the end of 2015. As of May, 2016, all 8 portfolio group of HEPPs were tendered with total installed capacity of 718.4 MW. USD 1.336 billion corresponding to 1.86 million USD/MW is collected.

Privatization Authority continues to privatize power plants that are owned by EÜAŞ. 3 portfolio group consisting of 5 HEPPs will be tendered in late 2016 and it is known that these privatizations will be continued.

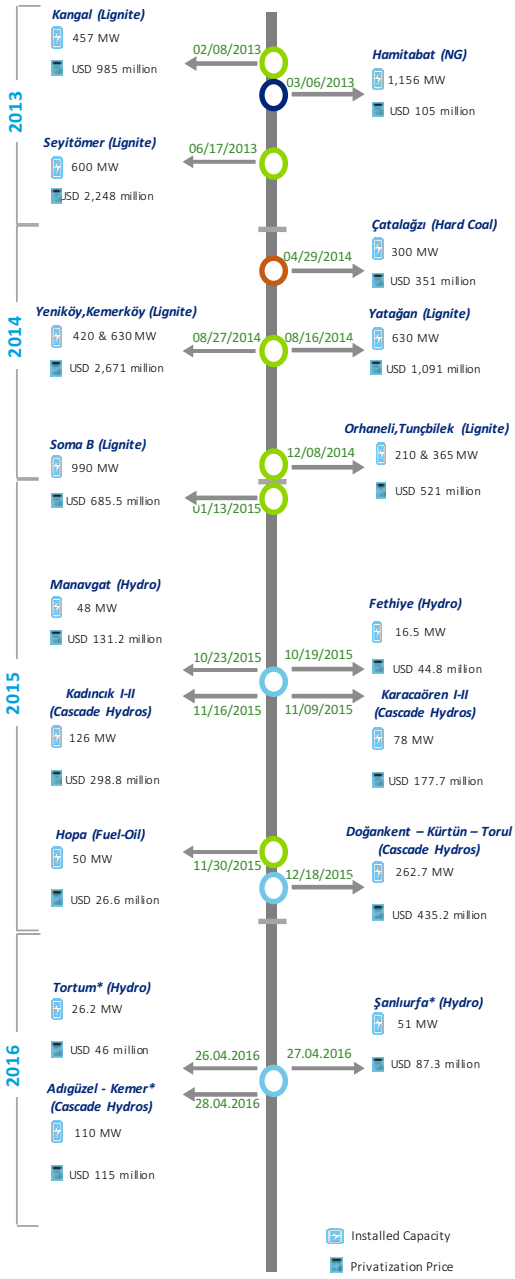
It is aimed that EÜAŞ's generation assets (besides the strategic assets, the large hydro plants) will be transferred to the private sector through privatizations. Moreover, BOT type generation assets, after completion of their implementation contract durations will be added to the privatization scope, as well.

Average price per MW for other sources is realized as; 1.17 million USD/MW for hard coal and 0.53 million USD/MW for fuel oil fired power plants while average privatization price is 1.56 million USD/MW.

USD 10.48 billion / *Total Privatization Income*

6.7 GW / *Installed Capacity of Privatized Assets*

7-9 GW / *Installed Capacity of To be Privatized Assets in Mid-long Term*



* Financial closings are expected to be done.
Source: Directorate of Privatization Administration

Electricity Transmission

TEİAŞ owns and operates high voltage transmission network in Turkey, as a state owned natural monopoly. TEİAŞ is responsible for grid investments and operations, load dispatch & frequency control, interconnections and generation capacity projection.

Transmission infrastructure is designed in Turkey mainly to transfer generated electricity from supply rich East to demand concentrated West.

Turkey has a well established transmission infrastructure which is enlarged and improved by renewal and development projects. In order to support Turkish electricity market development, transmission investment spending is increased at a remarkable rate and reached to USD 803 million in 2015 which is twelve fold of 2002 budget.

In line with the development in Turkish electricity market during 2002-2015 period, these investments enabled substation numbers to be increased by 107%. In 2015, TEİAŞ operated 56,744 km transmission lines and 138,951 MVA substation capacity with voltage levels of 380 kV, 220 kV, 154 kV and 66 kV.

TEİAŞ also continues transmission line investments, a recent major investment being 380 kV underwater transmission line to transmit electricity that creates a loop around Marmara Sea to relieve the congestion in Thrace Region.

Along with the transmission line and substation developments, TEİAŞ also enhanced the interconnection line capacities. Currently Turkey has interconnections capacity of 1,800 MW import and 900 MW export in total. Using the interconnection capacity, Turkey imported 7 TWh and exported 3 TWh of electricity in 2015. In the Ministry's Strategic Plan 2015-2019, TEİAŞ is targeting to achieve 5,500 MW import and 3,800 MW export capacity by the end of 2019.

Synchronous connection to the ENTSO-E network has been an important target for TEİAŞ. In line with the infrastructure developments, trial run period of ENTSO-E connection started on 09/18/2010. In 2014, it was decreed that Turkish transmission system will be connected to European Continent grid permanently. Long Term Agreement (LTA) for 10 years and related agreements were inked on 04/15/2015. As of January 2016, TEİAŞ became an observer member of ENTSO-E. This agreement is expected to further increase the import and export volumes.

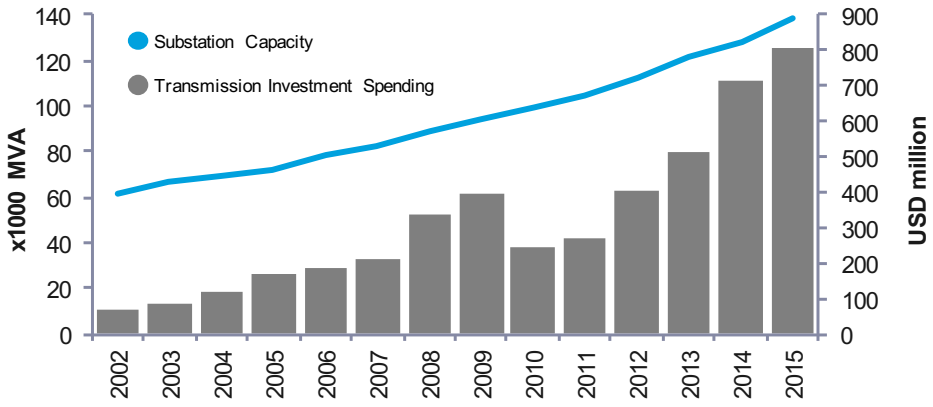
The state owned transmission system provides reliable infrastructure for both consumers, generators and all sector actors in line with the investments performed.

Interconnection Capacity Projection

Capacities	Import (MW)		Export (MW)	
	2017	2019	2017	2019
ENTSO-E	650	1,800	500	500
Georgia	1,050	1,400	1,050	1,400
Iran	600	1,200	600	600
Iraq	-	500	400	700
Syria	-	600	500	600
Total	2,300	5,500	3,050	3,800

Source: MENR Strategy Plan 2015-2019

Infrastructure Development



Source: TEİAŞ

Electricity Distribution

Electricity distribution sector has been shaped with the successfully conducted and concluded privatizations that aimed to both achieve operational efficiency and meet the long delayed investment requirements.

Privatization Strategy Paper issued in 2004 sets the ground rules for the privatization process of distribution sector. In 2005, 20 out of 21 distribution companies (DisCo), as regional monopolies, were established as subsidiaries of TEDAŞ, the incumbent electricity distribution and retail sales company. Each DisCo is a sole company that has operating rights of its own region through electricity distribution license for a period of 30 years. The assets of distribution company belongs to TEDAŞ.

As an indispensable part of liberalization process and prerequisite of privatizations, a state of the art tariff mechanism was introduced and the tariffs of the companies were approved in 2006 covering 2006-2010 period.

In 2008, Privatization Administration started the privatization tenders of the 18 electricity distribution companies. The privatization process was successfully completed and the transfer of 21 regions to the private sectors was completed by 2013.

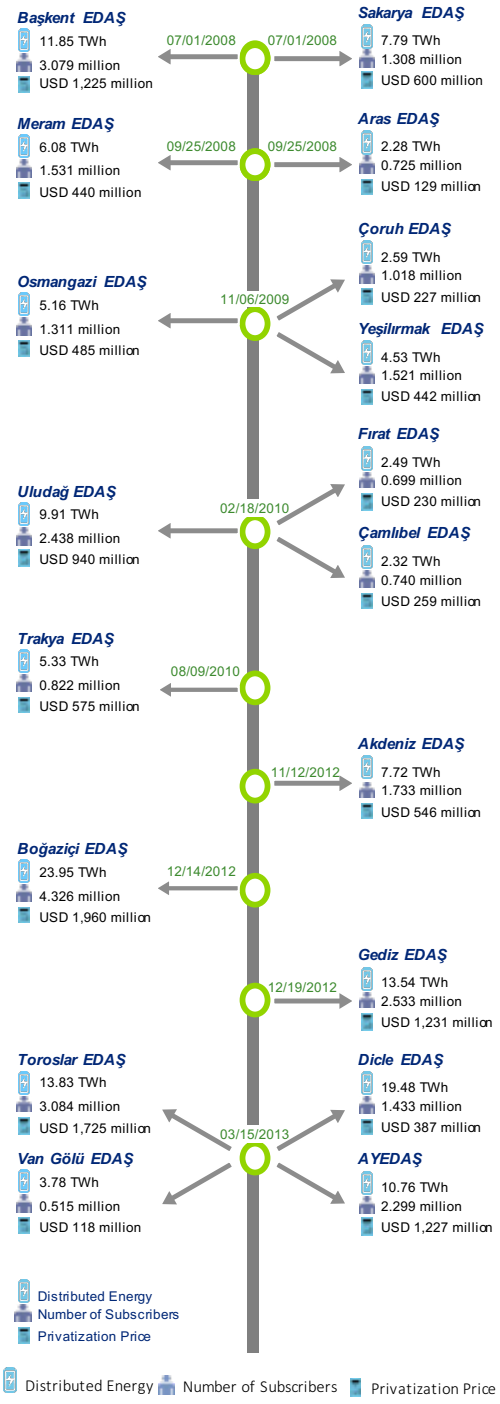
USD 13 billion / *Total Privatization Income*

all 21 regions / *# of Distribution Companies Operated by Private Sector*

When the privatizations were finalized in 2013, 18 distribution regions were serving for 33.7 million subscribers representing 164.3 TWh electricity distributed in total. Privatization tenders were completed with USD 13 billion in total. As a result, investors paid USD 79 million per TWh electricity distributed and USD 383 million per million subscribers.

For further market liberalization, as of 01/01/2013, electricity distribution activities and retail sales activities were unbundled. As of this date, retail sales activities have been conducted under a separate legal entity. Thus, market participants' access to grid infrastructure on equal terms is secured and an efficient competitive environment is provided in supply market.

Successfully completion of distribution sector liberalization process handed over 21 distribution regions to private sector with USD 13 billion privatization revenue in total.



Electricity Distribution

Electricity distribution and retail sales sector offer great opportunities to the investors to create value through investments and efficient operational activities.

Electricity Distribution Revenue Regulations

Electricity distribution is a regulated segment under supervision of EMRA. The revenues of the electricity distribution companies are regulated by the revenue cap model, very commonly implemented in European countries. The revenue regulation practices in Turkey allow the distribution investors to make profits in the following areas:

Investments (CAPEX) / WACC:

- Earnings from unamortized capital expenditures at a reasonable rate of return (WACC rate). The WACC rate valid for 2016-2020 period is set at 11.91% in real TL terms. In total USD 6.29 billion electricity distribution investment budget has been approved by EMRA for the implementation period of 2016-2020 in 2015.
- Additional profit opportunity due to the difference between EMRA's determined reference unit cost prices and the actual cost prices of the grid investments. (CAPEX efficiency)

Operating expenditures (OPEX):

- Additional profit opportunity arising from the difference between approved OPEX by EMRA and the actual OPEX (OPEX efficiency). In total USD 12.0 billion OPEX budget has been approved by EMRA in 2015 for the period 2016-2020.
- Other income items that are not included in the distribution revenue adjustments and provided to the distribution companies as an additional income.

Technical and Non-Technical Loss Performance:

- Additional profit opportunity arising from the difference between regional technical and non-technical loss targets and actual ratios (Technical and non-technical loss efficiency).
- Distribution tariffs subject to regulation have been covered a period of 5 years until now. First practice period started in 2006. As of 01/01/2016, this is the 3rd Tariff Implementation Period.

Electricity Retail Revenue Regulations

According to the revenue regulation practices that EMRA has implemented for Electricity Retail Companies, retail revenues are regulated with price cap model. These revenue regulation practices allow the retail companies to make profits in the following areas:

Gross Profit Margins:

- Gross profit margin for the regulated customers has already been approved as 2.38% for the 3rd Implementation Period (2016-2020).
- For eligible customers there is a free market. Increasing the difference between end user price and cost of energy allows a gross profit for the companies. Increasing the sales volume and market share are the main motivations for retail companies.

Operating expenditures (OPEX):

- Additional profit opportunity arises from the difference between approved OPEX by EMRA and the actual OPEX (OPEX efficiency).
- Late payment penalty income is not included in the gross profit margin or retail service revenue requirement calculations and left to the retail companies as an additional income.

Electricity Distribution – Smart Grid

Developments in technology change the way the grid operators and the grid users interact with the grid and make use of it. Smart grid technologies are developing to enable this transformation.

As the first step in smart grid development, automated meter reading systems (AMR) emerged which enable more frequent and off-site metering. Turkey also adopted its regulations to introduce AMR in the electricity distribution grid. Widespread use of AMR systems is essential for full market opening and to support efficient grid management. Implementation of smart grid and metering systems enable two way data communications and enable enhancements in areas such as demand side management, energy efficiency and balancing peak demand. These huge investments should be preceded with carefully studied cost-benefit analysis.

Transformation of distribution sector and introduction of smart systems are bringing new opportunities for product and technology providing companies. Estimated investment to smart grid implementations is ca. USD 11.2 billion by the year 2035.

Smart Grid

In Energy Efficiency Strategy Paper (2012-2023), implementation of smart grid investments is considered as a target in order to support electricity intensity reduction by 20% before 2023.

With an attempt to increase R&D activities of electricity distribution companies, EMRA introduced a support scheme for R&D projects including smart grid investments as a focus area.

One of the main projects performed in this area is "Turkish 2020 Smart Grid Vision and Strategy Project" the output of which is Turkey's 2020 Smart Grid Roadmap. This project provides feasible technology selection based on cost-benefit analysis, systems architecture design, recommendations about required legislation and human capital targets. It is expected that implementation of the steps in the smart grid roadmap will enable consumers to take an active part in the electricity market, increase share of renewables in electricity generation and improve electricity supply quality.

Estimated investment to smart grid implementations is ca. USD 11.2 billion by the year of 2035.

Smart Metering

In conjunction with smart grid, smart metering systems also play important role in development of distribution infrastructure and support full market opening. Similar to smart grid, smart metering system investments are analyzed by cost benefit studies. Initially, smart meters are expected to be implemented for high electricity consuming clients within the AMR limitations determined by the regulator authority. For the later investment period, smart metering systems will be expanded in line with cost reduction benefits and introduction of new technologies.

Smart Market

Smart Market is defined as market related benefits of smart solutions. In addition to producers, consumers and prosumers, many other service providers are taking part in these markets (e.g. energy efficiency service providers, aggregators, etc.). Distribution companies need to collaborate to manage market related enabler investments such as integration of solar-PV installations and electric charging stations. Smart market applications may lead to grid implications that must be dealt by distribution companies.

Electricity Wholesale Market

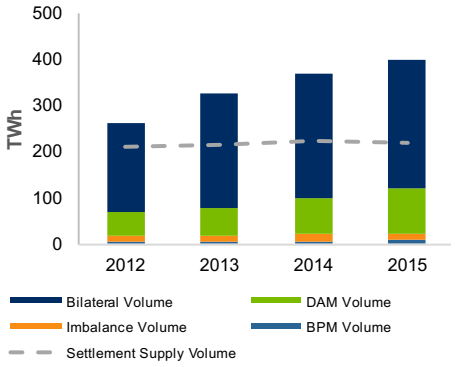
The trading environment in Turkish electricity market has gone through a consistent development. A phased approach was adopted and market places, products and services evolved with improving systems and infrastructure. The electricity market, attracted substantial merchant investment, even in its very early stages, is in its mature stage. In line with the development of organized markets, unorganized markets also progressed and started to take important role in the market by providing more sophisticated products. Today, Turkish electricity market includes all necessary market places and services that provide reliable investment signal in a timely and transparent manner and provide necessary tools for the participants in the market.

As of 2015, organized markets volume is 108 TWh whereas bilateral contracts volume is 281 TWh. Total supplied electricity volume is 221 TWh corresponding to the market churn ratio of 1.8.

The development of the bilateral contracts is driven by the private sector which was tripled in volume in 4 years time span.

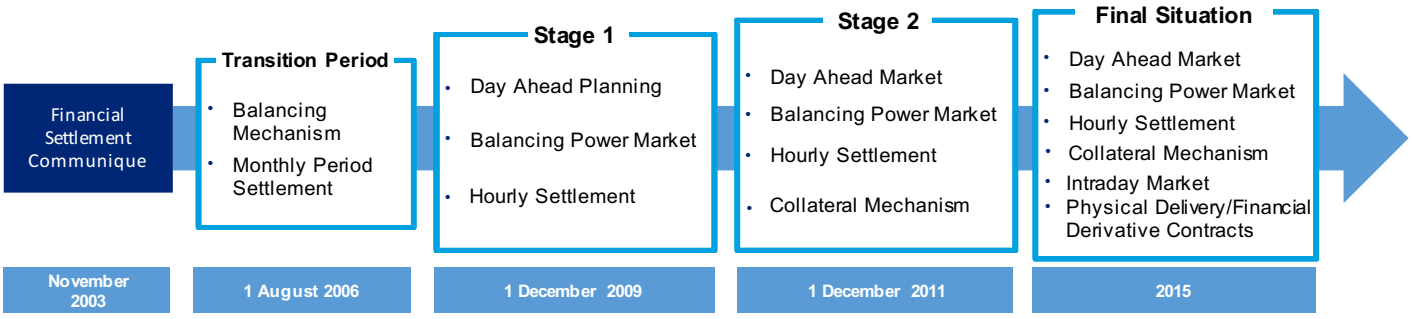
Day Ahead Market, established in 2012, has reached to 99.3 TWh trade volume and increased by CAGR of 24% in the period between 2012-2015.

Market Volumes



Source: EXIST

Organized Markets			
EXIST		TEİAŞ	BIST
DAM	Settlement	BPM	Derivatives
IDM	Collaterals	Ancillary Services	
Unorganized Markets			
OTC			
Bilateral Contracts			



Electricity Retail Market

Turkey aims to fully open its electricity market to competition. In line with this target, the eligibility limit has been consistently decreased from 9,000 MWh in 2003 and reached to 3.6 MWh in 2016. The eligibility limit is expected to be zero in line with the infrastructure investments at EXIST that have progressed substantially and expected to be completed soon.

Consequently, reduction in the eligibility limit lead to an increase in theoretical market opening ratio to 86% of 2016 from 23% of 2003.

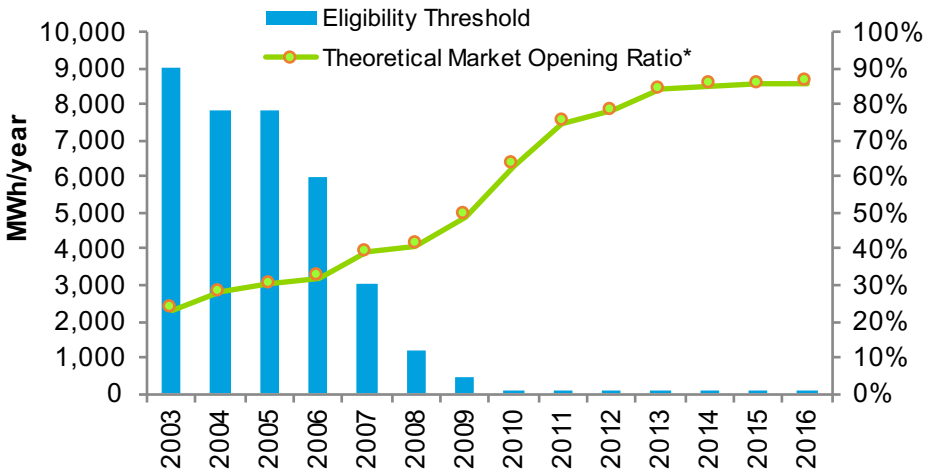
In line with the market opening and developments in the electricity market, total number of private supply licenses has increased substantially. By the end of 2015, there are 156 supply licenses owned by private sector and one owned by TETAŞ, state owned wholesale company.

Currently, incumbent retail companies, unbundle retail company of privatized distribution companies, are holding majority of the eligible consumers. It is expected that real market opening ratio, was around 25% in 2014. Therefore, as a result of increasing population and churn ratio, there will be great opportunities for new retail companies to have significant market share in the electricity retail market. Also, retail companies can create value by operational excellence practices in addition to regular electricity sales practices.

Turkey is planning to implement and expand smart grid, smart metering and demand side management applications. Consequently, this game changer technology will enable retail companies create differentiated products and create new trade opportunities for the companies.

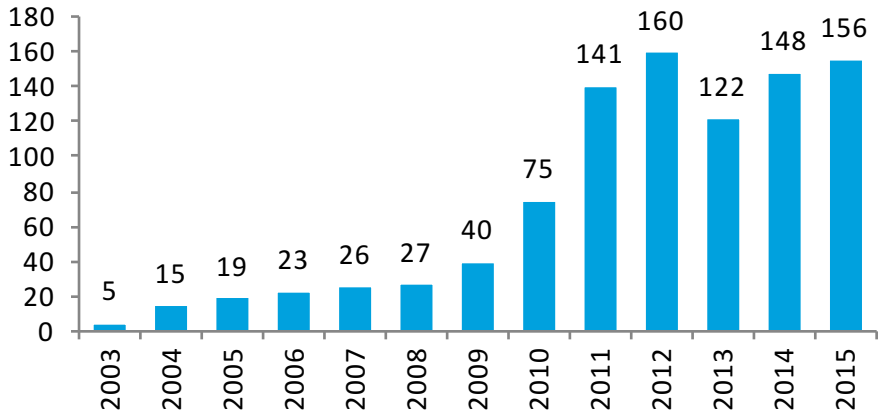
In line with gradual market opening and developments in electricity trading environment, Turkey offers great opportunities for retail companies to have significant market share in the untapped retail market.

Market Opening Ratio Development



*Theoretical market opening ratio is calculated by EMRA.
Source: EMRA,TETAŞ, Turkish Competition Authority

Number of Private Supply** Licenses



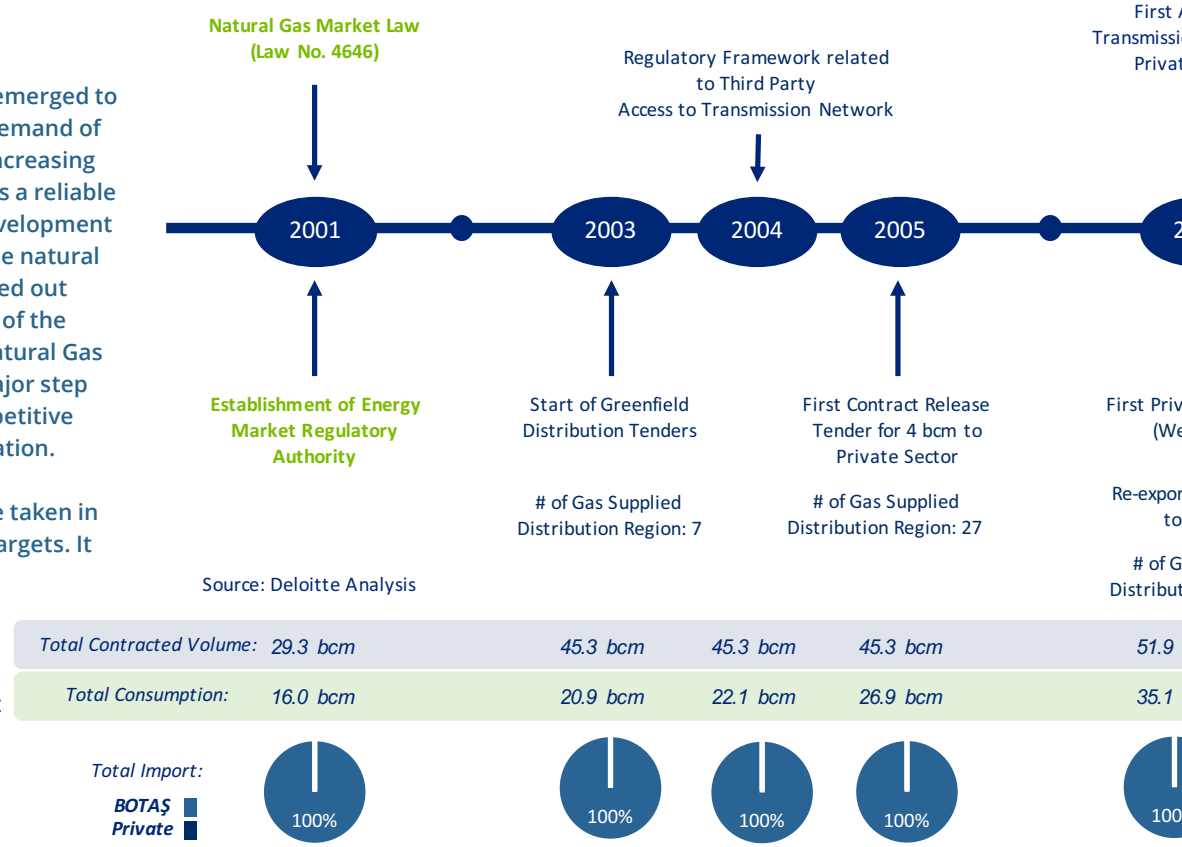
**Previously wholesale license
Source: EXIST

4. Natural Gas Market Overview

Liberalization Timeline of Turkish Natural Gas Market

Natural gas usage in Turkey emerged to meet the increasing power demand of Turkey, as a solution to the increasing air pollution and in general as a reliable energy source to support development of Turkey. Development of the natural gas market was initially carried out by public sources in all areas of the value chain. Issuing of the Natural Gas Market Law in 2001 was a major step in establishing a liberal competitive market with private participation.

Until 2001 several steps were taken in achieving the liberalization targets. It can be articulated that private sector participation in natural gas distribution segment is the most prominent success in market development. Other major development steps are summarized in this page.



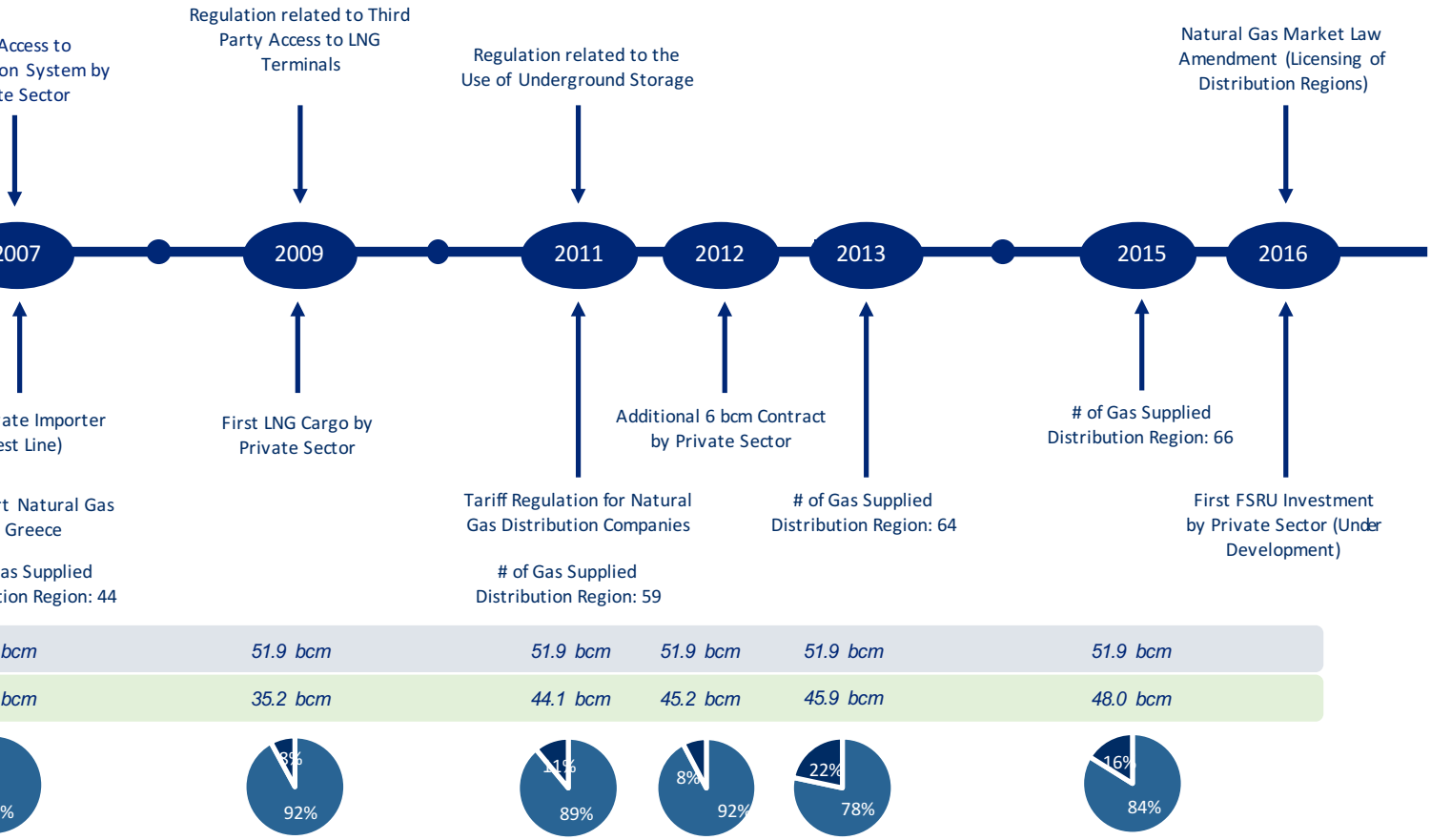
2001: The Natural Gas Market Law (NGML) was first issued and published in Turkish Official Gazette on 05/02/2001. This Law is the main legislation setting the ground to establish a financially sound, stable and transparent natural gas market so as to ensure supply of good quality natural gas at competitive prices to consumers in a regular and environmentally sound manner under competitive conditions. The Law introduces third party access to grids, sets liberalization targets and defines a licensing scheme enabling private players to participate in the market. In 2001, also an independent Energy Market Regulatory Authority was established.

2003: Before the NGML, natural gas was supplied to limited number of cities (Ankara, İstanbul, Bursa, İzmit and Eskişehir). There was a need to extend natural gas usage to other cities. EMRA then put forward a green field privatization scheme based on tenders: The first tender was conducted in 2003. The tender process proved to be very successful and this resulted in increasing number of cities with natural gas usage year by year. All the necessary investments were done by private sector and consequently the capital requirement was also covered by private sector.

2004: The NGML and the Regulation about Natural Gas Market Transmission Network Operations Principles (first issued in 2002) sets the basic rules related to Third Party Access to transmission network. But it was not until BOTAŞ Network Operating Principles was put into force in 2004 that Turkey had a workable regulatory framework to be enforced.

2005: The NGML contains very ambitious targets to decrease BOTAŞ's market share and it defines gas release programs as a means to catch this target. Consequently the first contract release tender to release 4 bcm of BOTAŞ contract from GazProm was conducted in 2005. 4 companies gained the right to negotiate with GazProm to import 4 bcm of gas from Russia through West Line.

2007: In 2007, a natural gas wholesale company signed a Standard Transportation Contract and gained access to the transmission network, as the first "Shipper"



apart from BOTAŞ, to ship the local natural gas produced. Out of the 4 companies that were successful at the contract release tender, the first Shipper obtained its license and started gas imports in 2007. Within the first quarter of 2009, all 4 successful bidders have taken over their contracts and started importing gas from Russia. As per the agreement signed between BOTAŞ and Greek DEPA company in 2001, re-export of Azeri gas to Greece started in November 2007.

2009: Regulation related to Third Party Access to LNG Terminals was issued in 2009. The regulation set forward the main commercial and technical rules that should be covered by the principles and procures document to be prepared by the terminal operators. It is regulated that access to the LNG terminals shall be on a non-discriminatory basis and shall provide economical, efficient and safe operations of the terminal. First LNG cargo by private sector was brought into the system in 2009.

2011: Similar to LNG terminals, the regulation related to the use of underground storage was issued in 2011. Tariff Regulation for Natural Gas Distribution Companies was issued end of 2011 and started to be implemented for applicable natural gas distribution companies. The regulation sets a state of the art price ceiling approach for determination of gas distribution tariffs.

2012: 6 bcm of gas contract of BOTAŞ from West Line ended in 2011 and this volume was taken over by private sector companies. This process introduced 3 additional players engaged in natural gas imports. Gas import contracts of private sector companies increased to 10 bcm.

2016: NGML was amended in 2016. The law amendment included provisions regarding giving rights to the Regulator to increase natural gas storage obligations (from the current level of 10%) up to 20% of annual gas consumption and redefinition of boundaries of natural gas distribution companies. The first FSRU investment by private sector was initiated. This is an important step both for diversification of resources and for securely meeting the peak demand. Studies have been initiated in opening a spot natural gas market at EXIST to be operational in 2017.

Natural Gas Market Value Chain

Natural gas market in Turkey is highly in alignment with the EU Acquis in all areas of the supply chain providing full third party access to gas networks, state of the art tariff mechanisms and gradually opening retail market.

Import & Production

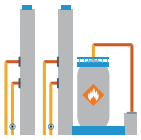
Even though Turkey has very limited natural gas reserves and production, Turkey is surrounded by resource rich countries and therefore supplies natural gas from high number of sources.

Total Import Volume: 48.4 bcm

Total Production Volume: 0.4 bcm

Transmission

Turkey has a resilient transmission system that is extensive support increasing natural gas usage throughout the country.



# of Entry Points: 9

# of Compressors: 9

Total Length of High Pressure Lines: ca. 13,000 km

Entry Volume: 50.2 bcm

Max. Daily capacity: 205 mcm/day

LNG & Underground Storage

The ongoing and planned investments for underground storage, FSRU and LNG re-gasification facilities will enhance supply security and flexibility of system operations and support Turkey's vision to establish a natural gas trading center. The growth potential of the market puts forward further investment requirements in this area.

LNG Terminal

# of Active LNG Terminals: 2

Total LNG Import: 7.6 bcm

Total Tank Capacity: 535,000 m^3

Total Re-gasification Capacity: 12 bcm/a

Max. Design Capacity: 16 & 18 mcm/day

Underground Storage

# of Active Underground Storages: 1

Storage Capacity: 2.8 bcm

Injection Capacity: 16 mcm/day

Withdrawal Capacity: 25 mcm/day

Wholesale

Turkey's geographical position provides a great potential to establish and develop a liquid natural gas trading center to serve supply security of the countries in the region, Europe and Turkey.

# of Import Licences:

Pipeline: 15

LNG: 44

# of Wholesale Licences: 45

Distribution & Retail

The greenfield natural gas distribution tenders have been a great success and supported rapid increase in usage of environment friendly natural gas throughout the country. The projections reveal that, with increasing penetration rates, natural gas demand of households and industry will be the prevailing areas of natural gas demand increase in the coming years.

Total Length of Distribution Lines: ca. 80,000 km

Total Investment: USD 11.4 billion

# of Subscribers: ca. 12 million

# of Eligible Subscribers: ca. 0.5 million

# of Distribution Companies: 68

# of Gas Supplied Cities: 77

Competitive
Regulated

Note: All data represents 2015 values.

Natural Gas Demand Development

Natural gas consumption in Turkey has been growing in line with economic developments, driven by industrialization and urbanization. Additionally, population growth expectations show a great potential for further growth.

The CAGR of natural gas consumption volume for the period 2002-2015 is 8.1%. In 2015 natural gas consumption realized as 48 bcm. The share of natural gas in total energy consumption of Turkey reached 33%. Natural gas demand consists of three sub segments, which are electricity generation, industry and heating.

Electricity generation has the highest share among natural gas consumption in industry and heating. It is expected that share of natural gas in electricity generation will be suppressed by the upcoming base load electricity generation projects utilizing coal and nuclear power. However, the need for flexible natural gas fired power plants will continue for system security reasons.

Industrial and residential natural gas consumption is expected to continue rising in the coming years. The studies reveal that the main demand driver is the growth of residential demand. Gas distribution line investments and the consequent increase in penetration rates are expected to increase the number of natural gas users. As a result, residential use of natural gas is expected to climb.

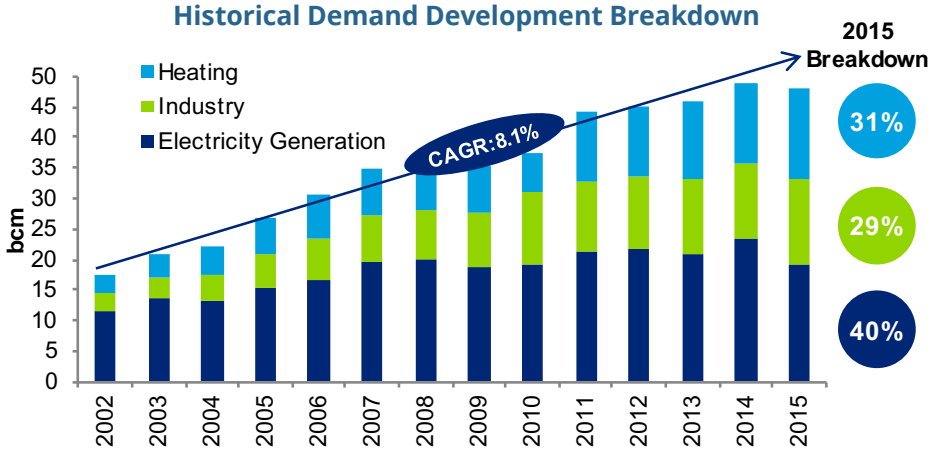
Turkey is the 5th largest country in Europe in terms of natural gas consumption with 48 bcm and still has potential for growth.

The residential natural gas demand is typically temperature sensitive. During the cold days, gas is primarily consumed for space heating in households and total natural gas consumption volume increases due to the heating requirement. Maximum monthly residential gas consumption in 2015 winter period is about eight times more than the average monthly residential consumption in summer period.

Moreover, industrial natural gas demand is expected to increase in line with increasing GDP and economic growth.

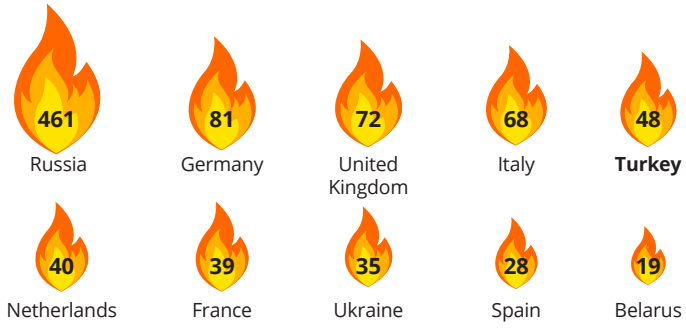
Even though share of natural gas usage in electricity generation is likely to drop, increasing penetration rates, population growth, urbanization and industrialization will lead to continued natural gas demand increase in the coming years.

Historical Demand Development Breakdown



Source: EMRA

Top 10 European Gas Consumers, 2015



Source: IEA
Note: All consumption values are in terms of bcm.

Import & Production

Turkey is an import dependent country due to limited local production (0.4 bcm in 2015). Only 1% of the total consumption can be met by domestic production.

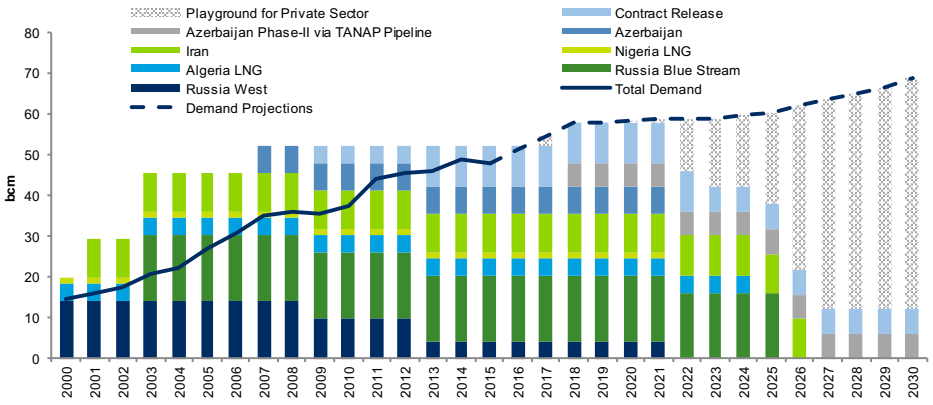
Import volume has been growing in line with the increasing natural gas demand. In 2015, ca. 48.4 bcm of natural gas is imported to the domestic market. The CAGR of import volume for the period between 2005-2014 is 6.2%. Even though Turkey is dependent on import of natural gas, all necessary steps are taken to ensure security of supply by both diversifying the supply sources and enhancing the infrastructure.

Natural gas is supplied via 12 long term pipeline contracts, 2 long term LNG contracts and spot trading (various countries such as Qatar, Norway etc.). Moreover, there exists a contract with Turkmenistan (16 bcm/a); however, there is no pipeline at the moment for such supply alternative.

In 2015, total import share is 84% (40.6 bcm) for BOTAŞ and 16% (7.8 bcm) for the private sector players.

Reducing BOTAŞ market share is one of the provisions covered in the NGML with a purpose to create a competitive and liberal natural gas market. In line with this target, 4 bcm contract of BOTAŞ in West Line was transferred to private sector through a process that started in 2005 and was concluded in 2009. Second release was realized in 2012 as renewal of 6 bcm contract of BOTAŞ by private sector players.

Long Term Contracts



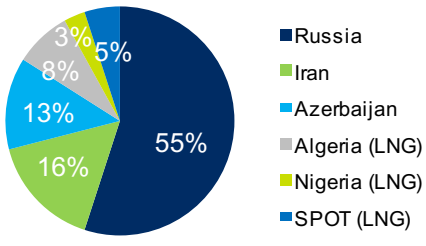
Source: BOTAŞ, EMRA

Possible renewal of current BOTAŞ contracts by private sector companies provides an extensive playground for private sector players and newcomers.

	Importing Company	Source Country	Imported Company	Contracted Quantity
Private Sector	7 Private Companies	Russia (West Line)	GazProm	10.0 bcm/a
Public Sector	BOTAŞ	Russia (Blue Stream)	GazProm	16.0 bcm/a
	BOTAŞ	Iran	NIGC	9.6 bcm/a
	BOTAŞ	Azerbaijan	SOCAR	6.6 bcm/a
	BOTAŞ	Russia (West Line)	GazProm	4.0 bcm/a
	BOTAŞ (LNG)	Algeria	Sonatrach	4.4 bcm/a
	BOTAŞ (LNG)	Nigeria	NLNG	1.3 bcm/a

Source: BOTAŞ

Total Import Volume, 2015



Source: EMRA

Active Import Contracts

West Line - Russia

- **The total length of the pipeline:** 842 km
- **Contract volume:** 14 bcm/a
- **Source country:** Russia
- **Max. daily capacity:** ca. 51.4 mcm/day
- **Importers:** BOTAŞ (4 bcm/a) and 7 Private Sector Players (10 bcm/a)
- **BOTAŞ contract termination date:** End of 2021

Blue Stream - Russia

- **The total length of the pipeline:** 1,213 km
- **Contract volume:** 16 bcm/a
- **Source country:** Russia
- **Max. daily capacity:** ca. 47.4 mcm/day
- **Importers:** BOTAŞ
- **BOTAŞ contract termination date:** End of 2025

Eastern Anatolia - Iran

- **The total length of the pipeline:** 1,491 km
- **Contract volume:** 9.6 bcm/a
- **Source country:** Iran
- **Max. daily capacity:** ca. 28.6 mcm/day
- **Importers:** BOTAŞ
- **BOTAŞ contract termination date:** July 2026

South Caucasus - Azerbaijan

- **The total length of the pipeline:** 692 km
- **Contract volume:** 6.6 bcm/a
- **Source country:** Azerbaijan
- **Max. daily capacity:** ca. 19.1 mcm/day
- **Importers:** BOTAŞ
- **BOTAŞ contract termination date:** April 2021

LNG - Algeria

- **Contract volume:** 4.4 bcm/a
- **Source country:** Algeria
- **Importers:** BOTAŞ
- **BOTAŞ contract termination date:** October 2024

LNG - Nigeria

- **Contract volume:** 1.3 bcm/a
- **Source country:** Nigeria
- **Importers:** BOTAŞ
- **BOTAŞ contract termination date:** October 2021

Prospective

TANAP - Azerbaijan

- **Contract volume:** 16 bcm/a (6 bcm/a to Turkey)

Turkish Stream - Russia

- **Prospective volume:** 31.5 bcm/a (15.75 bcm/a to Turkey)

Iraqi Gas

- **Prospective volume:** ca. 3 bcm/a

Iran – Turkey - Europe

- **Prospective volume:** 35 bcm/a (Total)

East Mediterranean Gas

- **Prospective volume:** 10-20 bcm/a

Turkmen Gas

- **Contract volume:** 16 bcm/a

Natural Gas Transmission Sector

BOTAŞ is the sole company licensed for transmission and regulations allow for other players to invest in this area. The investments of BOTAŞ to expand its transmission network to cover the whole country have been largely completed, and the total length of high pressure lines has reached approximately 13,000 km. Gas is supplied to the main transmission network from 4 other (international) transmission networks, 2 LNG terminals, 1 underground storage facility and 2 domestic extraction sites. Gas is off-taken from the network at more than 300 Pressure Reducing and Metering Stations directly connected to the network. Future investments are focused mainly on the construction of loop lines and installation of new compressor stations, aimed at increasing gas dispatch capacity. Within TANAP Project two additional off-take stations will be located along the pipeline, one located in Eskişehir and the other in Thrace. With 19 km running under the Marmara Sea, the main pipeline within Turkey will reach a total of 1,850 km.

With the ongoing and planned investments, Turkey has a well developed and resilient transmission grid. Turkish natural gas transmission system with a total pipeline length of ca. 13,000 km is one of the biggest transmission systems in Europe.

The sum of maximum allocable capacities of the foreign network connections, LNG terminals, underground storage facility and 2 domestic extraction sites constitute the maximum supply capacity that the network can offer in daily basis. Currently Turkey's natural gas network entry capacity is 205 mcm/day, but it can meet up to 240 mcm/day by using linepack. Moreover, these figures will increase in 2016-2017 winter through capacity expansion of LNG terminal and additional FSRU facility.

Source: BOTAŞ, Deloitte Analysis

Underground Storage & LNG Terminals

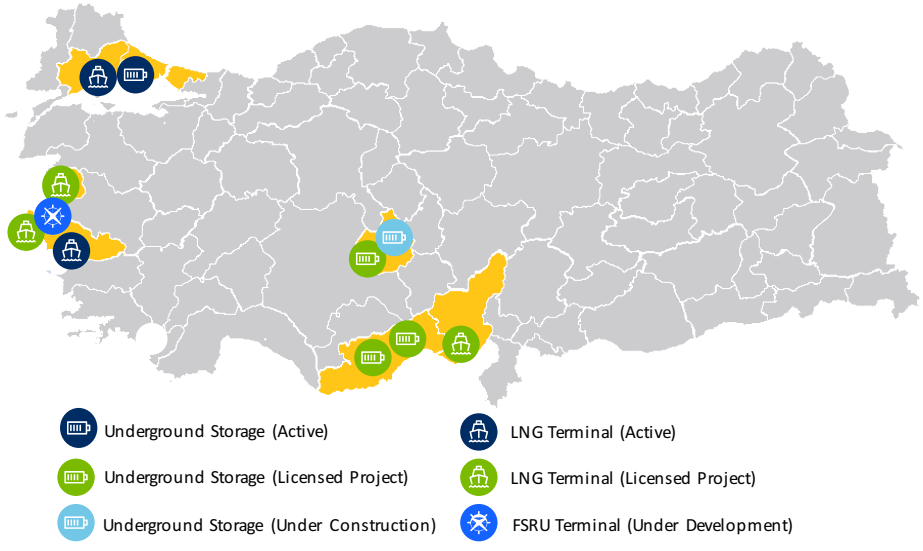
Underground Storage

The main objectives of the underground natural gas storage facilities are to meet peak demand in the short term, to store natural gas as strategic reserve, to manage take-or-pay obligations, to balance the flow in pipeline system and to decrease price fluctuations. In Turkey, there is one active underground natural gas storage facility with 2.8 bcm total storage capacity and ca. 6% of Turkey's annual natural gas consumption can be stored at Silivri underground storage facility. Through ongoing investments storage capacity, withdrawal and injection capacities of Silivri underground storage facility will improve.

The main project which plans to enhance Turkish Grid's storage capacity is BOTAŞ's Tuz Gölü underground storage facility and 80% of the project has been completed. The project will increase the storage capacity of Turkish market by 1 bcm. Moreover, there are three licensed private sector storage projects. The ones in Tarsus Region have capacities of 3 bcm and 1 bcm.

Underground storage facilities and LNG terminals introduce great flexibility in management of the natural gas grid. Turkey needs further investment in these two areas in addition to its currently active facilities.

- ***# of active storages:*** *1 (BOTAŞ)*
- ***# of storages under construction:*** *1 (BOTAŞ)*
- ***# of licensed storage projects:*** *3 (Private Sector)*



Source: EMRA

Active Underground Storage (BOTAŞ)

Storage capacity: *2.8 bcm (4.3 bcm in 2024)*
Injection capacity: *16 mcm/day (45 mcm/day in 2024)*
Withdrawal capacity: *25 mcm/day (75 mcm/day in 2024)*

Active LNG Terminal (BOTAŞ)

Tank capacity: *3x85,000 m³ (255,000 m³)*
Max. re-gasification capacity: *6 bcm/a (9.3 bcm in 2018)*
Max. design capacity: *18 mcm/day (27 mcm/day in 2018)*
Daily truck loading capacity: *75*
Length of jetty: *380 m*
Available for 40,000-130,000 m³ LNG cargoes

Active LNG Terminal (Private)

Tank capacity: *2*140,000 m³ (280,000 m³)*
Max. re-gasification capacity: *6 bcm/a*
Max. design capacity: *16 mcm/day (24 mcm/day in 2017)*
Daily truck loading capacity: *50*
Length of jetty: *340 m*
Available for 60,000-220,000 m³ LNG cargoes

- ***# of active terminals:*** *2 (1 BOTAŞ, 1 Private Sector)*
- ***# of licensed terminal projects:*** *3 (Private Sector)*
- ***# of FSRU projects:*** *1 (Private Sector)*

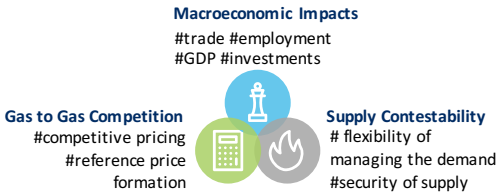
LNG Terminals

There are two active LNG terminals in Turkey, one is owned by BOTAŞ (Marmara Ereğlisi LNG Terminal) and LNG cargoes are imported to the terminal with the Algeria and Nigeria long term LNG purchase contracts of BOTAŞ and spot LNG. The other LNG terminal in İzmir Aliağa is owned by a private company. Additionally, there are 3 licensed private sector LNG terminal projects in İzmir and Adana. Moreover, new projects are supported to diversify natural gas source. Turkey's first FSRU project is under development.

Underground storage and LNG terminal investments are defined as "priority investments". Regardless of their actual investment region, their regional support is extended to Region V by the Regional Investment Incentives Scheme to enjoy several investment benefits.

Turkey as a Natural Gas Trading Center

Acting as a natural gas trading center country induces three opportunities with economic and strategic benefits.

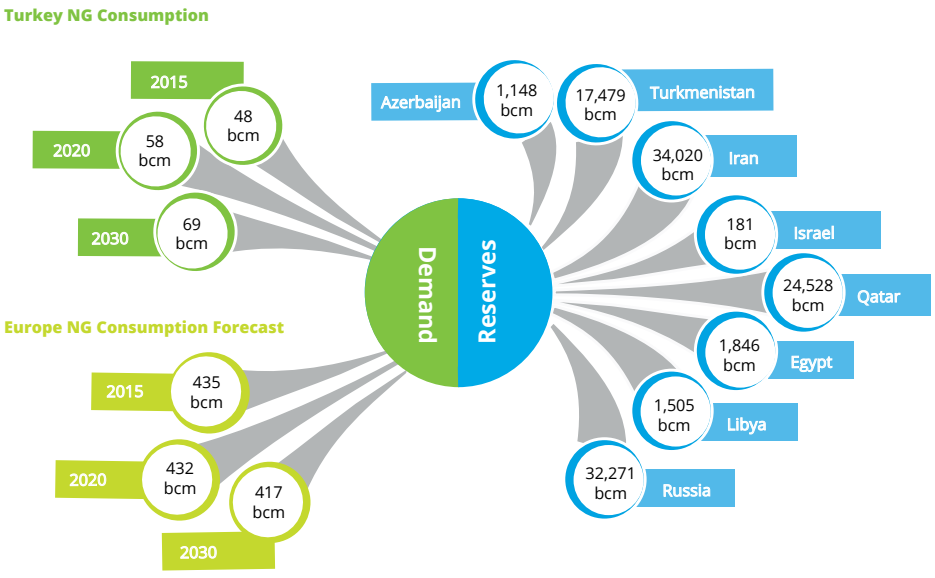


Turkey is located on the cross-roads of world's major natural gas source countries (East Mediterranean, Iraq, Azerbaijan, Russia, Iran) and large consumption nodes such as European countries, in addition to its own consumption. Pipeline gas has an indispensable role in the European supply and Turkey is perfectly located to become Europe's south eastern supply node. The establishment of Turkish Natural Gas Trading Center would make a contribution to supply security by diversifying supply sources and gas transmission routes for both Turkey and Europe.

Turkey, due to its geographical advantage, is fully aware of its potential, responsibility and strategic role, and aims to improve upon its current position by becoming a natural gas trading center. With international gas transmission projects (TANAP and TAP), ongoing and planned investments in transmission grid, LNG and underground storage, other prospective sources of gas and FSRU facilities, Turkey strengthens its import source variability and increase the gas import capacity. The spot natural gas market that is being developed by EXIST to be operational by 2017 will support natural gas wholesale market and the target to become a natural gas trading center.

Considering Turkey's great potential and the ongoing and expected investments in infrastructure and diversification of resources, Turkey's ambition to establish a regional liquid natural gas trading center is likely to materialize earlier than expected.

By its geographical position, Turkey is located at the center of natural gas producer countries with total ca. 113 tcm reserves and large consumption nodes such as EU countries with total 435 bcm demand.



Source: European Commission, IEA, BP

Natural Gas Distribution & Retail Sector

Through the last two decades, gas pipelines have spread across the country with large amount of investments and Turkey experiences a rapid growth in penetration of natural gas. By the end of 2015, the natural gas distribution penetration is increased to 95% with gas supplied to 77 cities out of 81; in 2003, it was only supplied to 6 cities. Such rapid expansion of gas distribution is closely associated with the success of greenfield tendering of gas distribution licenses run by EMRA.

Natural gas is supplied to 77 cities via 68 licensed natural gas distribution companies. In order to increase penetration and provide better services, these companies have executed a continuous investment program and the current value of cumulative investments has reached to USD 11.4 billion by end of 2015 from USD 2.6 billion in 2006. Moreover, planned total investment amount is USD 2.4 billion for the 7 years period between 2016-2022 corresponding to USD 342 million annually.

In parallel with the investments in distribution regions, total pipeline length has reached ca. 80,000 km which has tripled through the last decade.

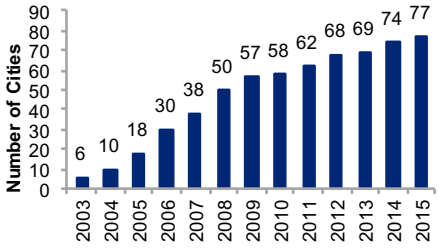
The gas distribution grid is fully open to third party access providing non discriminatory access to all system users.

The total number of residential subscribers reached to ca. 12 million as the end of 2015 and it is expected to be doubled by 2030. It is also estimated that 66% of the total population has access to natural gas infrastructure and 55% of the total population is using natural gas.

Eligibility limit decreased dramatically between 2007 and 2016 from 1,000,000 m^3 to 75,000 m^3. As a result, number of eligible gas consumers increased to ca. 0.5 million, which consumed 21 bcm natural gas in 2015. Currently gas retail business for the captive customers is conducted by natural gas distribution companies. After unbundling of distribution and retail segments is accomplished and the market is fully open to competition, the market will offer great opportunities for the retail segment.

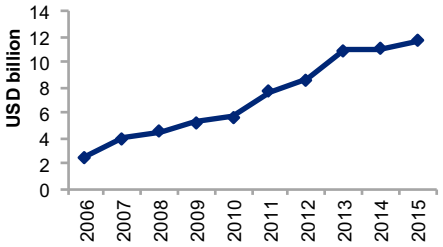
Currently the state incumbent BOTAŞ provide gas to 90% of CCGTs and 50% of industrial consumers. An analysis reveal that private sector players can capture a market size of 20 bcm/a from the highly price sensitive industrial and electricity sectors in line with the development of the market.

Number of Gas Supplied Cities



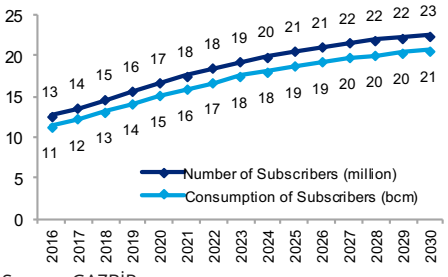
Source: EMRA

Total Investment Made by The Distribution Companies



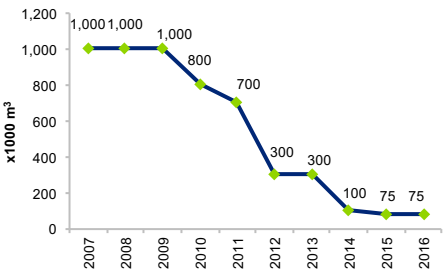
Source: GAZBİR

Residential Subscribers and Consumption Projection, 2016- 2030



Source: GAZBİR

Development of Eligible Consumer Limit



Source: EMRA

Turkey offers outstanding opportunities with its developing gas retail sector to domestic and international investors, as the country experiences a steady infrastructure development and constructs a countrywide gas network.

5. Coal Market Overview

Coal Market Overview

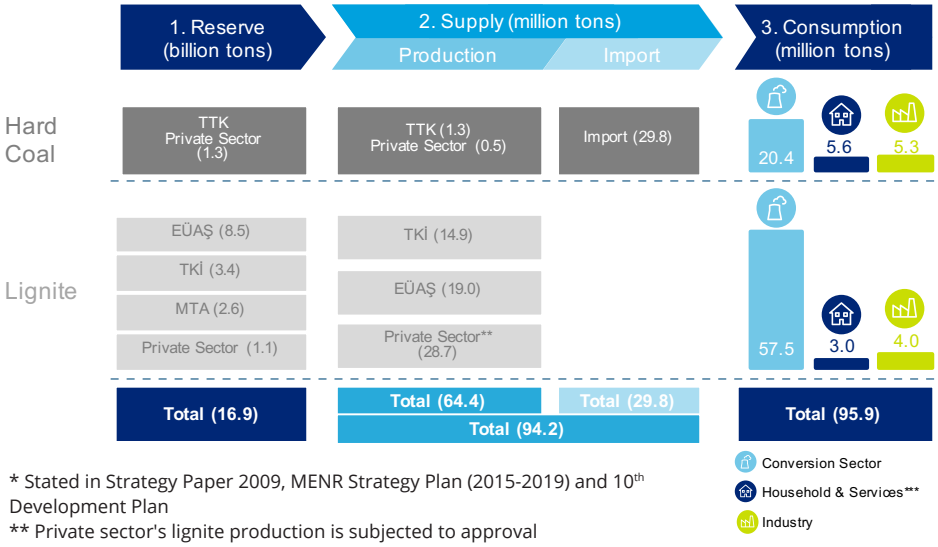
As an emerging market with ever growing energy demand, coal in Turkey has important role in the energy mix thanks to its cost and accessibility advantages.

In 2014, Turkish proven coal reserves increased to 16.9 billion tons and also coal consumption reached to 95.9 million tons. As an important source in the total coal supply, local production reached to 1.8 million tons of hard coal and 62.6 million tons of lignite. TTK represented nearly all of the local hard coal production and state owned companies like TKİ and EÜAŞ held more than 50% of lignite production. As a result of the lignite power plant privatizations, private sector players in total has become the leader producer in the lignite production.

Hard coal import of 29.8 million tons dominated hard coal market and represented 94% of total hard coal supply. As a leading coal consuming sector, conversion and energy sector constituted 81% of total coal consumption. On the other hand, residential & services and industry represented 10% and 9% of coal consumption, respectively.

In Turkish coal balance 2014, coal consumption reached 95.9 million tons 68% of it was met by local sources and the remaining demand was supplied by coal imports.

Value Chain (2014)



* Stated in Strategy Paper 2009, MENR Strategy Plan (2015-2019) and 10th Development Plan
** Private sector's lignite production is subjected to approval
*** Includes agricultural consumption
Source: EÜAŞ, TKİ, MENR, Deloitte Analysis

Main Actors in the Sector

MİGEM: On behalf of MENR, MİGEM carries out activities such as license granting, auditing and project evaluating for mining sites belonging to public companies.

MTA: MTA, a public institution, provides exploration and research services for mining sites belonging to public and private companies.

TKİ, TTK, EÜAŞ: These 3 public companies are responsible for contributing coal fields to the economy by performing activities such as coal mining and trading within legal bounds.

Private Sector: Private companies can participate in any mining activities by obtaining related legal rights and licenses.

Coal Sector Incentives and Targets*

Exploration and research services for local coal mines will be accelerated.

Ready for use coal reserves held by public sector will be handover to private sector in return for royalty payments and proven coal reserves will be utilized in electricity generation by the year of 2023.

Lignite fired power plant investments, are included in Region V of the Regional Investment Incentives Scheme and consequently benefit different tax and social security premium advantages, land acquisition rights and other financial supports. The details of the Support Scheme is further discussed in the final section of this report.

On 06/04/2016, 6446 Electricity Market Law has been amended and TETAŞ has been enabled to make power procurements from operational lignite fired power plants. The procurement price is set to 63 USD/MWh (185 TL/MWh) for 2016 which is ca. 1.5 fold of current market price levels.

Coal Reserves

In 2015, it is announced that Turkey has 1.3 billion tons of hard coal reserves with different calorific values swinging between 5,450 – 7,050 kcal/kg. Among the reserve types, coking reserves has 67% share in total reserves with 0.9 billion tons whereas semi coking and non coking reserves have 32 million and 0.4 billion reserve volumes, respectively.

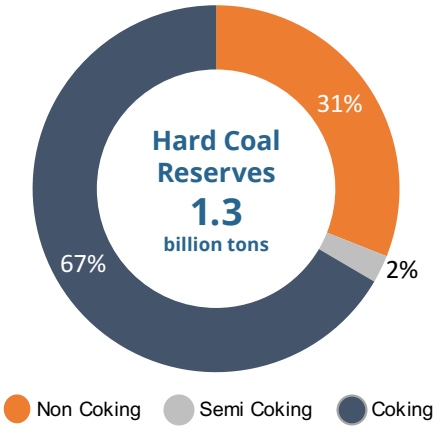
As an important lignite country, Turkey's lignite reserves have shown steady growth in line with the exploration activities. For the years between 2004 and 2015, lignite reserves have increased by CAGR of 4.4% from 9.3 billion tons to 15.5 billion tons which constitutes 4.1% of the total lignite reserves in the world. In general, Turkish lignite reserves have calorific value in a range of 1,000 kcal/kg - 4,200 kcal/kg and 90% of the total reserves have calorific value under 3,000 kcal/kg.

Turkey has 1.3 billion tons of hard coal reserves. In the recent years, reserve volume of major hard coal fields remained at the same level. On the other hand, lignite reserves increased from 9.3 billion tons to 15.5 billion tons.

4.8 % — *Lignite Reserve Increase CAGR (2004-2015)*

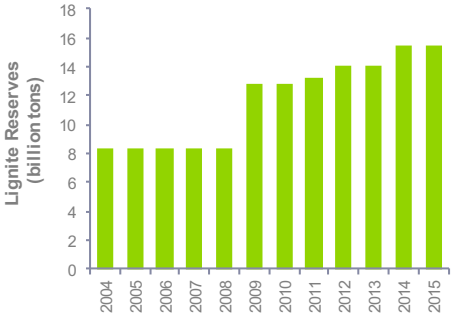
15.6 billion tons — *Turkey's Lignite Reserve Amount*

Hard Coal Reserves (2015)



Source: TTK

Lignite Reserves (2004-2015)



Source: TKİ

Coal Supply

Hard Coal Supply

Turkish hard coal supply has shown steady growth in recent years and reached to 35.4 million tons in 2015.

Decreasing production rate of TTK and local private sector players lead hard coal importers to match the increasing hard coal demand. In order to uplift the decreasing hard coal production of TTK, mining sites are transferred to private sector players in exchange for royalty fees starting from 2005. However, both TKİ and private production levels kept decreasing.

Since 2010, local hard coal production decreased from 2.4 million tons to 1.4 million tons. At the same time period, coal imports increased by 6% annually, supported by newly commissioned coal fired thermal power plants and imported coal ratio in the total supply increased from 84% in 2000 to 96% in 2015.

Currently, total top five importing countries (Colombia, Russia, South Africa, Australia and USA) constitute more than 90% of Turkish hard coal imports.

Lignite Supply

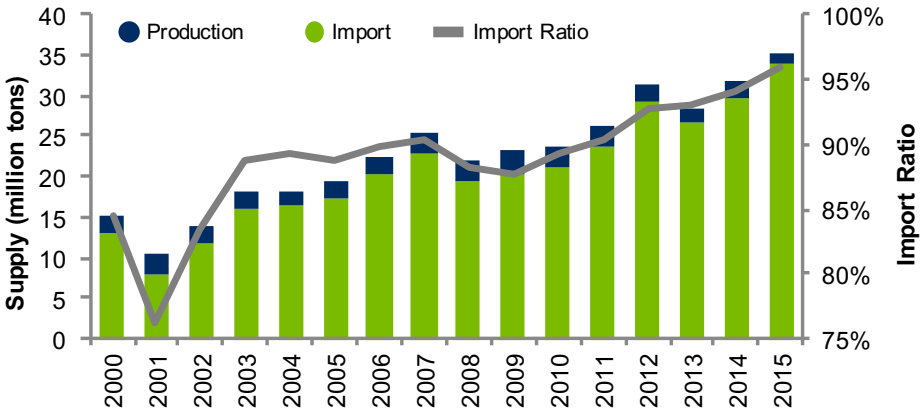
Due to its low calorific nature, lignite reserves are generally consumed in the mine-mouth area and its place in global coal trade is fractional. Therefore, total supply of the lignite is highly proportional to the local consumption since there is no market to sell the supply surplus.

Lignite reserves are used as primary fuel of lignite power plants which are operated by EÜAŞ and private electricity companies. Due to the recent lignite power plant privatizations, private sector started to take a prominent role in production and as the end of 2015, private sector share increased to 54%.

Although, recent developments in conversion and energy industry increased the total lignite demand, for the six years between 2009 and 2014, local lignite production plummeted by 17% from 76 million tons to 63 million tons. This reduction in the total production is caused by decrease in the industry and household consumption.

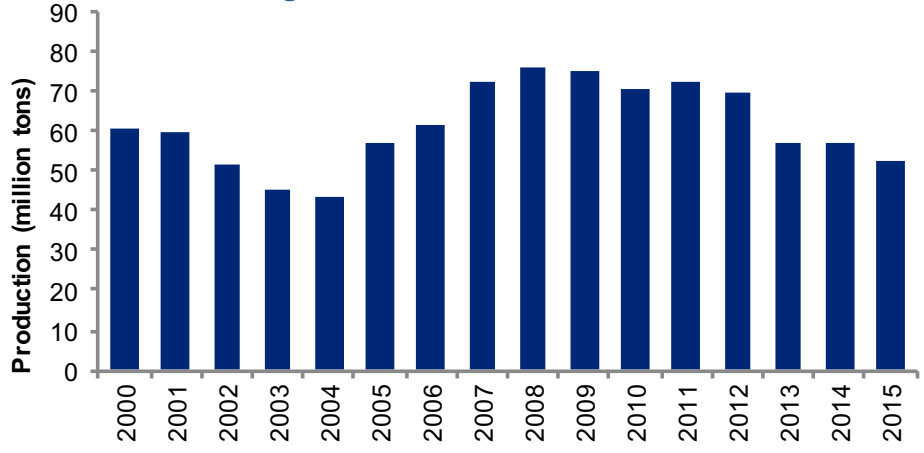
In order to meet increasing hard coal demand, Turkish hard coal supply leaned to imports and as a result import ratio in hard coal supply reached to 96%.

Hard Coal Supply (2000-2015)



Source: MENR

Lignite Production (2000-2015)



Source: TKİ

Coal Consumption

Turkish coal demand is mainly generated by 3 sectors: conversion & energy, household & services and industries. In 2014, hard coal consumption reached to 31.5 million tons and also lignite consumption reached back to 64.6 million tons.

By sectorial consumption, conversion & energy sector increased its hard coal consumption by 15% from 17.8 million tons in 2013 to 20.4 million tons in 2014. Lignite consumption in conversion & energy sector also increased by 22% and reached to 57.5 million tons. Total coal consumption in household & services decreased by 13% and become 8.6 million tons. Whereas, industry coal consumption is increased by 11% and reached to 9.4 million tons.

In parallel with development in hard coal power plant investments and lignite power plant privatizations, coal consumption of conversion & energy sector increased to 78 million tons and compensated the total coal consumption loss in the industry and household & services. As a result of political support to use more local resources for electricity generation, lignite consumption in electricity generation is expected to further increase.

Conversion & Energy

As the biggest coal demand contributor, conversion & energy sector constituted 65% of hard coal and 89% of lignite consumption. In last 5 years, coal power plant investments increased the hard coal consumed in power plants by 58% also after lignite power plant privatization in 2012 lignite consumption increased slightly from 56 million tons to 57 million tons.

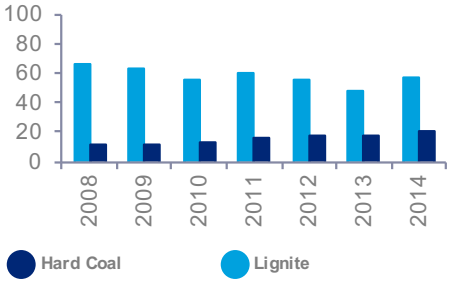
Household & Services*

Despite of the advances in natural gas grid, coal consumed for heating purposes still has an important place in total coal consumption and it reached its maximum level in 2012. After that, coal consumed in household & services sector plummeted by 48% from 16.6 million tons in 2012 to 8.6 million tons in 2014 as a result of the residential penetration of natural gas use for space heating.

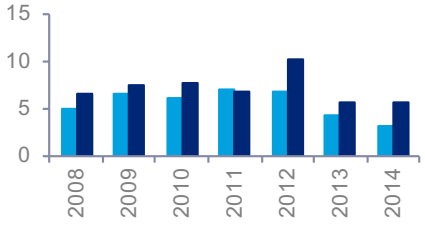
Industry

Although industrial coal consumption decreased from 9 million tons in 2008 to 8.3 million tons in 2014, major coal consumers like cement companies still consuming around 4.5 million tons of hard coal annually. As one of the top 10 cement markets, Turkish industry is expected to have important place in the hard coal demand.

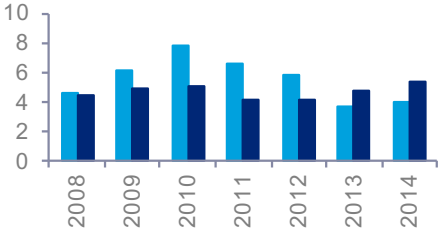
Conversion & Energy Consumption



Household & Services Consumption



Industry Consumption



Source: MENR * Includes agricultural consumption

6. Petroleum Market Overview


OIL
OIL

Petroleum Market Overview

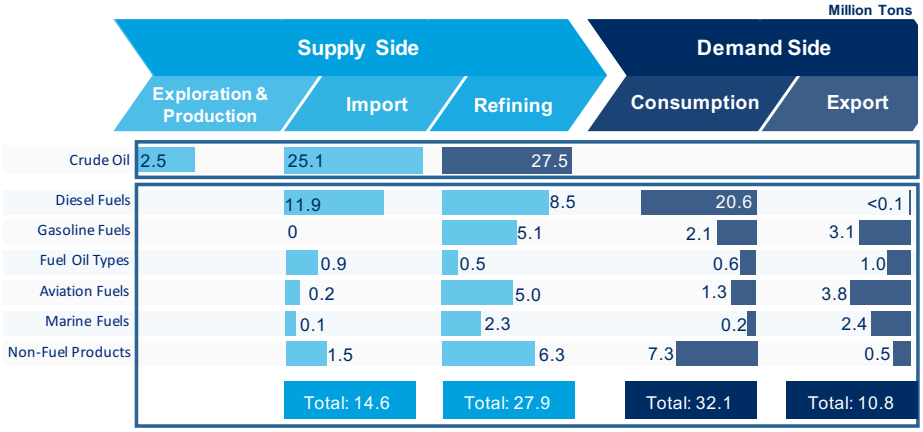
Petroleum consumption in Turkey with 32.5 Mtoe takes the third place in energy consumption after natural gas and coal. During the last decade, annual crude oil production of Turkey realized at stable levels as 2 to 2.5 million tons and met ca. 9% of crude oil consumption and ca. 7% of total petroleum consumption of 2015. Most of the domestic oil extraction is from the fields in Batman and Adıyaman.

Crude oil imports constitute 63% of total petroleum imports. Imported crude oil is processed in the refineries to produce the qualified petroleum product that is supplied to both national and international markets.

With its growing demand and geographical location, Turkey outshines as a prominent market for petroleum sector investments especially in areas of exploration, refinery and trade.

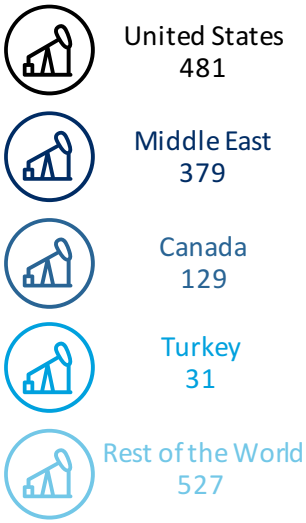
Turkey is located in a region that includes 70% of the explored oil and gas reserves all over the globe. Therefore, Turkey has a geographical advantage for both transportation and exploration of oil. Declining oil prices decreased the number of oil exploration activities globally, nevertheless there are still large number of ongoing exploration activities. Turkey is leading in terms of number of exploration activities within EU countries however compared to the rest of the world, number of active oil rigs in Turkey low. As of August 2016, more than 1,500 rigs are active in the world and the rigs in Turkey constitutes 2% of it, showing a potential for further oil exploration activities.

Market Overview of Petroleum Products



Source: EMRA

Number of Active Oil Rigs*



*As of August 2016
Source: Baker Hughes

Import & Export

Import

Turkey imported ca. 40 million tons of crude oil and petroleum products in 2015.

63% of petroleum imports was realized as crude oil and all of them were processed by refineries in Turkey. Diesel fuels constituted one fourth of the imports with ca. 12 million tons. Domestic consumption and export of gasoline fuels are met by refineries, so gasoline fuel was not imported in 2015.

More than half of the imports are supplied by three countries (Iraq, Russia, Iran) while 75% of imports are met by five countries.

Export

Turkey exported ca. 11 million tons of petroleum products in 2015.

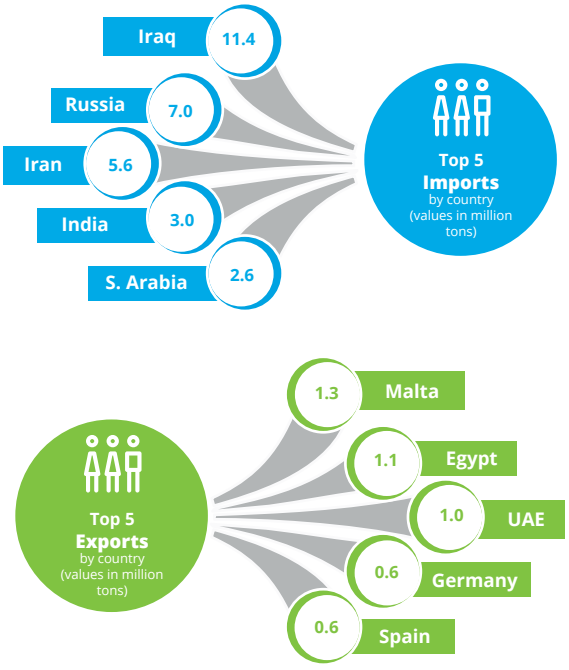
Aviation, gasoline and marine fuels are the leading exported products among petroleum products. Since domestic consumption of diesel fuels was ca. 20 million tons, all refined and imported diesel fuels are consumed in Turkey, so diesel export was realized at a very low level.

Turkey exported petroleum products to high number of countries, in 2015 more than 130 country imported petroleum products from Turkey. But, ca. 45% of the exports are made to top five countries and Malta, Egypt and United Arab Emirates are the leading countries that Turkey exports petroleum products.

Although more than half of the petroleum imports is crude oil, with the help of sophisticated refineries in Turkey, all of the petroleum product exports are in the form of value added refined petroleum products.

63 % / *Crude Oil Import Share in Total Petroleum Imports (2015)*

100 % / *Refined Products Export Share in Total Exports (2015)*



Source: EMRA

Crude Oil Transportation & Storage

More than one million barrels per day is supplied from Ceyhan Marine Terminal to international markets and the Terminal's capacity is expected to be increased substantially with existing and projected international pipelines. Ceyhan Marine Terminal is located at cross- roads of globally important oil reserves of Caspian sea, Middle East and Russia. Due to its strategic location, Ceyhan has the potential to be an oil trading center and this vision is also widely supported.

Turkey supplies crude oil to international refineries through BTC and IT pipelines by transporting extracted oil from Middle East and Caspian Regions. Furthermore, in order to transport Russian and Caspian oil to the international markets a new pipeline, Samsun-Ceyhan Pipeline that crosses Turkey vertically is projected. This crude oil pipeline with marine terminal storage tanks and pumping stations is expected to ease the increasing tanker traffic in Turkish Straits. Currently, 5% of the global maritime trade of petroleum is transported through the Straits.

Domestic pipelines are constructed to provide crude oil to Kırıkkale Refinery and transport domestic oil extraction to Ceyhan Marine Terminal.

Railcars and marine vessels are another sources for oil transportations. Currently, 71 marine transportation companies hold petroleum transportation licenses and there are six licensed railway transportation companies in Turkey.

Storage of crude oil and petroleum products has a crucial importance in terms of supply security, therefore in addition to storage capacity of existed refineries there are more than 100 storage facilities, which have a total of ca. 12 million tons of storage capacity, active in Turkey. Total storage capacity is ca. 50% of Turkish consumption. Turkey also holds a strategic petroleum stocks equivalent to 90 days of Turkey's annual imports.

International Pipelines

Iraq – Turkey (IT) Pipeline

- Number of Lines: 2
- Total length of the pipeline: 1,876 km (986+890)
- Annual Capacity: 70.9 Million Tons
- Transported Crude Oil, 2015: 26.1 Million Tons
- Transporter: BOTAŞ

Baku – Tbilisi – Ceyhan (BTC) Pipeline

- Number of Lines: 1
- Total length of the pipeline: 1,776 km
- Annual Capacity: 50.0 Million Tons
- Transported Crude Oil, 2015: ca. 36.0 Million Tons
- Transporter: BOTAŞ International Limited

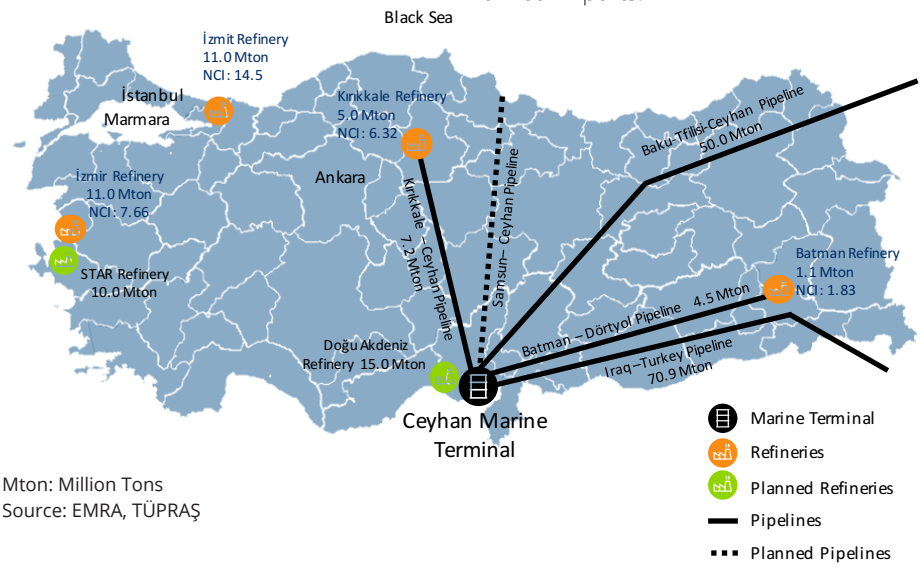
National Pipelines

Ceyhan – Kırıkkale Pipeline

- Number of Lines: 1
- Total length of the pipeline: 448 km
- Annual Capacity: 7.2 Million Tons
- Transported Crude Oil, 2015: 4.3 Million Tons
- Transporter: BOTAŞ

Batman – Dörtyol Pipeline

- Number of Lines: 1
- Total length of the pipeline: 511 km
- Annual Capacity: 4.5 Million Tons
- Transported Crude Oil, 2015: 2.8 Million Tons
- Transporter: BOTAŞ



Mton: Million Tons
Source: EMRA, TÜPRAŞ

Ceyhan Marine Terminal with ca. 200 million tons of annual capacity has a potential to be an oil trading center by integrating Russian, Caspian and Iraqi oil with international markets.

Refineries

More than USD 5 billion was invested in existing refineries in the last decade, one more refinery is under construction and one additional refinery project is being developed. Due to its current refinery capacity and huge refinery investments, Turkey has further potential to supply qualified petroleum products to international energy markets utilizing its geographical advantage and huge refinery investments.

Four refineries are located in Turkey with annual oil processing capacity of 28.1 million tons. 27.9 million tons of crude oil was processed in 2015 with 98% average capacity utilization.

Even though refineries in Turkey are distinguished from the Mediterranean region refineries with qualified final petroleum products, a continuous investment program is applied and ca. USD 5.5 billion was invested in the refineries over the last decade. USD 3.1 billion of it was invested for the Residuum Upgrading Project on İzmit Refinery and NCI – a metric to measure white product yield- of the refinery was increased to 14.5.

In order to meet Turkey's demand and export qualified petroleum products to international petroleum markets two refinery projects are ongoing which are STAR and Doğu Akdeniz refineries. STAR Refinery, one of the largest foreign direct investments to Turkey, is scheduled to start operation by March 2018 with the 10 million tons crude oil processing capacity.

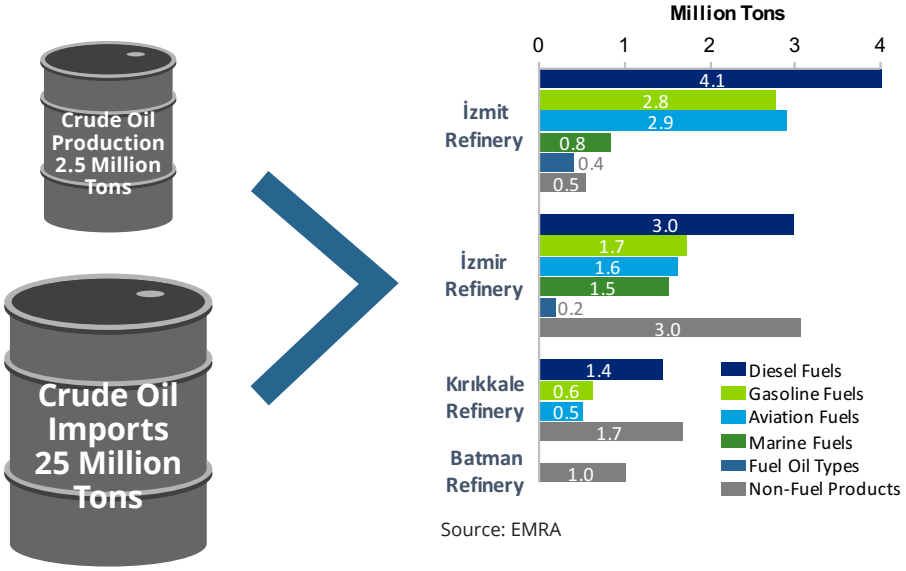
İzmit Refinery
- **Annual Capacity:** 11.0 Million Tons
- **Capacity Utilization:** 111.3%
- **Nelson Complexity Index:** 14.50
- **Storage Capacity:** 3.02 Million m³
- **Owner:** TÜPRAŞ

Kırıkkale Refinery
- **Annual Capacity:** 5.0 Million Tons
- **Capacity Utilization:** 87.1%
- **Nelson Complexity Index:** 6.32
- **Storage Capacity:** 1.38 Million m³
- **Owner:** TÜPRAŞ

İzmir Refinery
- **Annual Capacity:** 11.0 Million Tons
- **Capacity Utilization:** 102.8%
- **Nelson Complexity Index:** 7.66
- **Storage Capacity:** 2.51 Million m³
- **Owner:** TÜPRAŞ

Batman Refinery
- **Annual Capacity:** 1.1 Million Tons
- **Capacity Utilization:** 91.4%
- **Nelson Complexity Index:** 1.83
- **Storage Capacity:** 0.25 Million m³
- **Owner:** TÜPRAŞ

Refinery Production of Turkey, 2015



Source: EMRA

Turkey is differentiated from Mediterranean countries with sophisticated refineries and continuous refinery investments in conjunction with increasing demand on complex petroleum products both in national and international markets.

Consumption & Distribution of Petroleum Products

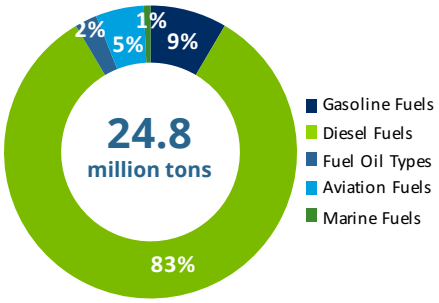
Transportation sector is continuously developing with major infrastructure investments and dominates sector demand and trends with 80% share in total petroleum consumption. Although motor vehicles become more efficient, consumption of petroleum products increased through the last decade associated with the motor land vehicle development. Between 2012 and 2015, fuel consumption experienced an increase with CAGR of 7.2%.

Diesel is the most common fuel by constituting 80% of domestic petroleum product consumption and annual demand on diesel fuels are increasing. In the last decade diesel fuel consumption almost doubled due to the increase in number of diesel cars and agricultural machinery.

Although the prices of diesel and gasoline fuels are similar in international markets, as the tax on diesel is relatively lower, diesel consumption has a competitive advantage.

LPG is an other commonly used fuel in motor vehicles which is cheaper than both diesel and gasoline. As result, motor vehicles are modified for LPG fuel usage and share of LPG fueled vehicles reached to 22% of total motor land vehicles.

Fuel Consumption by Type



Source: EMRA

Turkey experiences growth in several sectors like transportation, automotive and aviation which consequently increases domestic petroleum products demand.

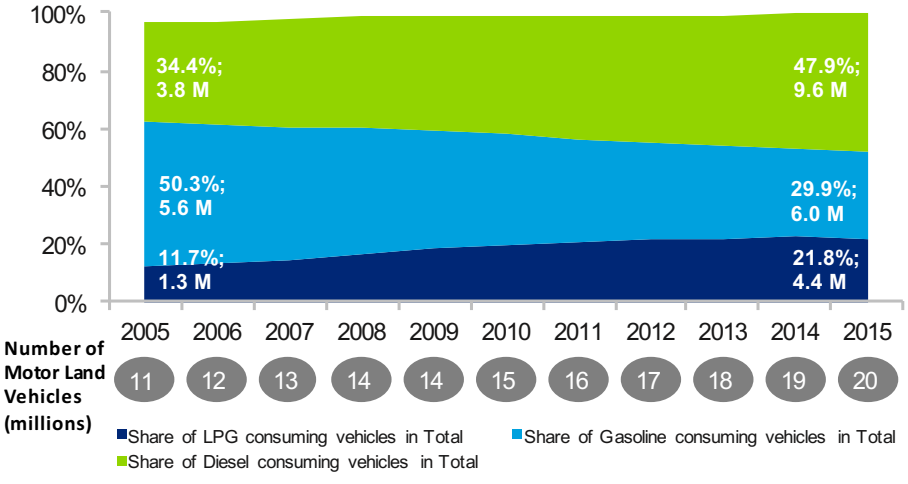
In parallel with the infrastructure and fleet investments, aviation sector expands consistently leading to a significant increase in usage of aviation fuels in recent years. It is also important to note that, Turkey still have an important growth potential in this sector compared to the mature markets.

Globally known petroleum product distribution companies are active in distribution market with considerably high volumes. In 2015, Turkey domestically consumed ca. 25 million tons of petroleum fuels. Top five distribution companies were the international companies while state owned distribution company (TP Petroleum Distribution Company) was the sixth and these six companies distributed more than 70% of consumed petroleum fuels.

These distribution companies offer merger and acquisition opportunities to the investors. Recently, an M&A deal for one of the biggest private sector distribution companies has been realized and TP Petroleum Distribution Company is currently going through a privatization process. It is known that there are further potential M&A opportunities for private sector distribution companies.

A national marker specified by EMRA is added to petroleum products in order to block the distribution of illicitly obtained or smuggled fuels. Consequently, quality of the distributed fuels are protected throughout the country.

Shares of Motor Land Vehicles by Fuel Type



Note: Sums of shares are less than 100% due to unknown fuel types.
Source: TurkStat

7. Energy Efficiency and Climate Change


CO_2

Energy Efficiency

As an emerging market, Turkey's increasing energy consumption raises the importance of energy efficiency due to costly imports in energy supply. To promote energy efficiency investments, Turkey is introducing complementary legislation and action plans to create opportunities for investors to participate in energy efficiency activities.

In 2007, Energy Efficiency Law was enacted to increase energy efficiency in energy and industry. In the following year, regulations regarding energy efficiency in transportation, buildings and use of energy sources were introduced.

In addition to local legislation improvements, Turkey has published Energy Efficiency Strategy Paper (2012-2023) and prepared National Energy Efficiency Action Plan (NEEAP) which established policies, strategies and actions to improve the energy efficiency in line with the EU requirements.
In the Strategy Paper, Turkey specified strategic targets in order to

- reduce energy intensity, energy losses, fossil fuel consumption and carbon emissions
- increase efficiency in power generation and public sectors
- strengthen institutional structures, competitive ESCO market and financial mechanisms.

The Strategy Paper Targets by 2023

- At least one fourth of building stock in the year 2010 shall be made as sustainable building by the year 2023.
- The average cycle efficiency of the coal thermal power plants shall be increased over 45% by the year 2023.
- Demand side management shall be developed for decreasing the electrical energy intensity at least 20% until the year 2023.
- Annual energy consumption in the public sector buildings and facilities shall be decreased by 20% by the year 2023.
- The number of original design and/or product, which would be commenced to be manufactured based on domestic R&D results, shall be at least 50 by the year 2023 in the areas of energy efficiency and renewable energy resources.

Energy efficiency investments have a superior pay back period which is as short as 2 years. With the help of energy efficiency financing agreements, it is also possible to turn the investment into profit within that period. Currently, Turkey is investing in energy efficiency projects; however, in order to achieve efficiency targets stated in the Strategy Paper and NEEAP, there is still more to do which provide business opportunities for local and foreign investors.

Turkey's aim to boost energy efficiency in various sectors provides vast investment opportunities for local and foreign investors and benefits from various financing agreements.

Prospective Investment Areas in Energy Efficiency

Energy Service Companies (ESCOs): Turkey plans to have at least 50 ESCOs specialized in the industrial sector in order to implement energy audits and renew audits every four years.

Energy Efficiency Financing Agreements: Industry sector players can benefit from international financing agreements (IBA, TuREEFF, TurSEFF, MidSEFF, EKOkredi) in order to get financial support from several institutions eager to provide loans with better terms.

Equipment Suppliers: Energy efficiency programs target to enable replacement of old and inefficient equipment (boiler, burner, electric motor, etc.) with new and more efficient substitutes. This provides huge opportunities for equipment suppliers and leasing providers.

Resource Efficiency & Circular Economy: As a result of old and inefficient equipment replacement target, opportunities will arise for recycle sector. Turning waste from one industry into useful feedstock for another will provide another value creation opportunity for recycle sector.

Construction Sector: Urban transformation will increase market share of Green Buildings and Efficient (greater than C Class) Buildings in the construction sector. Expected restriction on sales of C Class Buildings in 2017 will provide investment opportunities for efficient building projects.

Electric and Hybrid Car Sector: In order to incentivize electric and hybrid cars, Turkey reduced special consumption tax (SCT) on electric and hybrid cars. It is expected that same incentives will be expanded for hybrid cars.

Environment and Climate Change

In line with the increasing population and flourishing economy, Turkey has increased its carbon emissions by 57% and reached to 468 million tons of CO2 in 2014 with respect to 2000 values. When the sector and sub-sector breakdowns of emissions are analyzed, it is seen that ca. 72% of GHG emissions are from the energy industry. On the other hand, industry, agricultural and waste emissions have a share of 13%, 11% and 3%, respectively.

According to the most respectable economy expertise organizations, including OECD, energy needs of developing countries will continue to increase so will energy demand of Turkey being a major and still growing economies. Turkey's per capita electricity consumption is 23% of USA and ca. 38% of OECD average in 2015. Electricity demand of our country is expected to be 581 TWh by 2030 according to projection studies. This number is twice of today's electricity generation, which calls for a two-fold increase in our electricity production within next 15 years.

In order to reduce its CO2 emissions and fight against the climate change, Turkey acceded to the UNFCCC and then became Party to the Kyoto Protocol. In December 2015, Turkey signed a new climate agreement in Paris COP21 which has been agreed to limit global temperature increase to well below 2 °C and rise USD 100 billion "Green Climate Fund", funded by developed countries to support developing countries for reducing their emissions.

In 2015, Turkey submitted its Intended Nationally Determined Contributions (INDC). According to the INDC, Turkey is expected to reduce its 2030 emission level from 1,175 million tons of CO2 to 929 million tons of CO2 in line with the Paris pledge.

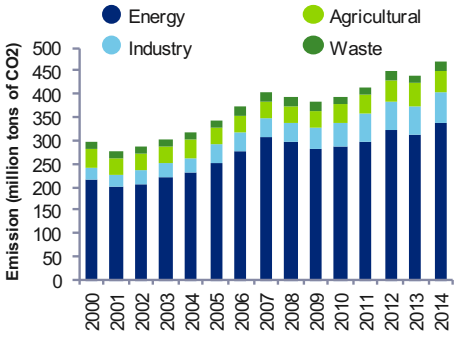
As an emerging market, in order to achieve CO2 emission targets stated in the INDC, Turkey aims to increase the energy savings, energy efficiency, share of renewable energy and carbon certifications. Inline with the CO2 targets, Turkey will evaluate local fuels through clean combustion technologies and will be in the fight with climate change through providing incentives and enabling investments in renewable energy resources. It is also expected that Turkey will benefit from the Green Climate Fund to reduce the greenhouse gas emissions. Additionally, international sustainability funds are also available for investors for eco friendly projects.

Carbon Markets

Currently, Turkey has growing voluntary carbon market where carbon consultancy firms are verifying projects to gain carbon certificates or carbon credits. Although carbon prices in Turkey are lower than European Carbon Markets, certified investors enjoy trading carbon credits in the voluntary market. Trading activities and carbon prices are expected to increase in line with the introduction of carbon market which will provide standardization and trading opportunities for investors.

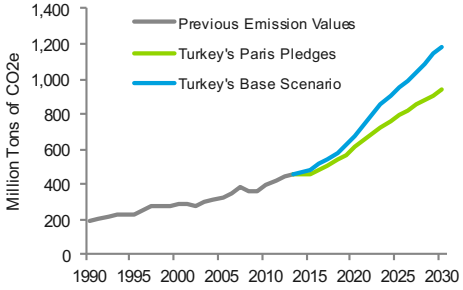
As an emerging market, Turkey, whose greenhouse gas emissions contributes to global cumulative at a level less than 1%, is ready to join the global fight with climate change.

Carbon Emission Distributed by Sectors



Source: TurkStat

Greenhouse Gas Emissions of Turkey



Source: The Ministry of Environment and Urbanization

8. Energy Sector Incentives Scheme


OIL
OIL
%
TAX
$
$
$

Energy Sector Incentives Scheme

Investments in the field of energy play a vital role in Turkish economy. The ascending growth in the electricity demand in Turkey has necessitated significant investments especially in the production of energy. Accordingly, the investors in the energy industry are encouraged with various types of tax incentives with the aim to support and orient investments, in conformity with the objectives of Turkish Government, to reduce the regional disparities within Turkey, create new employment opportunities, and to realize the international competitiveness and environmental protection.

Turkey encourages the energy investments with various tax incentives.

A. The Overall Tax Incentives Scheme in Turkey Available to Energy Investors

Investment incentives are available to investors through an "Investment Incentive Certificate" ("IIC"), which is obtained from the General Directorate of Incentive Application and Foreign Capital under the Ministry of Economy. The companies operating in the energy industry may benefit from the incentives as below according to the context of the investment regulated by Council of Ministers and the region where the investment will be located. The available incentives under the general incentive regime are explained as below;

Value Added Tax Exemption: Machinery and equipment imported or locally purchased within the scope of an Investment Incentive Certificate can benefit from VAT exemption.

Customs Duty Exemption: Machinery and equipment which are imported from foreign countries for investment and approved within the framework of Investment Incentive Certificate benefit from 100% Customs Duties and fund payments exemption.

Value Added Tax Refund: Investments with a fixed investment amount of at least TL 500 million can benefit from VAT refund. According to the Law, strategic investment requirement is removed and until the end of 2023 investments with a fixed investment amount of TL 500 million can benefit from VAT refund in relation to the unrecoverable VAT borne over the construction works. This relief is applicable until the end of 2023. The Council of Ministers holds the authority to reduce the threshold to TL 50 million or increase it two-fold on a general or industry specific basis.

Interest Rate Support: Turkish Government contributes to interest payments on the loans obtained in the scope investment incentive regime. The highest amount of contribution is TL 900,000 for investments located in Region VI. However, the contribution can reach up to TL 50 million for strategic investments.

Social Security Insurance Premium Support (Employer's Share): Turkish Government supports the employer's portion of the social security contribution up to the minimum wage level of an employee. The total amount of contribution is designated as a percentage of fixed investment amount except for Region VI in which the support is granted without an upper limitation for a maximum period of 10 years.

Social Security Insurance Premium Support (Employee's Share): The employee's share of social security premium is contributed by the Government for investments in Region VI only and for a period of 10 years.

Income Withholding Tax Allowance: This incentive is granted to investors only for the investments in Region VI limited to 10 years, and without an upper limit. Amount of support for each employee is limited to the amount of tax that would be calculated on minimum wage.

Corporate Income Tax Reduction: The general Corporate Income Tax rate of 20% is reduced for qualified investments under incentive regime. The CT rate may be reduced down to 2% and the such reduced rate will continue to apply over earnings generated from the investment till the total contribution amount is reached without a time limitation. Within specific rules, the reduced CT rate may also be applied for income from other operations during the investment period. With the very recent changes, on the condition that the investment is completed, the remaining part of the investment contribution amount that is not benefited during the taxable year can be carried forward indexed with revaluation rate.

Investment Land Allocation: Land may be allocated for investments, with an investment incentive certificate, in accordance with the rules and principles set by the Ministry of Finance, depending on the availability of such land.

B. Investment Incentive Regime

Implementation of the incentives regime varies depending on the location, scale, importance and subject of the incentive. In order to qualify for state incentives, it is necessary to obtain an investment incentive certificate before the investment is initiated.

General Incentive Regime: Generally fixed investment amount should at least be TL 1 million for investments made in Region I and II TL 500,000 for the investments made in Region III, IV, V and VI.

In general, energy investments can benefit from the general incentives. Natural gas fired electricity generation power plant investments are not qualified to benefit from the incentives regime except for those that are granted with generation licenses from Energy Market Regulation Authority prior to 06/19/2012.

Regional Incentive Regime: Under the regional incentives regime, Turkey has been grouped into six regions with respect to their development level. The types and volume of incentives vary depending on the location of such investment, apart from other merits of such investment. Investments located in Region VI are favored most as it represents a less developed zone in Turkey.
Nuclear fired electricity power plants benefit from regional incentives based on the location of the investment. The tax incentive regime is generally specified in the Host Government Agreements (HGA) and Intergovernmental Agreements (IGA).

The scope of energy investments within the investment incentive scheme is expanding.

On the other hand, some investments are prioritized under the incentive regime and are granted with the incentives applicable to Region V, even the investment is made in Regions I, II, III and IV except for investments that are made in Region VI, i.e. investments made in Region VI benefit from incentives applicable to this Region. The energy investments that are classified as priority investments are;

- Electricity generation investments using minerals specified in Article 2/4-b of Mining Law No. 3213 with valid mining operating rights and permissions given

by the Ministry of Energy and Natural Resources,

- Energy efficiency investments that would reduce energy consumption in unit production by a minimum of 20% for at least 5 years in existing manufacturing facilities with an annual consumption of least 500 toe energy,
- Investments for electricity generation through waste heat recovery in a facility (excluding natural gas fired electricity generation plants),
- Liquefied Natural Gas (LNG) and underground natural gas storage with a minimum investment amount of TL 50 million,
- Investments for the manufacturing of turbines and generators used in renewable energy generation, and investments for the manufacturing of blades used in wind energy generation,

Furthermore, priority investments with a minimum fixed investment amount of more than TL 3 billion are treated as strategic investments and become eligible for higher level of incentives.

Additionally, previous fixed investment amount of more than TL 1 billion can benefit from VAT reduction by using a contribution rate to investment which is ten point higher than contribution rate to investment of Region V.

Large Scale Investments: Large scale investment projects in relation to 12 specific sectors which exceed minimum investment amounts can benefit from the incentives. In general, the energy investments are not listed as large scale investment, however, investments on transportation by transit pipelines with an investment amount of at least TL 50 million can qualify for large scale investment incentives.

Strategic Investments: Priority investments with a minimum fixed investment amount of more than TL 3 billion are considered to be strategic investments.

In addition to the general incentives scheme, Turkey provides other significant tax relief to the energy investors.

C. Other Tax Incentives

The energy investments are further supported with other incentives under the tax regulations in addition to the incentive regime. Among those, the primary ones are;

New Incentives for Eligible Investments on a Project Basis: In addition to the general incentive regime, a project based investment incentive package has been recently introduced in the Laws that is aiming to provide financial support for innovative, technology oriented, R&D focused, high value added projects that also contributes to reduce foreign dependency. Projects seeking support under the new law must be in conformity with Turkish Government's targets set forth in national development plans and annual programs, and also with those specifically promoted by the Ministry of Economy. Some of the project based support instruments and exemptions are as follows:

- Full Corporate tax exemption for income generated from the investment for up to 10 years,
- Income tax withholding support,
- Customs duty exemption,
- Free land allocation for 49 years,
- Free transfer of these immovable

properties for projects completed and that provided the anticipated employment for at least five years,

- Social security premium support for employer's share for up to 10 years,
- Compensation of up to 50% for energy consumption expenses related to the investment for up to 10 years,
- Up to 10 years, abolition of interest on loans utilised to cover fixed investments,
- Salary support for qualified employees for up to five years; eligible support is capped at twenty times the gross monthly minimum wage,
- State partnership of up to 49% provided that an IPO or direct sale to investors will be conducted within 10 years,
- Provision of purchase guarantee by the Council of Ministers,
- Facilitation of the legal and administrative procedures by the Council of Ministers,
- Completion of the infrastructure investments,

Resource Utilization Support Fund: Importation of electricity and loans obtained for financing such importation will not be subject to Resource Utilization Support Fund (RUSF). In general, RUSF applies at the rate of 6% for credited imports.

Special Consumption Tax: Fuels that are used for the generation of electricity are exempt from Special Consumption Tax (SCT), under certain conditions as specified in this code.

Value Added Tax: The reduced VAT rate of 1% is applicable on delivery to and delivery/financial leasing by the financial leasing companies of wind power plants with an output power between 50 kVA – 500 kVA. A substantial benefit with a reduced VAT rate of 1% instead of the regular rate of 18% is provided to the renewable energy investments.

On the other hand, imported solar panels have been removed from the scope of incentive certificates to encourage the domestic production of such panels.

Stamp Tax: In general, stamp tax is applied to a wide range of legal documents such as contracts, agreements, letters of undertaking, deeds of settlement, letters of cancellation, letters of guarantee, financial statements, returns and payroll. The general stamp tax rate is 0.948% with a cap of TL 1,797,117.30. However, the energy investments that are granted with an Investment Incentive Certificate are entitled to stamp tax exemption for a variety of documents.

Additionally, under Electricity Market Law, certain stamp tax incentives are addressed for such investments. For instance; generation license holder legal entities shall benefit from stamp tax exemption over their documents signed in relation to the generation plant, provided that the documents are signed during the investment period and the operation starts for the first time before 12/31/2020.

	General Incentive Scheme		Regional Investments					
	Region I-V	**Region VI**	**Region I**	**Region II**	**Region III**	**Region IV**	**Region V**	**Region VI**
VAT Exemption	✓	✓	✓	✓	✓	✓	✓	✓
Customs Duty Exemption	✓	✓	✓	✓	✓	✓	✓	✓
Interest Rate Support (TL/Foreign Currency)	-	-	-	-	3/1	4/1	5/2	7/2
Interest Rate Support Upper Limit (TL) (1)	-	-	-	-	500,000	600,000	700,000	900,000
Social Security Premium Support - Employer's Share (Year)	-	-	2	3	5	6	7	10
Rate of Social Security Premium Support Employer's Share to the Fixed Investment Amount (Upper Limit) (%)	-	-	10	15	20	25	35	No Limit
Social Security Premium Support - Employee's Share (Only For Region VI) (Year)	-	10	-	-	-	-	-	10
Payroll Tax (Income Withholding Tax) Support (Only For Region VI) (Year)	-	-	-	-	-	-	-	10
Corporate Income Tax Reduction Rate (%)	-	-	50	55	60	70	80	90
Contribution Rate to Investment (%) (2)	-	-	15	20	25	30	40	50
% of Total Tax Relief through the use of reduced Corporate Income Tax Rate that can be benefited during the investment/operation period (3)	-	-	80/20	80/20	80/20	80/20	80/20	80/20
VAT Refund (4)	-	-				-		
Land Allocation	-	-	✓	✓	✓	✓	✓	✓

Regional Investments - Priority Investments		Large Scale Investments						Strategic Investments	
Region I-V	**Region VI**	**Region I**	**Region II**	**Region III**	**Region IV**	**Region V**	**Region VI**	**Region I-V**	**Region VI**
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5/2	7/2	-	-	-	-	-	-	5/2	5/2
700,000	900,000	-	-	-	-	-	-	Limited to lower of 5% of the fixed investment amount or TL 50 million	
7	10	2	3	5	6	7	10	7	10
35	No Limit	3	5	8	10	11	No Limit	15	No Limit
-	10	-	-	-	-	-	10	-	10
-	10	-	-	-	-	-	10	-	10
80	90	50	55	60	70	80	90	90	90
40	50	25	30	35	40	50	60	50	50
80/20	80/20	80/20	80/20	80/20	80/20	80/20	80/20	80/20	80/20
-		-						Refund of Input VAT Amount over construction works of an investment with a projected fixed investment amount of TL 500 million and that is not recovered in a taxable year	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

(1) The priority investments with a minimum of TL 3 billion of fixed investment amount is classified as a strategic investment. However, the interest rate support amount is limited to TL 700,000.
(2) Priority investments with at least TL 1 billion of fixed investment amount will be entitled to 10 additional points to the contribution rate to investment that is applicable to Region V.
(3) Investors are allowed to apply reduced corporate income tax rate for the earnings derived from other activities during the investment period as a set off against the total contribution amount of the investment, with some limitations, i)tax relief in a year cannot exceed investment expenditures made in that year and ii) the amount of tax relief in the whole investment period cannot exceed specified portion of the total tax relief.
(4) According to the recent changes in VAT Code, the condition of being classified as a strategic investment is abolished to benefit from VAT refund claim. The input VAT amount, which is not recovered in a taxable year, over construction works of an investment granted with an Investment Incentive Certificate with a fixed investment amount of at least TL 500 million, can be refunded upon request of the taxpayer. The relief is applicable until the end of 2023.

°C	Celsius
AMR	Automatic Meter Reading
bcm	Billion Cubic Meters
bcm/a	Billion Cubic Meters per Annum
BIST	İstanbul Stock Exchange
BO	Build Operate
BOO	Build Own and Operate
BOT	Build Operate Transfer
BOTAŞ	State Owned Natural Gas and Petroleum Pipeline Corporation
BPM	Balancing Power Market
BTC	Baku-Tbilisi-Ceyhan Crude Oil Pipeline
ca.	Approximately
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CBRT	Central Bank of the Republic of Turkey
CCGT	Combined Cycle Gas Turbine
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
COP21	Conference of the Parties - Sustainable Innovation Forum
CSP	Concentrated Solar Power
CT	Corporate Tax
DA	Decommissioning Account
DAM	Day Ahead Market
DEPA	Greece Public Gas Corporation
DisCo	Distribution Company
EDAŞ	Electricity Distribution Company
EIU	Economist Intelligence Unit
EKOkredi	Energy Efficiency Loan
EMRA	Energy Market Regulatory Authority
ENTSO-E	European Network of Transmission System Operators for Electricity
ESCO	Energy Service Company
EU	European Union
EÜAŞ	State Owned Generation Company
EXIST	Energy Exchange İstanbul
FDI	Foreign Direct Investment
FIT	Feed-in Tariff
FSRU	Floating Storage Regasification Unit
GAZBİR	Natural Gas Distribution Companies Association
GDP	Gross Domestic Product
GW	Gigawatt
HEPP	Hydro Electric Power Plant
HGA	Host Government Agreements
IBA	Impact and Benefit Agreement
IDM	Intra Day Market
IEA	International Energy Agency
IGA	Intergovernmental Agreements
IIC	Investment Incentive Certificate
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contributions
IPO	Initial Public Offerings
ISPAT	Investment Support and Promotion Agency of Turkey
IT	Iraq-Turkey Crude Oil Pipeline
kcal	Kilocalorie
kg	Kilogram
km	Kilometer
kV	Kilovolt
kVA	Kilovolt Ampere
kWh	Kilowatt Hour
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LTA	Long Term Agreement
M	Million
M&A	Mergers and Acquisitions
m²	Square Meter
m³	Cubic Meter
mcm	Million Cubic Meters
MENR	Republic of Turkey, Ministry of Energy and Natural Resources
MidSEFF	Turkish Mid-size Sustainable Energy Financing Facility
MİGEM	General Directorate of Mining Affairs
MTA	General Directorate of Mineral Research & Exploration
Mtoe	Million Tonnes of Oil Equivalent
MVA	Megavolt Ampere
MW	Megawatt
MWh	Megawatt Hour
NCI	Nelson Complexity Index
NEEAP	National Energy Efficiency Action Plan
NG	Natural Gas
NGML	Natural Gas Market Law
NIGC	National Iranian Gas Company
NLNG	Nigeria LNG Limited
NPP	Nuclear Power Plant
OECD	The Organisation for Economic Co-operation and Development
OPEX	Operating Expenditure
OTC	Over-the-Counter
PP	Power Plant
PPA	Power Purchase Agreement
PV	Photovoltaics
R&D	Research and Development
RetailCo	Electricity Retail Company
ROR	Run of the River
RUSF	Resource Utilization Support Fund
SCT	Special Consumption Tax
SOCAR	State Oil Company of Azerbaijan Republic
TAEA	Turkish Atomic Energy Authority
TANAP	Trans Anatolian Pipeline
TAP	Trans Adriatic Pipeline
tcm	Trillion Cubic Meters
TEDAŞ	Turkish Electricity Distribution Corporation
TEİAŞ	National Transmission Grid Operator
TETAŞ	State Owned Wholesale Company
The Ministry	Republic of Turkey, Ministry of Energy and Natural Resources
TKİ	Turkish Coal Enterprises
TL	Turkish Lira
toe	Tonnes of Oil Equivalent
ton	Metric ton
TOR	Transfer of Operating Rights
TTK	General Directorate of Turkish Hard Coal Institution
TÜPRAŞ	Turkish Petroleum Refineries Corporation
TuREEFF	Turkish Residential Energy Efficiency Financing Facility
TurkStat	Turkish Statistical Institute
TurSEFF	Turkey Private Sector Sustainable Energy Finance Facility
TWh	Terawatt Hours
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VAT	Value Added Tax
WACC	Weighted Average Cost Of Capital
YEKA	Renewable Energy Resource Areas
YEKDEM	Renewable Energy Resources Support Mechanism

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