WORLD ENERGY COUNCIL
CONSEIL MONDIAL DE L'ÉNERGIE
For sustainable energy.

World Energy Trilemma

2013 Energy Sustainability Index

World Energy Council

Project Partner
OLIVER WYMAN

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Introduction

This report provides country-level details on the results of the 2013 Energy Sustainability Index prepared by the World Energy Council (WEC) in partnership with global management consulting firm Oliver Wyman. For each WEC member country, a country profile has been prepared to highlight its relative energy performances and contextual attributes. These profiles and the Index provide a comparative ranking of countries' ability to provide a stable, affordable, and environmentally-sensitive energy system and highlight current challenges. In 2013 the Index has been expanded to include an additional 37 non-WEC countries to provide a comparative ranking of 129 countries. Furthermore, for the first time countries are awarded a 'balance score'. The balance score highlights how well countries manage the trade-offs between the three energy sustainability dimensions and identifies top performing countries with an 'AAA' score.

Included in this report are:

- Executive summary, *World Energy Trilemma: Time to get real – the case for sustainable energy investment*
- 2013 Energy Sustainability Index rankings and balance score
- Regional overviews
- Country profiles for each of the WEC member countries
- Index rationale, structure and methodology.

Although the absolute Index rank may be the most eye-catching figure, it is not the most important information provided by the Index. Every country has a chance to improve its energy performance, regardless of whether they are ranked first or last. Decision makers in both the public and private sectors are encouraged to look at trends in performance over the years, particularly in each dimension and to compare their countries against peer groups – including regional or GDP group peers.

Readers are also directed to the companion document *World Energy Trilemma: Time to get real – the case for sustainable energy investment,* which contains a detailed discussion of the findings of the 2013 Energy Sustainability Index. The Index discussion highlights countries with common energy trilemma profiles that offer additional benchmarking groups for decision makers to learn from. Profile groups include the challenges that oil-exporting countries face, the experiences of countries that have developed a high share of renewables or hydropower, or the energy trade-offs that fast growing economies have to manage.

The 2013 World Energy Trilemma report will be followed by a summary report *World Energy Trilemma: Time to get real – the agenda for change,* which synthesises the recommendations made by energy executives in 2012 and the insights and feedback gathered during the interviews with representatives from governments and intergovernmental organisations in 2013. *World Energy Trilemma: Time to get real – the agenda for change* sets out 10 areas for focused action identified in public and private stakeholder interviews and validated at a high-level dialogue held in Paris (France) in July 2013.

The 2012 and 2013 reports' methodology is based on the guiding premise that energy sustainability involves both the efforts of industry and policymakers. Together the publications support an evolving dialogue aimed at furthering knowledge of effective strategies and policies to deliver the necessary transformation of the energy system to support sustainable economic and social development.

Box 1: Iconography

Graphics displaying results of the Energy Sustainability Index analysis make use of the following iconography.

Energy performance dimensions:

 Energy security

 Energy equity

 Environmental sustainability

Contextual performance dimensions:

 Political strength

 Societal strength

 Economic strength

Energy Sustainability Index results and country profiles can be found on the WEC website at www.worldenergy.org/data/sustainability-index.

Executive summary

"We can't make the necessary hard choices if we don't have the dialogue. We need to make decisions together."

By 2030, the United Nations hopes there will be universal access to modern energy services, a doubling of the share of renewable energy sources in the global energy mix, and a doubling of the global rate of improvement in energy efficiency. But after decades of work to advance sustainable energy solutions, an energy gap continues to grow as energy systems around the world struggle under significant strain.

Global demand for primary energy is expected to increase by between 27% and 61% by 2050.[1] Yet 1.2 billion people still do not have access to electricity and 2.8 billion lack access to clean cooking facilities.[2] It will take between US$19.3 trillion and US$26.7 trillion cumulative global investments in electricity infrastructure alone between now and 2050 to close this gap and support growing global energy needs.[3]

At the same time, energy policies have been shifting and policy changes have become hard to predict because of radical changes in energy supply, such as that unleashed by the technological revolution in horizontal drilling in unconventional gas. Technological breakthroughs have also accelerated the adoption of renewables.

At the same time, some countries are shifting away from nuclear energy and increasing the demand for fossil fuels. These policy shifts could serve to decrease overall energy security as uncertainty around energy policy slows investment in new energy sources, in updating ageing infrastructure, and in building the new plants and networks necessary to support sustainable energy systems.

As a result, it is not only more difficult, but also more important than ever, for public and private stakeholders to work together to develop a new governance for sustainable energy policies. The external environment public and private sectors operate in has changed over the past 10–20 years. Today, public stakeholders expect more from the private sector. For example, when the United Nations Millennium Development Goals were agreed to in 2000, there was no direct request for business to play an active role in the achievement of set targets. Twenty years later, looking at the UN's post-2015 development agenda, cash-strapped governmental institutions acknowledge that the private sector has a role to play. Public stakeholders encourage the private sector to think critically about their role in society and to reconsider how they operate in the face of a changing external environment.

Policy decisions reached during this historic moment of flux in energy policymaking could tip the balance. They could make it possible for billions of people to experience sustainable energy systems decades into the future, or they could prevent the goal from being reached.

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[1] World Energy Council (WEC), 2013: World Energy Scenarios: Composing energy futures to 2050; The lower number refers to WEC's 'Symphony' scenario, which focuses on achieving environmental sustainability through internationally coordinated policies and practices, while the higher number reflects WEC's 'Jazz' scenario, which focuses on energy equity with priority given to achieving individual access and affordability of energy through economic growth.

[2] Sustainable Energy for All (SE4All), 2013: Global Tracking Framework

[3] WEC, 2013: World Energy Scenarios: Composing energy futures to 2050

To assist with this challenge, the World Energy Council (WEC), in collaboration with global management consulting firm Oliver Wyman, have prepared the fifth edition of the World Energy Trilemma report. This second of a two-part series of reports examines the drivers and risks preventing the development of sustainable energy systems. It then recommends an Agenda for Change to address these risks and to accelerate a global transition to more diversified, and therefore sustainable, energy systems that will present opportunities for economic growth.[4]

In response to the 2012 World Energy Trilemma report, describing the policies that more than 40 energy industry CEOs and senior executives consider are necessary to advance sustainable energy systems, the 2013 report describes what public sector stakeholders believe they need from the energy industry. It is based on interviews with more than 50 energy and environmental ministers, policymakers, government officials, representatives from multilateral development banks, international non-governmental organisations, and experts from more than 25 countries.

The report also reflects the results of the 2013 Energy Sustainability Index prepared by the WEC in partnership with Oliver Wyman. The Index evaluates how well countries balance the three often conflicting goals of energy sustainability – energy security, energy equity, and environmental sustainability – what the WEC defines as the 'energy trilemma'. Each of the three legs of the trilemma is vital to the economic and social development of a country. Secure energy is critical to fuelling economic growth, energy must be accessible and affordable at all levels of society, and the impact of energy production and energy use on the environment needs to be minimised to combat climate change and maintain good air and water quality.

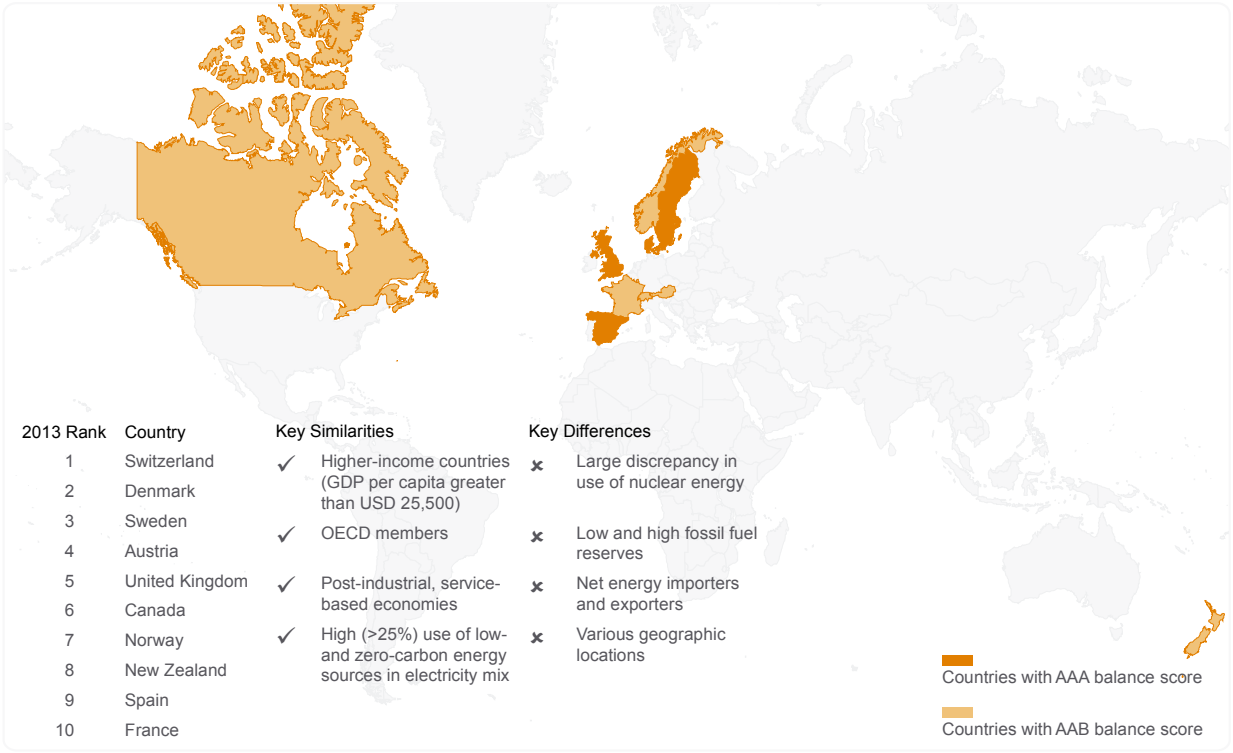
Based on an analysis of 60 data sets used to develop 23 indicators across 129 countries (including 37 non-WEC member countries), the Index provides a comparative ranking and a balance score for how well countries manage the trade-offs among the three core elements of sustainable energy systems – energy security, energy equity, and environmental sustainability. The rank measures overall performance on the Index. For the first time the balance score highlights how well a country manages the trade-offs between each of the dimensions.

Box 2: Energy sustainability dimensions

- Energy security: The effective management of primary energy supply from domestic and external sources, the reliability of energy infrastructure, and the ability of energy providers to meet current and future demand.
- Energy equity: The accessibility and affordability of energy supply across the population.
- Environmental sustainability: The achievement of supply and demand-side energy efficiencies and the development of energy supply from renewable and other low-carbon sources.

[4] WEC, 2013: World Energy Trilemma: Time to get real – the agenda for change

Figure 1
Top performing countries in the 2013 Energy Sustainability Index



Three dimensions of energy sustainability

The results of the 2013 Energy Sustainability Index show that developed countries with higher shares of energy coming from low- or zero-carbon energy sources supported by well-established energy-efficiency programmes, such as Switzerland, Denmark, and Sweden outperform most countries across all three dimensions of the energy trilemma. Nevertheless, it is clear that all countries still struggle to balance the trilemma's currently conflicting agendas. Only five countries rank in the top 25 countries across all three dimensions. Only two are in the top 20. There is no single solution, but countries that consider available indigenous resources and develop a policy framework that supports energy sustainability through the value-chain to the end-user can overcome the energy trilemma.

But none of these rankings are set in stone. Top performers could fall behind if they fail to draft, support and successfully implement prudent, forward-looking energy policies based on strategies that reflect their local resources and capabilities.

Moreover, there are already signs that developing countries could forge an entirely new path toward sustainable energy systems if they were able to mobilise sufficient investment. As renewable energy sources become more widely available, powerful and cost-effective, fast-growing developing countries may be able to leverage environmentally-sensitive and affordable energy sources to support their industrialisation and improve their populations' access to energy. For example, by relying heavily on hydropower and other renewable energy sources, Brazil and Uruguay have been able to maintain relatively environmentally-sensitive profiles while significantly growing their economies and improving access to electricity in remote areas.

Based on their current performance on the individual dimensions countries are also awarded a balance score. The purpose of this balance score is to help energy leaders to identify which areas to focus on to develop a more balanced energy profile. A score of 'AAA' represents the highest potential score that is reserved for countries which balance the score dimensions of the energy trilemma extremely well and achieve high comparative performance in each dimension. In

2013 only five countries were awarded a balance score of 'AAA': Denmark, Sweden, Switzerland, Spain, and the United Kingdom (UK). The letters B, C, and D indicate areas where energy leaders may want to direct initiatives to achieve better performance and more balanced energy systems.

Absolute rank is not the most important result provided by the Index. All countries have a chance to improve their energy performance, regardless of whether they are ranked first or last. Decision makers in both the public and private sectors are encouraged to look at trends in performance over the years, particularly in each dimension, and to compare their countries against their respective peer groups – regardless of whether those peer groups take a regional, economic, or structure-of-the-energy-sector point of view.

To support this analysis, the 2013 report examines five distinct country energy profiles from the Index analysis to highlight the common challenges countries face. For example, 'Pack Leaders', including Switzerland and Denmark, have reduced their environmental impact and increased their energy security by setting clear targets for both reducing GHG emissions and increasing the percentage of renewables in their electricity fuel mix. 'Fossil-fuelled' countries such as Saudi Arabia or Malaysia struggle to manage the environmental impact of their secure and affordable energy services. 'Highly-industrialised' countries, for example, India and Mexico, wrestle with providing accessible and environmentally-sensitive energy while continuing to experience double-digit economic growth. 'Hydro-powered' nations such as Brazil and Colombia provide energy that is relatively less accessible and affordable, but environmentally-sensitive. 'Back of the Pack' countries such as Zimbabwe and Nicaragua suffer from the lack of energy investment, but have the opportunity to emerge on a new path to sustainability.

Public stakeholder recommendations

In 2012, energy industry executives had three main recommendations for how policymakers could expedite the development of sustainable energy systems:

- Define a coherent and predictable energy policy.
- Implement stable regulatory and legal frameworks to support long-term investments.
- Encourage public and private initiatives that enable innovation and foster research, development and demonstration (RD&D).

The interviewees for the 2013 report broadly agreed with these goals. But, in many ways their recommendations underscored the need for increased dialogue between public and private stakeholders. Public stakeholders expressed concerns about how the lack of a global agreement on the target profile of a future energy system is exacerbating policy challenges at the national level. The challenge to craft and implement long-term energy policies is further complicated given the dramatic shifts underway in the energy sector, particularly in terms of emerging technologies and rapidly shifting patterns of energy supply and use.

Interviewees acknowledged that, in the absence of a regional or global consensus on climate change, and given the pace of technology development, it will remain difficult for both public and private stakeholders in the energy sector to determine the best course of action. But, they called on the energy industry to adopt and help promote a long-term energy vision and share information and knowledge on implications, realistic targets, and potential alternative approaches to overcome these hurdles and achieve the goals set.

Other recommendations for the energy industry include:

Recommendation 1: Be more proactive in improving energy policies

To make sustainable energy systems a reality, energy executives must be more proactive in sharing their knowledge, insights, and experiences with policymakers and regulators on several fronts. Against the backdrop of a dynamic sector constantly shifting to accommodate significant changes on the energy supply and demand side, governments struggle to design long-term policies that will encourage technological advances toward sustainable energy systems. This will also avoid locking their countries into technologies that could become rapidly obsolete. To develop better market conditions and regulations, policymakers urged the private sector to share more of its technical expertise and to contribute more actively to a long-term vision and associated policies for sustainable energy systems. Greater energy industry involvement can help to bridge the knowledge gap and facilitate effective dialogue by enabling both policymakers and business to speak the same language.

Public stakeholders recognised the importance of a consensus on long-term energy goals that is based on national values and a 'social licence'. They called on the energy industry to assist in managing public perceptions through increased communication. Reaching such a national consensus requires conversations involving all stakeholders: citizens, the media, activist groups, non-governmental organisations, parliamentarians, policymakers, regulators, and the energy industry.

Governments view the energy industry as a key player in managing the technological and behavioural change needed to realise sustainable energy systems. By providing information about evolving energy options, the cost of energy, the benefits of new technologies, and the need to foster energy efficiency, the private sector can support this transformation. All of these issues could increase public support for a shift towards sustainable energy systems and help enable governments to enact long-term energy policies.

Recommendation 2: Advance the alignment of risks

Huge investments are required to improve access to energy worldwide, develop new energy technologies, and to build new and replace ageing infrastructure. It will take between US$19.3 trillion and US$26.7 trillion cumulative global investments in electricity infrastructure alone between now and

2050.[5] Yet cash-strapped governments have limited funds to support the shift to more sustainable energy systems.

As a result, public stakeholders are looking to the energy industry and the financial sector, including non-traditional investors such as pension funds and other long-term investors, to take the lead in these investments. Overall, interviewees call on the private sector to be 'less risk averse' with regard to investments in energy infrastructure and technology.

For this to happen, however, there needs to be better alignment of risk with those best able to bear it. The 'right' risk allocation starts with a coherent energy policy and a clearly defined and well implemented energy regulatory framework to minimise political and regulatory risk. Public stakeholders recognise that the returns on energy investments must be commensurate with levels of risk and also competitive with the returns on other options for investment. However, development banks and policymakers noted that the perception of a country's risk often inhibits energy investments even in countries where the underlying economics of the energy sector are strong.

One way the energy industry can help to break the present deadlock is by engaging with other stakeholders to identify approaches and mechanisms that allocate associated risks to those best suited to manage them. For example, the private sector can improve the confidence of potential investors by sharing perspectives about the underlying project economics of power projects or highlighting the strength of a nation's power sector and its ability to manage construction, technology, and operational risks.

Public stakeholders are looking at the private sector to play a lead role in the technology development and innovation that will reduce the cost of energy and enable countries to lower their carbon emissions. Policymakers acknowledge the crucial role of the public sector in creating the right environment for RD&D and the possibility of being involved in pre-competitive, early stage technology development and/or large-scale demonstration projects. To avoid shifts driven specifically by politics, public stakeholders called on the energy industry to help coordinate and support broader coalitions to align behind research plans on the basis of evidence about what is likely to work, and work most cost-effectively.

Recommendation 3: Assist developing countries with charting a new course

Today, 17% of the global population is without access to electricity and 41% lacks access to clean cooking facilities, especially in Sub-Saharan Africa, Eastern Asia, Southern Asia, and South-Eastern Asia. Traditionally, fast growing, developing and emerging nations have struggled to maintain an environmentally sensitive footprint as they strive to improve their populations' access to energy and their nations' economic growth. But, recently some countries are starting to chart a new course to sustainability by harnessing the potential of hydro, solar, and wind power.

[5] WEC, 2013: World Energy Scenarios: Composing energy futures to 2050

Public stakeholders recognise that, to change the trajectory of industrialisation and growth in energy use, attractive policy and regulatory frameworks encouraging investment in the development of energy infrastructure need to be created. Interviewees pointed out that developing consistent, stable energy policies and regulation, and maintaining a healthy energy infrastructure, requires a degree of experience, knowledge, and acquired skills that may not exist in some least-developed, developing or emerging countries. In their opinion, the private sector needs to play an important role on two fronts. First, the energy industry and also other investors should engage in dialogue with public stakeholders to identify and lower the barriers impeding investment. Second, the energy industry needs to be more proactive in assisting developing countries with adopting proven technologies, in part by working with them to explore ways to reduce the cost of technology transfer.

A particular concern raised by public stakeholders, especially multilateral development banks, is the lack of 'technically good projects' that can readily attract investment. Both public and private sector need to work with the respective developing countries to generate more bankable projects.

Conclusion

United Nations Secretary-General Ban Ki-moon noted that *"energy is the golden thread that weaves together economic growth, social equity, and environmental sustainability"*. The importance and benefits of sustainable energy systems are clear. But creating a policy framework to achieve those goals remains a challenge for all countries.

To make secure, affordable, and environmentally-sensitive energy systems a reality, public and private stakeholders need to work together to develop a new paradigm for sustainable energy policies. Policymakers urgently need to create the interconnected, lasting, and coherent energy policies. But the energy industry also has an important role to play in assisting policymakers in creating an environment that will mobilise the natural and human resources, finances, and technologies necessary to realise the transformation of current energy systems.

Creating a master plan to achieve diversified, and therefore sustainable, energy systems worldwide may take years to get right, especially given recent dramatic shifts in energy supply and the lack of a global agreement on the target profile of a future energy system. All public and private stakeholders should start down the path now. Too much is at stake for them to hold back. The investment required will take decades to fully transform energy systems and infrastructure. A start needs to be made immediately if sustainable energy systems are to be developed at an affordable cost. It is time to cut through the present uncertainty and to translate the consensus identified into actions on the ground.

2013 Energy Sustainability Index

The 2013 Energy Sustainability Index quantifies the energy trilemma. Perspectives on the urgency of the three pillars of energy sustainability vary across countries. While all countries are very focused on energy security, there is more variability when it comes to energy equity, including access and affordability, and even more so for the environmental sustainability pillar. But each of the three pillars of the trilemma is vital to the economic and social development of a country. Secure energy is critical to fuelling economic growth, energy should be accessible and affordable to support a modern society and economy, and the impact of energy production and energy use on the environment needs to be minimised to combat climate change and maintain good air and water quality.

The Index ranks countries comparatively in terms of their ability to provide a secure, affordable, and environmentally-sustainable energy system. The rankings are based on a range of databases that capture both energy performance and the context of that energy performance. Energy performance indicators consider supply and demand, the affordability of and access to energy, and the environmental impact of a country's energy use. The contextual indicators consider the broader circumstances of energy performance including that country's political, societal and economic strength and stability. Indicators were selected on their high degree of relevance to the research goals. Each indicator is distinct, can be derived from reputable sources and is captured for most countries.

This year each country is also given a balance score that highlights how well a country manages the trade-offs between the three competing dimensions. Figure 2 shows each country's overall Index performance, its dimensional rankings, and its balance score. Furthermore, in 2013 the Index has been expanded to include 37 non-WEC countries, providing a comparative ranking of 129 countries. This is a unique and unparalleled resource and guide for policymakers seeking to develop solutions for sustainable energy systems.

The Index illustrates the trade-offs that exist with the energy trilemma and points to key areas that countries must give extra attention to in order to develop a balanced energy profile. Trends and the balance between the three dimensions provide the most valuable information in helping countries address their energy trilemma. Rankings from three consecutive years broken down by dimension are covered in the Index. This means that a country can track the results of energy policies not only on a macro level, but also by dimension. The Index also makes it possible to generate regional, economic or structure-of-the-energy sector peer group comparisons. As countries have unique resource endowments, policy goals and challenges, the absolute rank of a country may be less meaningful than its relative performance versus its peers.

For the deeper Index analysis countries were organised in four economic groups:

- Group I: GDP per capita greater than US$33,500
- Group II: GDP per capita between US$14,300 and US$33,500
- Group III: GDP per capita between US$6,000 and US$14,300
- Group IV: GDP per capita lower than US$6,000.

Finally, it is important to note that the Index methodology continues to be improved. To enable year-on-year comparison, the previous three years are recalculated to reflect any methodology changes. Further information on Index methodology, 2011 and 2012 rankings, and the balance score can be found in Appendix A.

The 2013 Energy Sustainability Index confirms that providing sustainable, affordable and secure energy is a challenge for every country. It shows that developed countries are in a better position to balance the energy trilemma. This is enabled by their increased reliance on low- and zero-carbon emission forms of energy such as renewables, including hydro, and nuclear. It also shows the opportunity for developing countries. As renewable energy sources become more widely available and cost-effective, countries may be able to leverage environmentally-sensitive and affordable energy sources to support their industrialisation and improve their populations' access to energy. These countries have the highest potential of developing renewable energy sources, but mobilising private investment will be crucial to the success of these future projects.

However, overall energy sustainability remains a far-off objective as trade-offs in the energy trilemma persist for countries at various stages of development. Moreover, the Index shows that countries face specific challenges as they pass through the stages of economic and social development.

Results of the 2013 Index are shown in Figure 2. For a deeper discussion of the Index results, refer to *World Energy Trilemma: Time to get real – the case for sustainable energy investment*.

Figure 2
2013 Energy Sustainability Index ranking and balance score

Index	Country	Balance score	Energy security	Energy equity	Environmental sustainability
1	Switzerland	AAA	19	6	1
2	Denmark	AAA	3	25	10
3	Sweden	AAA	24	14	6
4	Austria	AAB	33	7	7
5	United Kingdom	AAA	11	8	19
6	Canada	AAB	1	2	60
7	Norway	AAB	51	10	8
8	New Zealand	AAB	15	26	37
9	Spain	AAA	22	16	23
10	France	AAB	44	5	9
11	Germany	ABB	31	11	30
12	Netherlands	ABB	42	23	35
13	Finland	ABB	37	21	45
14	Australia	AAD	10	3	97
15	United States	AAC	12	1	86
16	Japan	ABB	48	17	33
17	Belgium	ABB	63	13	34
18	Qatar	AAC	8	9	95
19	Luxembourg	ABD	107	4	29
20	Ireland	ABC	82	30	15
21	Costa Rica	ABB	57	45	2
22	Slovakia	ABB	20	38	48
23	Portugal	ABB	55	53	20
24	Colombia	AAC	5	85	4
25	Slovenia	BBB	60	27	42
26	Argentina	ABB	14	33	38
27	Taiwan, China	ABC	71	22	59
28	Italy	ABC	69	34	24
29	Panama	ABB	53	58	18
30	Croatia	ABC	66	31	21
31	Hungary	BBB	46	42	44
32	Czech Republic	ABC	16	32	90
33	Iceland	ABC	96	15	41
34	Brazil	ABC	27	86	17
35	Ecuador	ABB	25	62	28
36	Tunisia	BBB	28	57	56
37	Malaysia	BBC	34	40	92
38	Bahrain	AAD	23	19	125
39	Greece	ABC	54	18	81
40	Hong Kong, China	ABD	99	24	58
41	Mexico	BBC	29	47	75
42	Lithuania	ABC	93	46	26
43	Latvia	ABD	98	54	14
44	United Arab Emirates	BBD	49	37	102
45	Peru	ABC	21	96	43
46	Uruguay	ACC	92	67	5
47	Singapore	BBD	124	43	51
48	Poland	BBC	38	39	94
49	El Salvador	ABC	68	64	11
50	Barbados	ABD	118	41	25
51	Saudi Arabia	ABD	45	12	124
52	Romania	ACC	9	70	88
53	Mauritius	ABD	109	60	16
54	Russia	ABD	2	61	99
55	Bolivia	ACC	4	84	71
56	Gabon	ABC	35	92	12
57	Chile	BCC	90	56	72
58	Kazakhstan	ABD	6	35	116
59	Angola	ABD	7	104	31
60	Albania	ACC	87	76	3
61	Guatemala	BBC	40	75	36
62	Oman	ACD	78	20	120
63	Cyprus	BCD	104	36	80
64	Korea (Rep.)	BCD	103	49	85
65	Philippines	BBC	39	93	54

Index	Country	Balance score	Energy security	Energy equity	Environmental sustainability
66	Kuwait	BCD	73	28	122
67	Israel	BCD	102	29	83
68	Estonia	BCD	65	51	117
69	Sri Lanka	BCC	72	80	40
70	Bulgaria	ACD	26	77	108
71	Malta	BCD	128	48	65
72	Georgia	ACD	106	66	22
73	Indonesia	ACD	17	83	104
74	Paraguay	ACD	84	99	13
75	Turkey	BCC	64	82	70
76	Egypt	BBC	47	59	84
77	Venezuela	BBC	41	55	82
78	China	ADD	18	101	126
79	South Africa	BCD	43	78	128
80	Congo (Dem. Rep.)	BBD	30	121	27
81	Azerbaijan	BCD	32	74	98
82	Cameroon	BBD	62	107	39
83	Montenegro	BCD	115	71	57
84	Nigeria	ACD	13	111	79
85	Armenia	CCC	95	69	73
86	Macedonia	BCD	89	50	106
87	Syria	BBD	52	52	113
88	Algeria	CCC	86	68	74
89	Thailand	CCD	91	88	101
90	Namibia	BCD	123	94	49
91	Iran	BCD	75	44	119
92	Swaziland	BCD	61	98	76
93	Côte d'Ivoire	BCD	36	108	68
94	Malawi	BCD	74	129	32
95	Mongolia	BDD	50	100	129
96	Jordan	BDD	119	63	107
97	Ukraine	BCD	59	73	114
98	Trinidad and Tobago	CCD	79	95	115
99	Botswana	BDD	126	97	62
100	Honduras	BCD	111	90	52
101	Vietnam	CDD	77	102	105
102	Ghana	CCD	85	105	77
103	Mozambique	CCD	67	124	66
104	Chad	BCD	83	123	50
105	Morocco	CCD	110	79	96
106	Serbia	CDD	101	65	118
107	Tajikistan	BCD	81	109	61
108	Kenya	BCD	88	114	63
109	Lebanon	CCD	127	87	89
110	Dominican Republic	BDD	114	106	55
111	Nepal	BDD	125	122	46
112	Ethiopia	BDD	97	119	47
113	Nicaragua	CCD	100	91	87
114	Pakistan	BDD	56	103	100
115	India	CDD	76	110	121
116	Tanzania	BDD	117	125	53
117	Libya	CCD	70	72	123
118	Cambodia	CDD	121	113	67
119	Mauritania	BDD	58	117	112
120	Zambia	BDD	108	120	64
121	Jamaica	CDD	116	81	110
122	Niger	CCD	80	127	91
123	Bangladesh	CDD	113	115	78
124	Madagascar	CDD	105	126	69
125	Moldova	CDD	122	89	109
126	Senegal	CDD	120	118	93
127	Yemen	CDD	94	112	111
128	Benin	DDD	129	116	103
129	Zimbabwe	DDD	112	128	127

Regional profiles

The variability seen in performance across the three dimensions of the Energy Sustainability Index shows the degree to which the energy challenges faced by each country are unique. However, the transnational nature of both energy markets and environmental sustainability issues necessitates a view that extends past the country level as highlighted in the recommendations of the report *World Energy Trilemma: Time to get real - the case for sustainable energy investment*. Both energy executives and senior government officials emphasised the need to examine opportunities to adopt regionally coordinated approaches to energy resources, infrastructure and regulation.

This section shows the average results for countries in each geographic region represented in the 2013 Index, as well as an overview of regional challenges.

Figure 3
Comparison of key metrics among regions

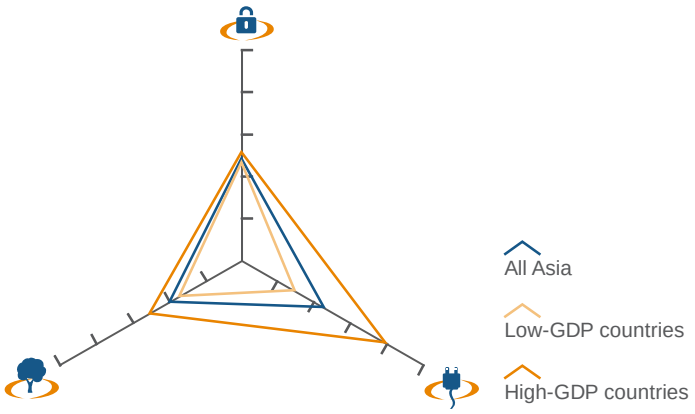
Geographical region	GDP per capita (PPP, USD)	Industrial sector (% of total GDP)	TPEP / TPEC[1]	Population with access to electricity (%)	Energy affordability (USD per kWh)[2]	Energy intensity (koe per USD, PPP)	Emission intensity (kCO_2 per USD, PPP)	CO_2 emissions per capita
Asia	15,522	31.8	-0.51	89.5	0.11	0.19	0.40	5.63
High-GDP countries	37,416	27.9	-1.22	95.5	0.18	0.14	0.37	10.34
Low-GDP countries	5,218	33.6	-0.17	86.6	0.06	0.21	0.42	3.07
Europe	27,368	26.1	-0.54	99.9	0.22	0.16	0.34	7.16
Western Europe	37,109	24.0	-0.68	100.0	0.23	0.14	0.23	7.58
Eastern Europe	16,005	28.5	-0.39	99.9	0.19	0.19	0.47	6.63
Lat. Amer. & Caribbean	11,286	29.8	-0.32	91.8	0.10	0.16	0.31	5.75
Middle East & N. Africa	22,169	43.0	-0.05	93.9	0.15	0.21	0.53	10.66
GCC countries	44,889	57.4	0.46	94.1	–	0.27	0.65	27.37
Non-GCC countries	9,777	35.2	-0.32	93.9	–	0.18	0.46	3.98
North America	34,878	27.3	0.04	99.7	0.10	0.17	0.37	11.97
Sub-Saharan Africa	4,167	28.3	-0.21	36.9	0.06	0.30	0.25	0.98
Global Average[3]	**17,572**	**30.5**	**-0.36**	**83.6**	**0.17**	**0.20**	**0.36**	**6.44**

Figure 4
Comparison of key metrics among GDP groups

Economic groups (GDP per capita)	GDP per capita (PPP, USD)	Industrial sector (% of total GDP)	TPEP / TPEC[1]	Population with access to electricity (%)	Energy affordability (USD per kWh)[2]	Energy intensity (koe per USD, PPP)	Emission intensity (kCO_2 per USD, PPP)	CO_2 emissions per capita
Group I (33,501+)	45,759	29.1	-0.53	95.5	0.22	0.16	0.30	12.33
Group II (14,301 – 33,500)	22,161	32.7	-0.50	96.3	0.17	0.17	0.40	7.69
Group III (6,001 – 14,300)	10,139	32.6	-0.12	95.4	0.09	0.18	0.43	4.21
Group IV (0 – 6,000)	3,092	28.2	-0.30	58.0	–	0.26	0.31	1.16
Global Average[3]	**17,572**	**30.5**	**-0.36**	**83.6**	**0.17**	**0.20**	**0.36**	**6.44**

[1] Ratio of total primary energy production to total primary energy consumption, showing the extent to which a country imports or exports energy
[2] "–" indicates lack of available data for this indicator for too many countries in this region
[3] Average of all 129 countries included in the Index

Figure 5
Energy sustainability balance Asia



Low-GDP countries	High-GDP countries
Armenia	Australia
Azerbaijan	Hong Kong, China
Bangladesh	Japan
Cambodia	Korea (Rep.)
China	Malaysia
Georgia	New Zealand
India	Singapore
Indonesia	Taiwan, China
Kazakhstan	
Mongolia	
Nepal	
Pakistan	
Philippines	
Sri Lanka	
Tajikistan	
Thailand	
Vietnam	

Asia

Asia is the world's largest and most populated continent. The region contains a diverse array of economies and includes less-developed countries, rapidly-developing economies such as China and India, and highly-developed nations. Wealth varies widely across the region. Nepal's GDP per capita is US$1,200 compared to Singapore's US$59,600, which has the region's highest GDP. Economic growth in the region is generally high. For example, in East Asia it was 7.5% in 2012.[6]

Energy security in high- and low-GDP Asian countries is comparable, but disparities are larger on environmental sustainability performance. The gap is very wide when it comes to energy equity, with high-GDP countries performing much better.

While Asia has a mix of net energy importers and exporters, demand for and consumption of energy is high in almost all countries. Compared to previous years, total energy consumption increases, growing faster than energy production. This leads to an increased reliance on energy imports for these countries, thereby decreasing their energy security. The diversity of the electricity fuel mix improves slightly in low-GDP Asian countries, but decreases in high-GDP ones. The use of renewable energy sources for electricity generation also continues to be much higher in low-GDP countries. The high-GDP country New Zealand is the exception because it generates 74% of its electricity through hydropower and other renewables.

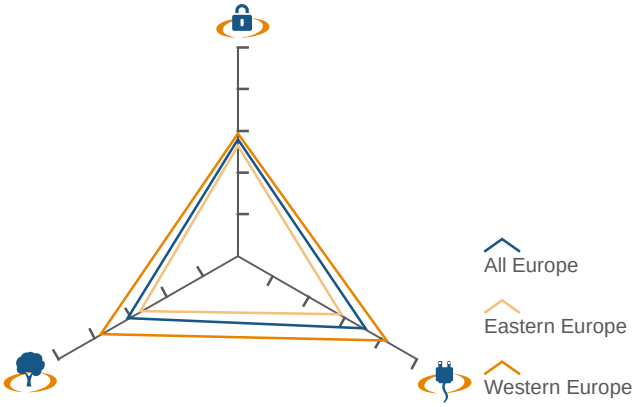
While energy equity is by far the strongest energy dimension for high-GDP Asian countries, performance for this group declined this year because gasoline and electricity became more expensive. On the other hand, energy is becoming more affordable in the low-GDP group. However, providing access to modern energy services remains a challenge in some countries. For example, in India over 300 million people still do not have access to electricity.[7]

Environmental sustainability performance is improved as the levels of energy and emission intensity continued to decline. However, both remain persistent challenges in low-GDP Asian countries, especially in more industrialised ones such as China and Vietnam. To sustain or improve environmental sustainability as rapid economic and social development continues in the region, it will become increasingly important for these countries to meet rising energy demands through 'clean' methods of electricity generation.

[6] The World Bank, 2013: East Asia and Pacific Economic Update

[7] SE4All: 2013: Global Tracking Framework

Figure 6
Energy sustainability balance Europe



Western Europe		Eastern Europe	
Austria	Luxembourg	Albania	Poland
Belgium	Malta	Bulgaria	Romania
Cyprus	Netherlands	Croatia	Russia
Denmark	Norway	Czech Rep.	Serbia
Finland	Portugal	Estonia	Slovakia
France	Spain	Hungary	Slovenia
Germany	Sweden	Latvia	Ukraine
Greece	Switzerland	Lithuania	
Iceland	Turkey	Macedonia	
Ireland	United Kingdom	Moldova	
Italy		Montenegro	

Europe

European countries in the Index mostly have mature economies and have an average GDP per capita of US$27,400. Europe has been particularly hard hit by the recent global recession. GDP growth in the European Union declined from 1.5% in 2011 to -0.6% in 2012, and in Central and Eastern Europe it fell from 5.4% in 2011 to only 1.4% in 2012.[8]

Overall, Europe performed above-average on all three energy dimensions, with energy equity the strongest. While Western Europe and Eastern Europe have comparable levels of energy security, most Western European countries, which rank in the top quartile of the energy equity dimension, had both a significantly higher degree of energy equity and a better environmental sustainability performance.

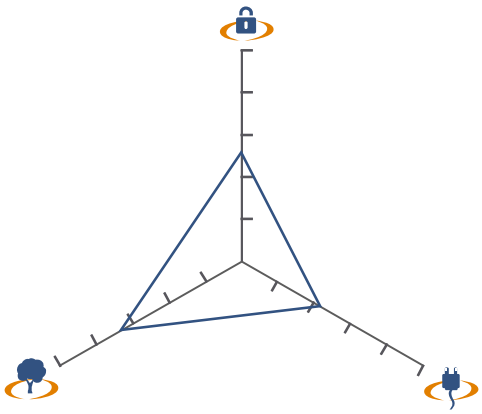
Almost all European countries are net energy importers and lack large natural deposits of fossil fuels. Yet, Europe overall manages to still be relatively energy-secure due to contained energy consumption growth and a conscious effort to diversify the electricity generation portfolio. Low- and zero-carbon sources of energy account for an average of 47% of electricity generation in these countries. Some countries such as Albania and Iceland rely solely on renewables, mostly hydro. Western European countries saw energy security increase a fair amount this year, while Eastern European countries saw a slight drop in performance. This is partly due to a more favourable total energy production to consumption ratio among the Western European countries.

Access to electricity is virtually 100% across the entire region. Energy equity improved this year because gasoline and electricity remained relatively affordable to the majority of the population, particularly in Eastern European countries.

Western European countries continued to outperform their Eastern European peers on the environmental sustainability dimension. The gap widens as Western European countries reduce energy and emission intensity and CO_2 emissions from electricity generation. All three indicators worsened in Eastern European countries.

[8] International Monetary Fund (IMF), 2013: World Economic Outlook Update: Growing Pains

Figure 7
Energy sustainability balance Latin America and the Caribbean



LAC countries	
Argentina	Jamaica
Barbados	Nicaragua
Bolivia	Panama
Brazil	Paraguay
Chile	Peru
Colombia	Uruguay
Costa Rica	Venezuela
Dominican Republic	
Ecuador	
El Salvador	
Guatemala	
Honduras	

Latin America and the Caribbean

The Latin America and Caribbean (LAC) region includes mostly middle and lower-income countries. LAC is expected to see an economic growth rate of 3.5% in 2013, with much higher rates of growth anticipated for Panama, Colombia, and Peru.[9] While in many countries sound economic policies and a relatively favourable international context in the preceding decade have lifted tens of millions of people out of poverty, the region still suffers from the highest levels of income disparity in the world.[10]

Countries in the region see varying levels of success in balancing the energy trilemma, but on average have decent levels of energy security, balanced on either side by a weaker energy equity performance and the strongest environmental sustainability of all the WEC regions. However, a deeper analysis reveals a mixed story.

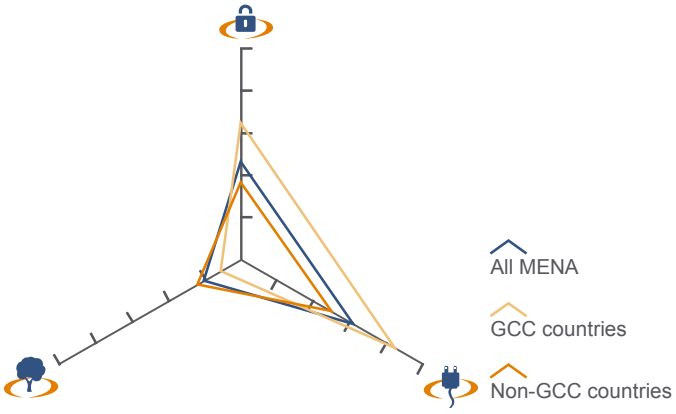
The LAC region includes a mix of both net energy importers and exporters, including OPEC members Ecuador and Venezuela. Overall, LAC is an energy-rich region with large oil and gas deposits and great natural endowments of exploitable renewable energy. It may be difficult to sustain oil and gas production in some countries due to their current political climate of nationalisation and populist policies, both of which can deter investment. With economies expanding, energy consumption continues to rise across the region, creating energy security challenges for some countries. To address this, countries in the region are continuing to diversify their electricity generation portfolios with renewable energy, especially hydropower.

In terms of environmental sustainability, overall performance drops as energy and emission intensity increased although emission intensity remains relatively low. Carbon emissions from electricity generation are up as well, but, given the high level of use of hydropower in the region remain significantly lower than in the rest of the world. Ten of the region's countries generate more than half their electricity using renewables sources – most of it hydropower. It remains to be seen if this region can maintain its superior environmental performance as its countries address societal and economic inequality and try to extend the benefits of development to the rest of their populations.

Energy equity as a whole is fairly low in the region. Access to electricity varies greatly across the region, with nearly a quarter of the population in Nicaragua lacking modern electricity services, while some of the more-developed countries have electrification rates of nearly 100%. Subsidies play an important role in many LAC countries such as Argentina, Venezuela, Bolivia, Ecuador, and Chile, and government attempts to reduce fuel subsidies have for the most part failed due to large protests.

[9] The World Bank, 2013: Latin America and Caribbean Overview
[10] United Nations, 2010: Acting On The Future: Breaking The Intergenerational Cycle Of Inequality

Figure 8
Energy sustainability balance Middle East and North Africa



GCC countries	Non-GCC countries	
Bahrain	Algeria	Syria
Kuwait	Egypt	Tunisia
Oman	Iran	Yemen
Qatar	Israel	
Saudi Arabia	Jordan	
United Arab Emirates	Lebanon	
	Libya	
	Morocco	

Middle East and North Africa

The Middle East and North Africa (MENA) play a vital role in the global energy industry. They have an estimated 66% of the world's oil and 45% of the world's natural gas reserves, most of which is concentrated in the Gulf Cooperation Council (GCC) member countries.[11] While many of these countries have economies tied heavily to oil and gas exports, several have taken steps in recent years to diversify their economies. Per capita GDP varies widely in the region. The resource-rich GCC countries have an average per-capita income that is over four times higher than that of their poorer, non-GCC neighbours.

Countries in the region continue to struggle with balancing the energy trilemma, with moderate energy security, balanced on either side by good levels of energy equity and poor performances on the environmental sustainability dimension. This balance worsened this year, with energy equity in the region improving, but energy security and environmental sustainability performance declining.

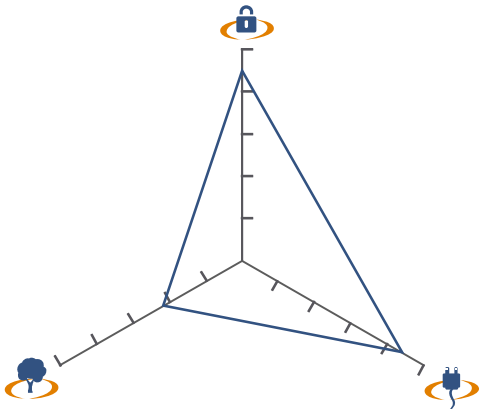
Total energy consumption increased in the MENA region because of continued population growth and societal and economic development. Despite the vast strategic oil reserves that most of these countries keep, energy security in the region, which includes eight of the 12 OPEC countries, remains average. This can be explained in part by high five-year energy consumption growth rates, a high economic dependence on energy exports especially among the GCC countries, and currently very low amounts of diversity in the sources of electricity production, which is almost exclusively fossil fuelled. However, some of the traditionally oil-reliant Gulf countries, such as Saudi Arabia, the United Arab Emirates, and Bahrain, are addressing the lack of diversity in their electricity fuel mixes by developing the use of renewables and nuclear.

Energy equity remains the strongest of the three energy dimensions in this region because electricity and gasoline are very affordable, and often subsidised or fixed at artificially low prices by the government. Access to electricity in the region is high with the exception of Yemen, but is rarely 100%.

However, low cost energy does little to incentivise energy efficiency or the reduction of energy consumption – and the region's environmental sustainability performance reflects this. Emission and energy intensity both continue to increase and remain the worst in the world. Meanwhile, CO_2 emissions from electricity generation also remain extraordinarily high, with virtually no use of either nuclear power or renewables at the moment.

[11] WEC, 2013: World Energy Resources

Figure 9
Energy sustainability balance North America



North American countries
Canada
Mexico
United States

North America

The North America region includes Canada, the United States (US), and Mexico. Canada and the United States both have mature, post-industrial economies, while Mexico is a modern, industrial powerhouse. All three countries benefit heavily from the 1994 North American Free Trade Agreement, which eliminated trade tariffs between the three countries. For example, 90% of Mexico's exports now go to either Canada or the United States). The entire region was hit particularly hard by the recent global recession, but economic growth has recovered, although not quite to pre-recession levels. Mexico's economy is the fastest growing in the region.

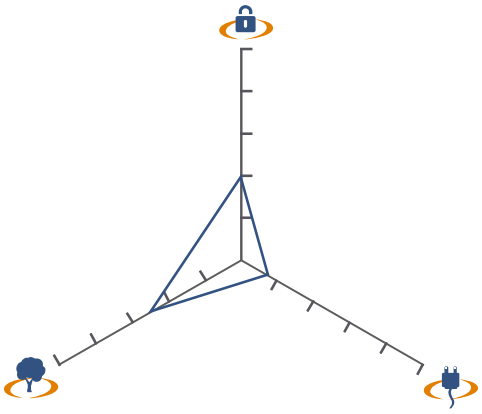
Overall, North American countries perform very well on the energy security and energy equity dimensions, but continue to struggle with balancing their strong economic power with environmental sustainability. This year's Index found overall improvements for the region on all three energy dimensions.

Energy security improved for all three countries as total energy production increased more than total energy consumption does. In addition, GDP growth also outpaced the energy consumption growth rate, showing that economic growth was achieved in a sustainable fashion. Although the region's energy use is high, North American countries are relatively self-sufficient because all three have large natural endowments of oil, natural gas, and hydropower potential. Also, both Canada and Mexico are net energy exporters and the US is close to reaching energy independence. The diversity of the electricity generation portfolio improved overall this year, but the use of low-carbon and renewable energy sources for electricity generation remained mixed. Mexico still gets four-fifths of its electricity from burning fossil fuels, while Canada uses nuclear, hydropower and other renewables to meet 77% of its needs.

Energy equity also improved for all three countries because gasoline and electricity remain quite affordable, especially in Canada and the United States.

The environmental sustainability dimension remains the most challenging one for the region. Emission and energy intensity continued to be relatively high in all three countries, although there were slight improvements this year. Mexico's, environmental sustainability ranking dipped slightly this year and continues to be plagued very high levels of pollution.

Figure 10
Energy sustainability balance sub-Saharan Africa



Sub-Saharan African countries		
Angola	Ghana	Nigeria
Benin	Kenya	Senegal
Botswana	Madagascar	South Africa
Cameroon	Malawi	Swaziland
Chad	Mauritania	Tanzania
Congo (Dem. Rep.)	Mauritius	Zimbabwe
Côte d'Ivoire	Mozambique	Zambia
Ethiopia	Namibia	
Gabon	Niger	

Sub-Saharan Africa

Sub-Saharan Africa includes some of the world's least developed countries with per capita GDP ranging from the Democratic Republic of Congo's US$350 to Botswana's US$16,100. The region's economies rely predominantly on resource extraction such as oil, minerals and gemstones, and agriculture. Many sub-Saharan African countries are also working on industrialising and building up a manufacturing base. The region's economy is expected to grow 5.1% in 2013 and by even more at 5.9% in 2014.[12]

While energy security rankings are low (with a few notable exceptions), sub-Saharan African countries fare even worse on energy equity. Environmental sustainability is the strongest energy dimension for the region, although that is largely because many of these countries have yet to face the sharp spike in energy demand that accompanies rapid social and economic development. Energy performance generally improves across the board this year.

Sub-Saharan Africa is well-endowed with both fossil fuels and sources of renewable energy, especially hydro and geothermal power. The region does includes a few large oil producers such as South Africa and OPEC members Angola and Nigeria, as well as several countries that generate all or nearly all of their electricity using renewables. However, many of these potential energy resources remain untapped, as countries face institutional and infrastructural barriers to making efficient use of them. Energy consumption increased in the past year, driven by economic growth.

The region's limited ability to improve its energy systems and related services continued to have significant repercussions on its social and economic development. This has led to poorer quality of life and low degrees of health, education, and economic competitiveness. People's access to modern electricity services remained quite scarce. 11 of the 25 Index countries in this region had electrification rates below 25%. Energy equity performance remained low in each of these countries.

The environmental sustainability dimension is currently the region's best. Both energy and emission intensity continued to decrease. While it is likely that these numbers will rise along with the level of economic development in the region, if these countries are able to develop in a sustainable manner, they have the potential to chart a new path of development that deviates from that of the world's current newly-industrialised countries.

[12] IMF, July 2013: World Economic Outlook Update: Growing Pains

Country profiles

This section shows the Index rankings overall and per dimension for each WEC member country represented in the 2013 Energy Sustainability Index as well as the new balance score. The trilemma graph on each country profile (upper left corner) illustrates the balance score, which highlights the trade-offs between the three competing dimensions: energy security, energy equity, and environmental sustainability. Furthermore, the country profile provides a commentary on performance, an indication of trends and future developments, an overview of the country's energy endowment, and contributions of energy sources to total electricity generation as well as relevant key metrics to provide more context.

Box 3: Iconography

Graphics displaying results of the Energy Sustainability Index analysis make use of the following iconography.

Energy performance dimensions:

 Energy security

 Energy equity

 Environmental sustainability

Contextual performance dimensions:

 Political strength

 Societal strength

 Economic strength

Energy Sustainability Index results and country profiles can be found on the WEC website at www.worldenergy.org/data/sustainability-index.

Balance score

Overall rank

ENERGY SUSTAINA

ENERGY SUSTAINABILITY INDEX RANKINGS AND

Index scores for energy security, energy equity, and environmental sustainability highlight the degree of balance among the three dimensions

	2011	2012	2013	Trend	Score
Energy performance	35	39	30	↑	
Energy security	36	43	44	↓	B
Energy equity	12	15	15	→	A
Environmental sustainability	45	41			
Contextual performance	31	35			
Political strength	51	51			
Societal strength	42	41	41	→	
Economic strength	3	14	8	↑	
Overall rank and balance s				↑	ABB

2011-2013 rank for each Index component as well as overall rank

2012-2013 trend for each Index component

DIVERSITY OF ELECTRICITY GENERATION

Contributions of energy sources to total electricity generation indicating current reliance on fossil fuels or other energy sources (EIA, 2011)

FOSSIL FUEL RESERVES (IN MTOE)

Resource endowment (WEC, 2013: World Energy Resources). For additional energy sources, for example, unconventional or renewable energy sources visit www.worldenergy.org/data/resources

KEY METRICS

Industrial sector (% of total GDP)	50.7	GDP per capita (PPP, USD); GDP Group	27,735 (II)
Percent of total GDP that is in the industrial sector (CIA World Factbook, 2012)		GDP (IMF, 2011) and GDP group assignment as defined in this report	
TPEP / TPEC (net energy importer)	-0.01	Energy intensity (koe per USD)	0.37
Ratio of total primary energy production to total primary energy consumption, showing the extent to which a country imports or exports energy (EIA, 2010)		Measure of how much energy is required to produce one dollar GDP at purchasing power parity (Enerdata / WEC, 2011)	
Emission intensity (kCO_2 per USD)	0.86	CO_2 emissions (tCO_2) per capita	n.a.
Measures CO_2 emissions from fuel combustion created by the production of one dollar of GDP at purchasing power parity (Enerdata / WEC, 2011)		CO_2 emissions from fuel combustion per person (Enerdata / WEC, 2011)	
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1
Average cost of electricity (IEA, 2011)		Access to electricity (SE4All, 2010)	

INDEX COMMENTARY

Overview of current Index ranking and country's energy trilemma, highlighting indicator changes from 2012 to 2013

TRENDS AND OUTLOOK

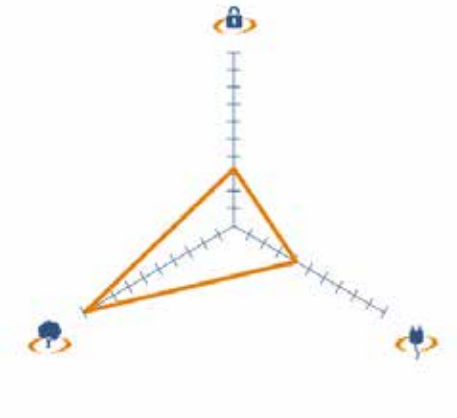
Commentary explaining recent energy policy developments, future trends for country's sustainability balance and issues of importance for future policy making as provided by the country's WEC member committee

INDEX RANK
60

ALBANIA

BALANCE SCORE
ACC

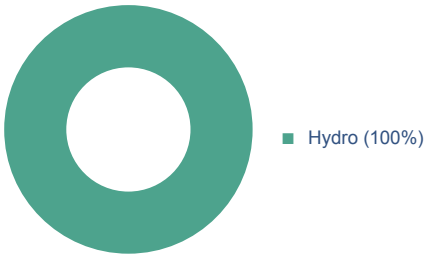
ENERGY SUSTAINABILITY BALANCE



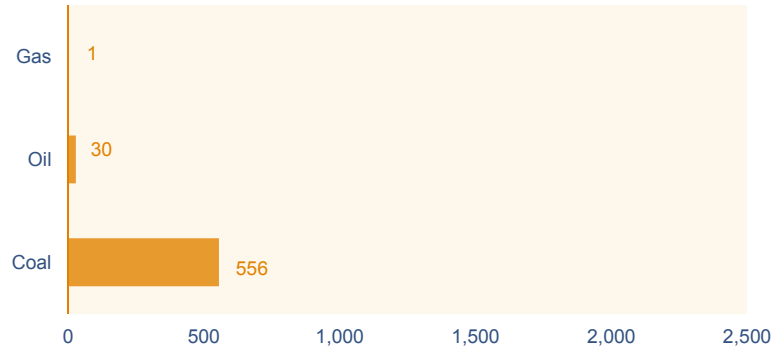
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	54	34	49	↓	
Energy security	82	63	87	↓	C
Energy equity	84	71	76	↓	C
Environmental sustainability	3	3	3	→	A
Contextual performance	81	85	84	↑	
Political strength	71	71	68	↑	
Societal strength	71	74	74	→	
Economic strength	107	105	106	↓	
Overall rank and balance score	**59**	**47**	**60**	↓	**ACC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	19.1	GDP per capita (PPP, USD); GDP Group	7,848 (III)
TPEP / TPEC (net energy importer)	0.79	Energy intensity (koe per USD)	0.08
Emission intensity (kCO_2 per USD)	0.15	CO_2 emissions (tCO_2) per capita	1.21
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

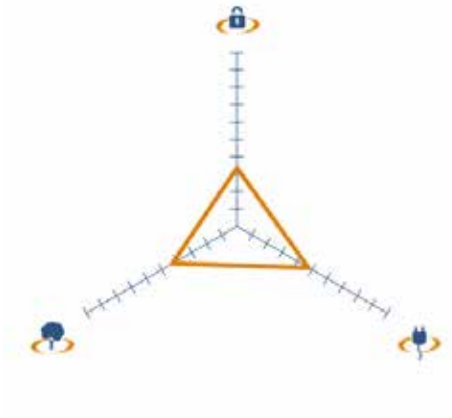
Albania drops 13 places in this year's Index. The country exhibits outstanding performance on the environmental sustainability dimension, offset by weaker results on the other two dimensions of the energy trilemma. In terms of energy security, Albania increases its oil stocks and reduces its transmission and generation losses, the latter indicating an improvement in the quality of its power infrastructure. However, the rate of growth of the country's energy consumption continues to outpace its economic growth, leading to a significant drop in ranking on this dimension – a drop that greatly impacts Albania's overall Index position. There is a slight drop in energy equity due to increased gasoline prices and household expenditures on electricity, while an electricity generation portfolio that employs only hydropower enables the country to remain among the top three nations in the world with the lowest environmental impact. Contextual indicators remain stable, albeit low overall – particularly indicators of economic strength.

BALANCE SCORE
CCC

ALGERIA

INDEX RANK
88

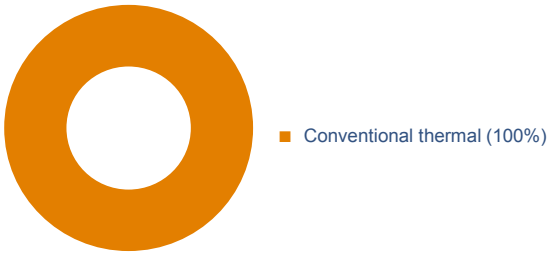
ENERGY SUSTAINABILITY BALANCE



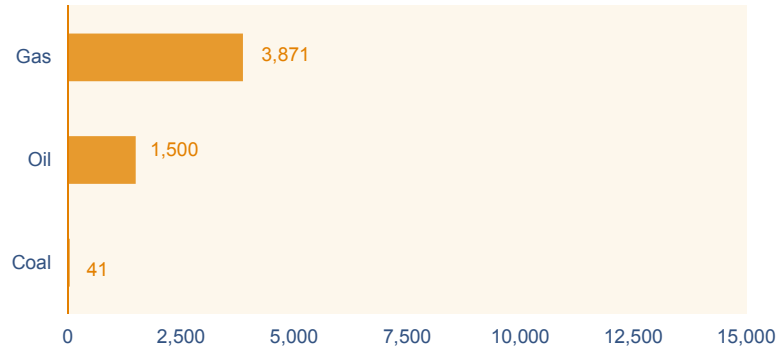
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	67	78	81	↓	
Energy security	65	80	86	↓	C
Energy equity	61	63	68	↓	C
Environmental sustainability	75	77	74	↑	C
Contextual performance	109	96	99	↓	
Political strength	113	116	120	↓	
Societal strength	91	97	97	→	
Economic strength	100	66	75	↓	
Overall rank and balance score	**81**	**85**	**88**	↓	**CCC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	60.9	GDP per capita (PPP, USD); GDP Group	7,272 (III)
TPEP / TPEC (net energy exporter)	3.96	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.38	CO_2 emissions (tCO_2) per capita	2.87
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.3

INDEX COMMENTARY

Algeria slips three places in this year's Index, but continues to balance the three sides of the energy trilemma fairly well. Performances on the energy security and energy equity dimensions see declines, mostly because of an increased economic dependence on fuel exports and rising household expenditures on electricity. Improvement on the environmental sustainability dimension is largely driven by reduced CO_2 emissions from electricity generation, which are partially offset by a higher emission intensity. Algeria's contextual performance remains weak, particularly its performances on the rule of law, effectiveness of government and political stability indicators, all of which have worsened. Macroeconomic stability continues to be relatively high, but the availability of credit in the private sector remains low.

TRENDS AND OUTLOOK

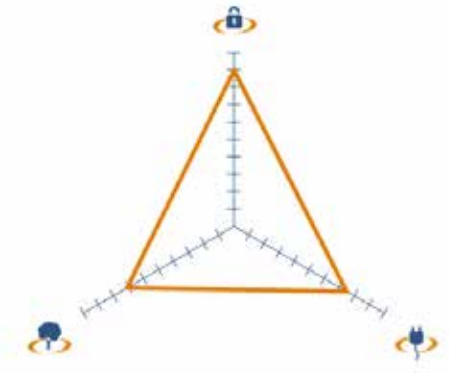
- In recent years, Algeria has continuously developed its economy and improved its energy system. Energy policies have been implemented to intensify oil and gas exploration efforts to increase reserves, to promote renewable energy and energy efficiency and increase the share of renewables in electricity generation to 40% by 2030.
- Policymakers should continue to focus on: 1) increasing the proportion of renewable energy in electricity generation; 2) the development of energy efficiency as there is a great potential for improvement; 3) the development of a renewable energy industry that is economically sustainable; and 4) the development and support of R&D and training to increase the transfer of knowledge and technology.

INDEX RANK
26

ARGENTINA

BALANCE SCORE
ABB

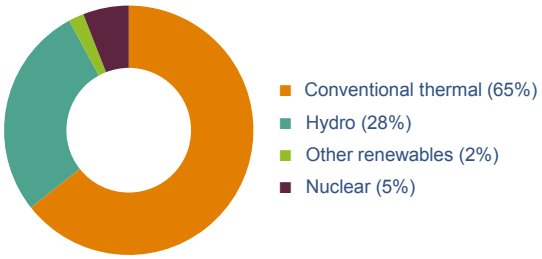
ENERGY SUSTAINABILITY BALANCE



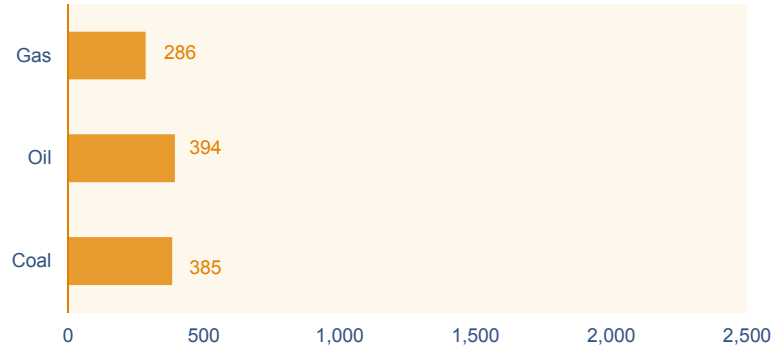
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	10	10	12	↓	
Energy security	7	11	14	↓	A
Energy equity	21	23	33	↓	B
Environmental sustainability	46	38	38	→	B
Contextual performance	78	78	83	↓	
Political strength	96	88	80	↑	
Societal strength	69	67	67	→	
Economic strength	72	77	100	↓	
Overall rank and balance score	**21**	**19**	**26**	↓	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.6	GDP per capita (PPP, USD); GDP Group[1]	17,660 (II)
TPEP / TPEC (net energy importer)	1.02	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.29	CO_2 emissions (tCO_2) per capita	4.46
Energy affordability (USD per kWh)	0.02	Population with access to electricity (%)	88.2

INDEX COMMENTARY

Argentina drops seven places in the Index, due to deteriorating performance on the energy security and energy equity dimensions, with the latter being driven by increasing household expenditures on electricity. Overall the country continues to balance the three dimensions of the energy trilemma well. Although energy security indicators remain relatively stable this year, the declining production of hydrocarbons increases the country's dependence on fuel imports and will likely cause more dramatic declines in energy security in the near future. Argentina's impact on the environment remains largely unchanged. Contextually, Argentina continues to struggle across the board with indicators of political, social and economic strength.

TRENDS AND OUTLOOK

- Argentina, although positioned relatively high in the Index, still faces major challenges and is expected to further drop in the rankings.
- With the current energy policy of low prices for producers and high subsidies to consumers continues, there is little chance to revert the decline production. Oil production declined by 30% since 1998, while natural gas production declined by 8% since 2006. As a consequence, Argentina, previously a net energy exporter in 2006 with a surplus of US$6 billion, turned to be a net energy importer in 2011 with a deficit of US$3 billion.
- The lack of investment in all energy sectors has become a major challenge, further intensified by the nationalisation of YPF (expropriation of Repsol shares in Argentina's biggest oil company), where the new management is struggling to attract new investors which are necessary to exploit the large reserves of unconventional oil and natural gas in Argentina.
- Policymakers urgently need to focus on restoring the energy markets and attracting a great deal of investment by implementing clear and stable rules and regulations.

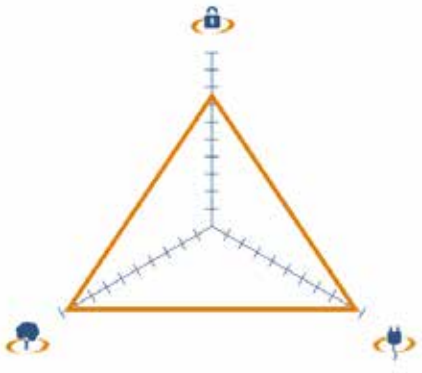
[1] As noted by the Argentine Member Committee the GDP per capita as stated may be inflated.

BALANCE SCORE
AAB

AUSTRIA

INDEX RANK
4

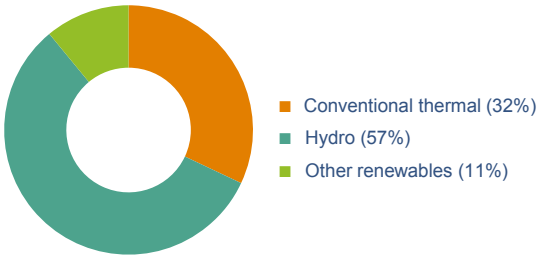
ENERGY SUSTAINABILITY BALANCE



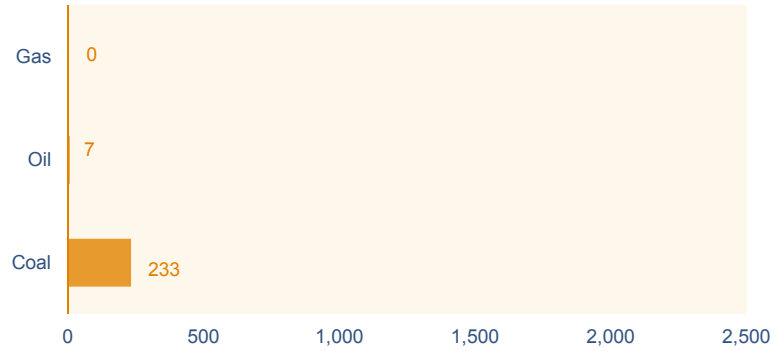
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	5	3	5	↓	
Energy security	31	30	33	↓	**B**
Energy equity	11	7	7	→	**A**
Environmental sustainability	7	7	7	→	**A**
Contextual performance	11	12	12	→	
Political strength	11	9	12	↓	
Societal strength	13	16	16	→	
Economic strength	26	28	27	↑	
Overall rank and balance score	**5**	**4**	**4**	→	**AAB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	29.4	GDP per capita (PPP, USD); GDP Group	41,556 (I)
TPEP / TPEC (net energy importer)	0.36	Energy intensity (koe per USD)	0.11
Emission intensity (kCO_2 per USD)	0.21	CO_2 emissions (tCO_2) per capita	7.48
Energy affordability (USD per kWh)	0.25	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Austria continues to balance the three dimensions of the trilemma well and its overall performance on both the energy and contextual dimensions changes little. As a result, Austria maintains its 4th place in the overall Index ranking. Energy security remains the country's weakest dimension with shrinking oil stocks and an energy consumption growth rate that is outpacing its economic growth. For the most part, energy equity and environmental sustainability indicators remain stable and best-in-class, although CO_2 emissions from electricity generation are back up after a 20% drop in 2012. Performance on contextual indicators is very good with no notable changes.

TRENDS AND OUTLOOK

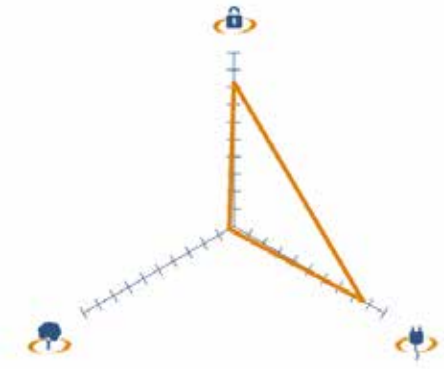
- The Energy Sustainability Index reflects Austria's situation very well. Energy security, however, does not yet reflect the countries achieved accomplishments. For example, Austria's increasing energy self-sufficiency, which is also one of the country's main long goals; or the progress since 1980 in the renewable energy sector, where Austria has more than doubled the production of renewable energy.
- Policy developments in Austria and targets for 2020 are compatible and in line with EU policy, including: an increase of the share of energy consumption produced from renewable resources to 34% by 2020; reducing greenhouse gas emissions by 16% from 2005 levels for sectors not included in EU-ETS and 21% from 2005 levels for sectors included in EU-ETS; and a 20% improvement in energy efficiency. In addition, Austria set the goal of achieving 100% energy self-sufficiency with renewables by 2050. Lastly, Austria's Sustainability Strategy lists 20 goals to: increase quality of life overall; strengthen economic growth; support sustainable goods and services; and optimise the transport system.
- Key issues policymakers need to focus on are: 1) reduce dependence on energy imports; 2) increase efforts around energy efficiency and energy savings; 3) decrease energy intensity; and 4) increase the use of renewable energy.

INDEX RANK
38

BAHRAIN

BALANCE SCORE
AAD

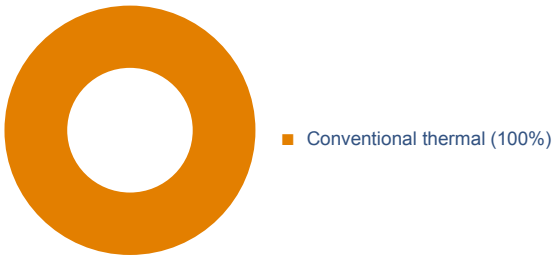
ENERGY SUSTAINABILITY BALANCE



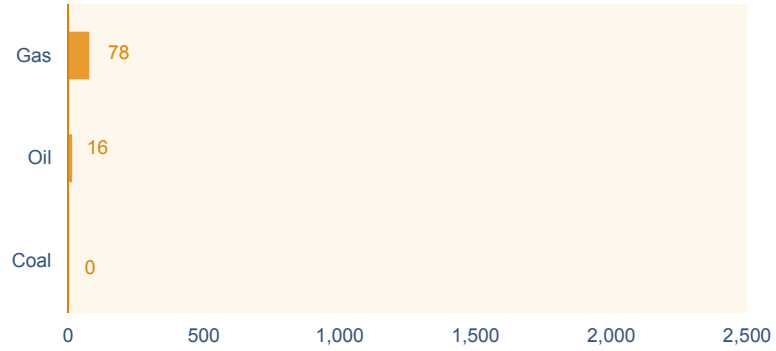
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	64	59	52	↑	
Energy security	45	40	23	↑	**A**
Energy equity	29	19	19	→	**A**
Environmental sustainability	125	126	125	↑	**D**
Contextual performance	31	35	31	↑	
Political strength	51	51	54	↓	
Societal strength	42	41	41	→	
Economic strength	3	14	8	↑	
Overall rank and balance score	**53**	**48**	**38**	↑	**AAD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	50.7	GDP per capita (PPP, USD); GDP Group	27,735 (II)
TPEP / TPEC (net energy importer)	0.98	Energy intensity (koe per USD)	0.37
Emission intensity (kCO_2 per USD)	0.86	CO_2 emissions (tCO_2) per capita	n.a.
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1

INDEX COMMENTARY

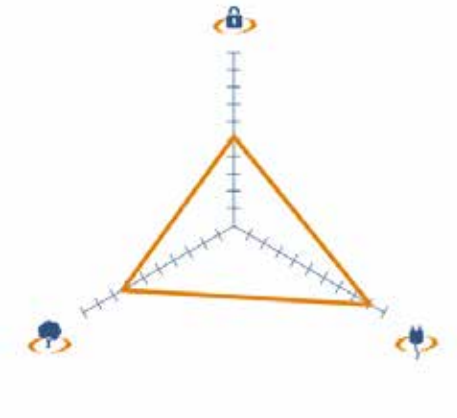
Bahrain, a new member country of the World Energy Council, enters the Index at rank 38, which represents a retroactively calculated improvement from last year. The small island country struggles with balancing the energy trilemma, as its extremely high levels of energy security and equity are offset by its underperformance in mitigating its environmental impact. Although Bahrain's electricity generation portfolio is not diversified, the country performs well on the energy security dimension due to a falling energy consumption growth rate and a reduction in electricity transmission and distribution losses. Bahrain's high ranking on the energy equity dimension is driven by low gasoline prices and the availability of affordable and reliable electricity. However, the country's impact on the environment remains large, with comparatively poor air and water quality, and very high energy and emission intensity. Due to the continued reliance on conventional thermal power for electricity generation, CO_2 emissions per kWh generated remain high. Efforts to diversify the electricity fuel mix may lead to a lower environmental impact in the near future as Bahrain begins to explore solar and wind technologies. Contextually, Bahrain's indicators of political and societal strength are above average and stable, while, economically, macroeconomic stability is particularly high and the cost of living quite low.

BALANCE SCORE
ABB

BELGIUM

INDEX RANK
17

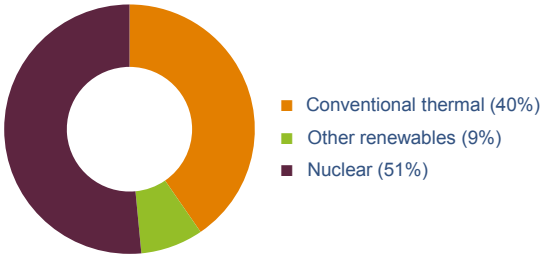
ENERGY SUSTAINABILITY BALANCE



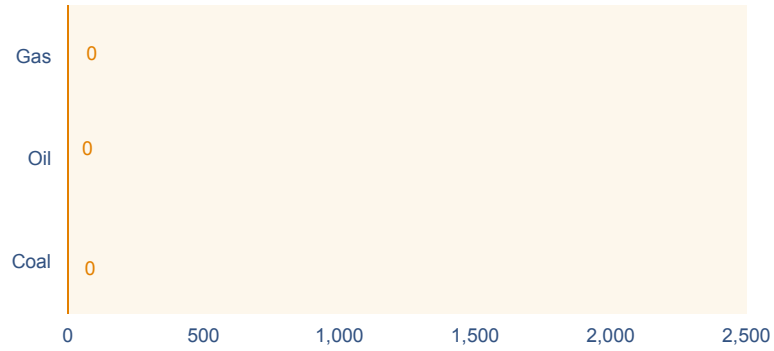
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	19	24	20	↑	
Energy security	70	69	63	↑	**B**
Energy equity	9	15	13	↑	**A**
Environmental sustainability	34	41	34	↑	**B**
Contextual performance	20	20	17	↑	
Political strength	19	18	16	↑	
Societal strength	10	14	14	→	
Economic strength	46	43	45	↓	
Overall rank and balance score	**18**	**20**	**17**	↑	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	22.3	GDP per capita (PPP, USD); GDP Group	37,611 (I)
TPEP / TPEC (net energy importer)	0.20	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.26	CO_2 emissions (tCO_2) per capita	8.71
Energy affordability (USD per kWh)	0.23	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Belgium improves its performance on all three dimensions this year and moves up three places in the Index. Rankings improve more for Belgium's relatively weaker energy security and environmental sustainability dimensions than they do for its stronger energy equity one, meaning that the country's energy trilemma is better balanced this year than last. Energy security continues to be the weakest of the three dimensions because the country has comparatively low strategic oil reserves and a high reliance on energy imports. Energy remains affordable to the country's population and energy equity is among the highest in the world. Belgium's energy efficiency efforts keep paying off, as energy and emission intensity continue to fall. Belgium's contextual performance stays strong overall, although the country's economic strength deteriorates slightly due to weakening macroeconomic conditions.

INDEX RANK

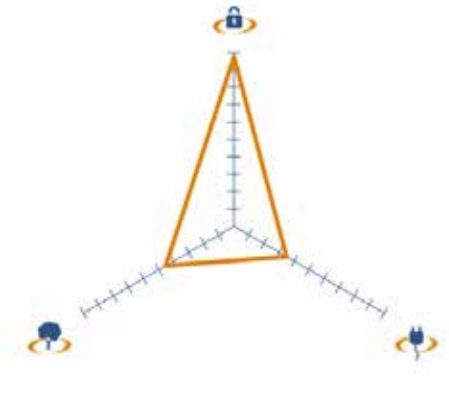
55

BOLIVIA

BALANCE SCORE

ACC

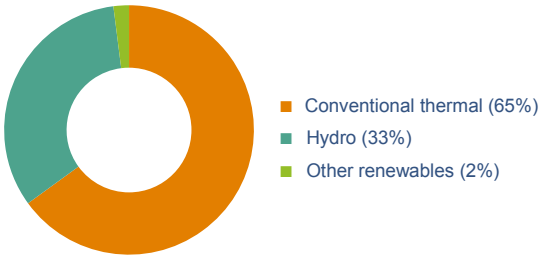
ENERGY SUSTAINABILITY BALANCE



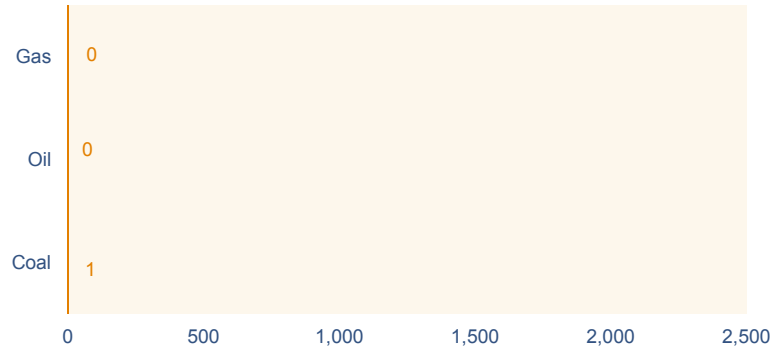
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	44	53	44	↑	
Energy security	21	21	4	↑	**A**
Energy equity	82	80	84	↓	**C**
Environmental sustainability	49	65	71	↓	**C**
Contextual performance	94	83	86	↓	
Political strength	114	103	100	↑	
Societal strength	110	99	99	→	
Economic strength	54	44	53	↓	
Overall rank and balance score	**58**	**60**	**55**	↑	**ACC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	38.3	GDP per capita (PPP, USD); GDP Group	4,851 (IV)
TPEP / TPEC (net energy exporter)	2.75	Energy intensity (koe per USD)	0.17
Emission intensity (kCO_2 per USD)	0.33	CO_2 emissions (tCO_2) per capita	1.49
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	80.2

INDEX COMMENTARY

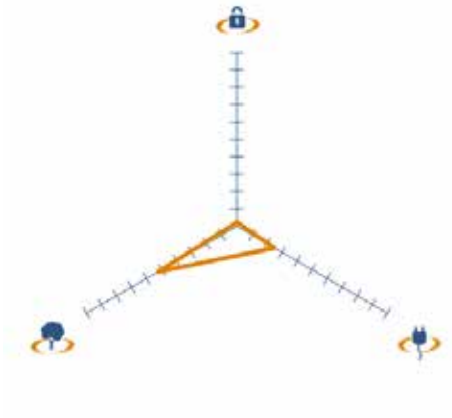
Bolivia moves up five places in the Index and its balance of the three dimensions of the energy trilemma grow even more lopsided this year as its already-strong energy security indicators improve considerably and performances on the comparatively weaker energy equity and environmental sustainability dimensions slide. Energy consumption growth continues to be well-managed, reliance on energy exports remains moderate, and the country's electricity fuel mix of thermal and hydropower is further diversified. However, increased attention still needs to be paid to the reliability of the electricity transmission and distribution network. Twenty percent of the Bolivian population is without access to electricity, and for those with access, electricity remains expensive. The country's environmental sustainability is lower this year, with no reductions in energy or emission intensity and a further increase in CO_2 emissions from electricity generation. Bolivia's contextual performance remains relatively weak overall. Performance on indicators of political and societal strength remains stable, while the comparatively stronger indicators of economic strength worsen slightly.

BALANCE SCORE
BDD

BOTSWANA

INDEX RANK
99

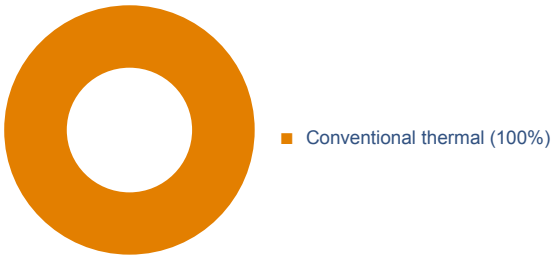
ENERGY SUSTAINABILITY BALANCE



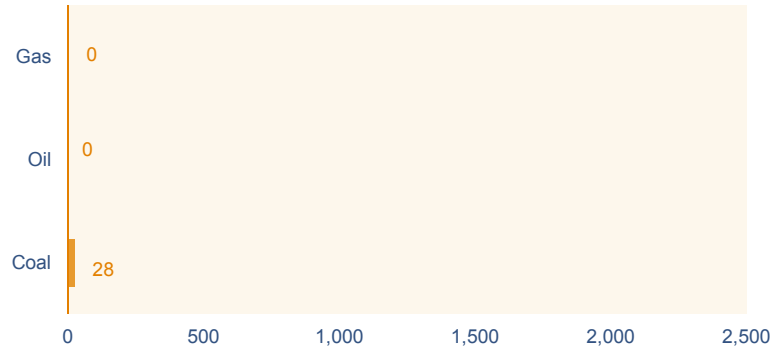
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	111	109	109	→	
Energy security	123	121	126	↓	**D**
Energy equity	94	96	97	↓	**D**
Environmental sustainability	69	69	62	↑	**B**
Contextual performance	57	59	63	↓	
Political strength	38	40	38	↑	
Societal strength	65	56	56	→	
Economic strength	67	83	82	↑	
Overall rank and balance score	**98**	**98**	**99**	↓	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	45.0	GDP per capita (PPP, USD); GDP Group	16,105 (II)
TPEP / TPEC (net energy importer)	0.34	Energy intensity (koe per USD)	0.08
Emission intensity (kCO_2 per USD)	0.16	CO_2 emissions (tCO_2) per capita	2.10
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)[1]	43.1

INDEX COMMENTARY

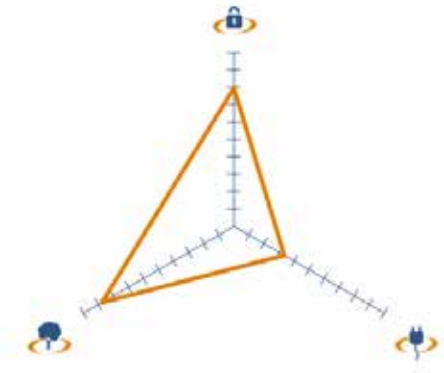
Botswana drops just one place in this year's Index with little overall change in either energy or contextual performance. Botswana continues to struggle with balancing the three facets of the energy trilemma, with each dimension's ranking being quite different from the other two. Energy security is particularly weak as the country relies exclusively on conventional thermal power for electricity generation and electricity transmission and distribution losses are high. With barely any fossil fuel resources of its own, and therefore a great reliance on fuel imports, meeting the continuously increasing demand for energy poses a huge challenge for Botswana. Energy equity performance deteriorates slightly with increased gasoline prices and household electricity expenditure. Only 43% of the population has access to modern electricity services, which is a big hurdle that the country must overcome. CO_2 emissions from electricity generation increase by more than 25%, a change that comes with a decrease in air and water quality. Botswana's contextual indicators remain mostly stable, with the most notable improvements coming in health and education.

INDEX RANK
34

BRAZIL

BALANCE SCORE
ABC

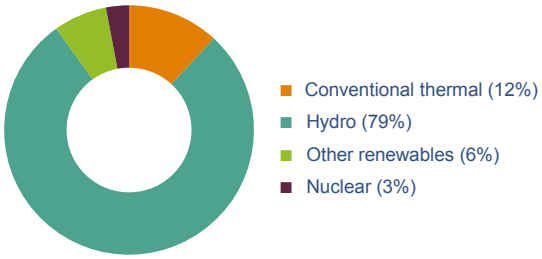
ENERGY SUSTAINABILITY BALANCE



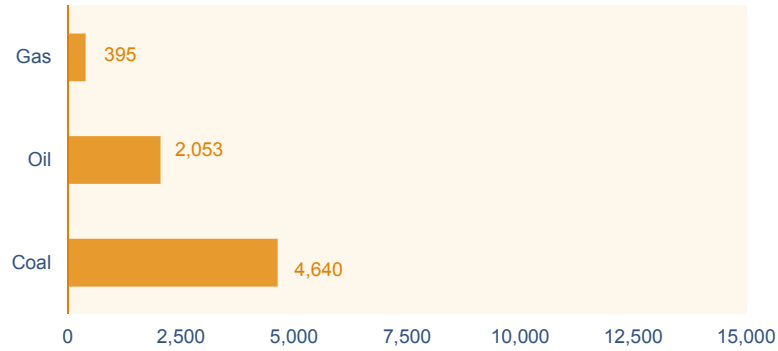
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	35	39	30	↑	
Energy security	36	43	27	↑	B
Energy equity	91	89	86	↑	C
Environmental sustainability	13	12	17	↓	A
Contextual performance	64	65	58	↑	
Political strength	60	62	63	↓	
Societal strength	64	66	66	→	
Economic strength	64	64	37	↑	
Overall rank and balance score	**43**	**44**	**34**	↑	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.4	GDP per capita (PPP, USD); GDP Group	11,666 (III)
TPEP / TPEC (net energy importer)	0.84	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.20	CO_2 emissions (tCO_2) per capita	2.02
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	98.9

INDEX COMMENTARY

Brazil improves by 10 places in this year's Index, a gain mainly driven by the country's stronger performances on energy security and economic strength. However, Brazil's balancing of the energy trilemma remains lopsided, with high rankings in energy security and environmental sustainability, but low levels of energy equity. The past year's continued diversification of the electricity fuel mix and larger oil reserves lead to a better performance in energy security. However, transmission and distribution losses of electricity still remain fairly high. Although the relative affordability of both gasoline and electricity improves, Brazil's energy equity ranking still lags behind the country's performance on the other energy dimensions. Brazil's environmental impact is relatively low and earns a very good ranking because its electricity is mostly generated by hydropower. Contextual performance in terms of societal and political strength remains mostly unchanged, but a substantial improvement in macroeconomic stability leads to a better ranking of economic strength.

TRENDS AND OUTLOOK

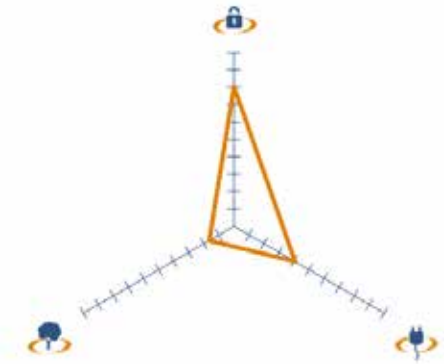
- The country's recent energy policy developments were directed to: 1) the development of large offshore oil and gas reserves found under a layer of salt in 2007 (pre-salt oil); 2) the development of renewable energy sources including wind and solar power, and biomass derived energies, including ethanol, bagasse, biodiesel; and 3) implementation of energy prices that encourage energy efficiency and saving. The transportation sector is expected to contribute to energy efficiency measures, including electrical vehicles, roads improvement, as well as increased railroads and waterways transportation. These developments are expected to have a strong impact on, and lead to improvements in, all three dimensions of the energy policy trilemma.
- Policymakers should focus on: 1) the possibilities presented by biomass, including sugar cane, planted wood and other crops; and 2) the opportunities arising from the successful exploitation of the pre-salt oil and gas deposits. Both will impact positively on the country's energy security and change Brazil's role in the global energy market, but the effects on the environment need to be considered. Lastly, the development, financing and implementation of energy efficiency programmes, involving thousands of processes and appliances and millions of consumers on which the success of such measures depend, should advance more quickly.

BALANCE SCORE
ACD

BULGARIA

INDEX RANK
70

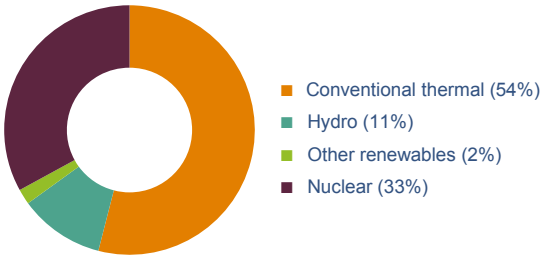
ENERGY SUSTAINABILITY BALANCE



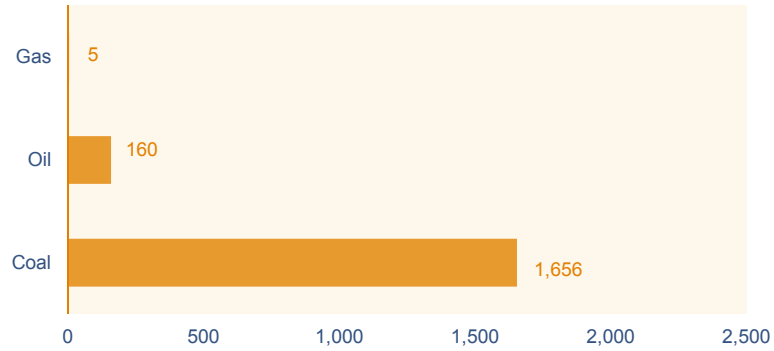
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	74	74	71	↑	
Energy security	33	28	26	↑	**A**
Energy equity	75	74	77	↓	**C**
Environmental sustainability	104	107	108	↓	**D**
Contextual performance	54	54	54	→	
Political strength	47	48	49	↓	
Societal strength	57	52	52	→	
Economic strength	61	67	61	↑	
Overall rank and balance score	**69**	**66**	**70**	↓	**ACD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	31.2	GDP per capita (PPP, USD); GDP Group	13,812 (III)
TPEP / TPEC (net energy importer)	0.55	Energy intensity (koe per USD)	0.22
Emission intensity (kCO_2 per USD)	0.58	CO_2 emissions (tCO_2) per capita	6.83
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Bulgaria's overall ranking drops four places in this year's Index, although it sees minimal change across both energy and contextual indicators. The competing dimensions of the energy trilemma continue to be unbalanced, as Bulgaria has a high level of energy security, a mediocre amount of energy equity, and does a poor job in mitigating its environmental impact. Energy security, the strongest of all dimensions, improves as the country further increases its reserve oil stocks. The electricity fuel mix remains well-balanced, using a diverse mix of conventional thermal, nuclear, and renewable sources. Energy equity performance remains lackluster, with comparatively high levels of household spending on electricity services. Environmental sustainability remains Bulgaria's weakest dimension, with high energy and emission intensity, comparatively poor air and water quality, and high CO_2 emissions from electricity generation. Overall contextual performance is stable, as improvements in macroeconomic stability and the education system are offset by slight declines in most other contextual indicators.

TRENDS AND OUTLOOK

- In July 2012 the Bulgarian Parliament amended the existing Energy Act to: guarantee equal access to electricity and gas grids; strengthen the power of national energy regulators; improve market transparency; promote trans-border trade; and enhance end-user rights. The new legal framework is expected to improve the sustainable use of renewable energy sources, market liberalisation and energy equity.
- Key issues policymakers need to focus on are: 1) improve energy security by building a reliable energy infrastructure, further diversifying sources and routes of energy supply, and optimising the use of indigenous energy resources; 2) increase energy efficiency; 3) promote clean development mechanisms; 4) social protection; and 5) pursue the ambitious targets of giving 30% of households access to natural gas by 2020 as set out in the national energy strategy.

INDEX RANK

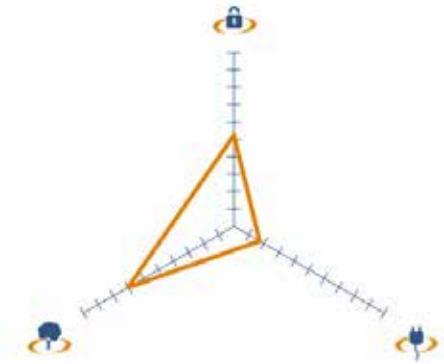
82

CAMEROON

BALANCE SCORE

BBD

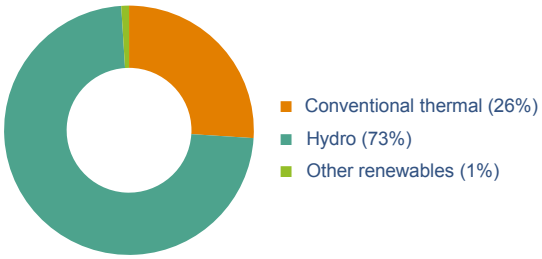
ENERGY SUSTAINABILITY BALANCE



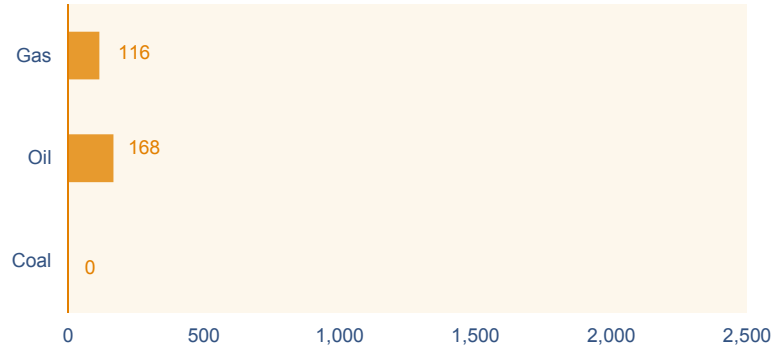
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	59	58	70	↓	
Energy security	34	32	62	↓	B
Energy equity	107	108	107	↑	D
Environmental sustainability	37	42	39	↑	B
Contextual performance	105	113	104	↑	
Political strength	107	110	111	↓	
Societal strength	119	115	115	→	
Economic strength	66	84	74	↑	
Overall rank and balance score	**72**	**75**	**82**	↓	**BBD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.9	GDP per capita (PPP, USD); GDP Group	2,275 (IV)
TPEP / TPEC (net energy exporter)	1.52	Energy intensity (koe per USD)	0.17
Emission intensity (kCO_2 per USD)	0.11	CO_2 emissions (tCO_2) per capita	0.24
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	49.0

INDEX COMMENTARY

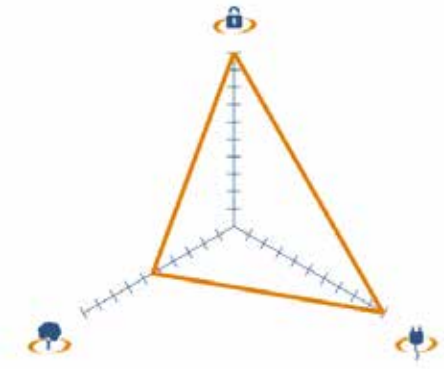
Cameroon falls seven places in this year's Index to rank 82nd overall, a drop mainly driven by a relative decline in energy security as Cameroon is outperformed by other countries on this dimension. As more people gain access to electricity, energy consumption continues to grow at a rate that outpaces economic growth. Transmission and distribution losses remain high, indicating that few improvements have been made to the quality and efficiency of the country's electricity infrastructure. Energy equity, Cameroon's weakest dimension, does not improve as access to electricity remains at a low 49% of the population. However, household expenditure on electricity services for those who do have access have decreased. Cameroon's high share of hydropower in its electricity fuel mix enables the country to maintain a comparatively small environmental footprint, despite an increase in CO_2 emissions from electricity generation. Declines in energy and emission intensity also pay off as the country moves its environmental sustainability ranking up three places. Contextually, Cameroon's performance is stable, albeit low overall. Economic strength, Cameroon's strongest contextual dimension, sees improvements both in macroeconomic stability and in the availability of domestic credit to the private sector.

BALANCE SCORE
AAB

CANADA

INDEX RANK
6

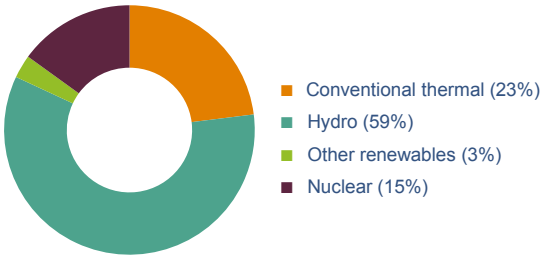
ENERGY SUSTAINABILITY BALANCE



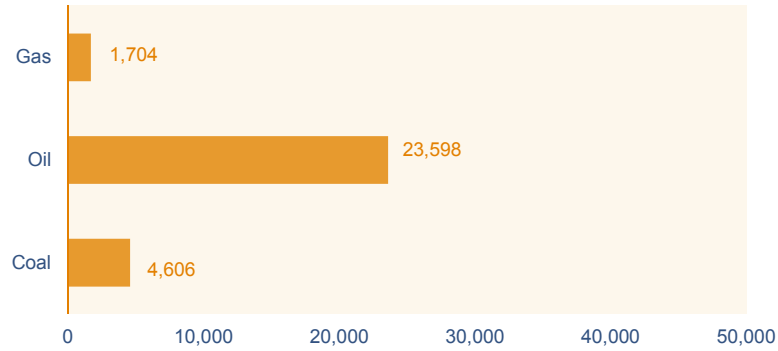
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	8	9	8	↑	
Energy security	2	2	1	↑	**A**
Energy equity	2	2	2	→	**A**
Environmental sustainability	61	66	60	↑	**B**
Contextual performance	12	17	14	↑	
Political strength	9	11	10	↑	
Societal strength	7	10	10	→	
Economic strength	38	48	46	↑	
Overall rank and balance score	**8**	**10**	**6**	↑	**AAB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	28.6	GDP per capita (PPP, USD); GDP Group	41,690 (I)
TPEP / TPEC (net energy exporter)	1.41	Energy intensity (koe per USD)	0.21
Emission intensity (kCO_2 per USD)	0.43	CO_2 emissions (tCO_2) per capita	15.50
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Canada improves its position four places in this year's Index. Although one of the top Index performers overall, Canada has not yet managed to solve the energy trilemma, because its weak environmental sustainability ranking undermines its otherwise excellent performance. Canada, one of the largest energy exporters in the world, ranks well on the energy security dimension with a favorable energy export to import ratio. It also has significantly diversified its own electricity generation portfolio away from fossil fuels. Energy equity is also high with plentiful, relatively affordable energy. Environmental sustainability remains Canada's weakest energy dimension with continuing high levels of energy and emission intensity due to long distances and a higher reliance on energy-intensive resource development industries than most industrialised nations. Emissions per kWh generated stay at relatively low levels because of the hydro-heavy electricity fuel mix. Contextual performance is stable and strong.

TRENDS AND OUTLOOK

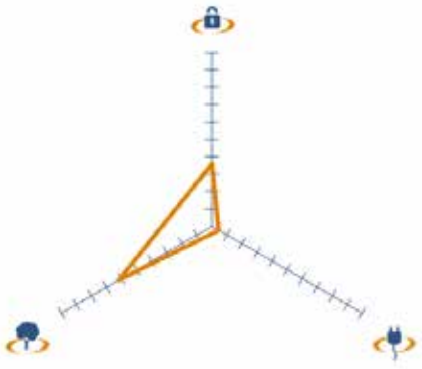
- Canada's high and improving position in the Index reflects the country's extensive and diverse energy resource base and public and private commitment to develop those resources. The two main challenges Canada faces are: 1) balancing resource development with environmental protection; and 2) developing diverse markets for Canada's energy resources.
- The most recent energy policy developments include: 1) strong focus on developing markets for oil and gas beyond North America; 2) expediting energy infrastructure approvals processes; and 3) more stringent environmental standards for fossil-fuelled power generation, both federally and provincially. These three developments should support continuing improvement in Canada's energy balance.
- The three key issues policymakers need to focus on are: 1) managing the environmental/climate impacts of energy resource development; 2) market diversification; and 3) ensuring an appropriate sharing of the benefits from resource development, most notably with Canada's aboriginal population in whose traditional territory most resource development and delivery projects are being developed.

INDEX RANK
104

CHAD

BALANCE SCORE
BCD

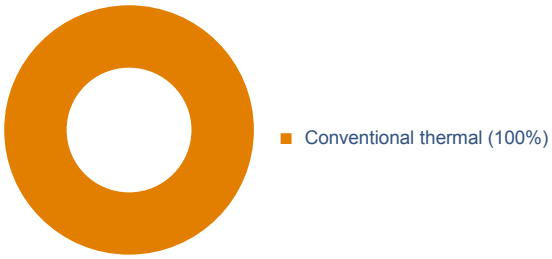
ENERGY SUSTAINABILITY BALANCE



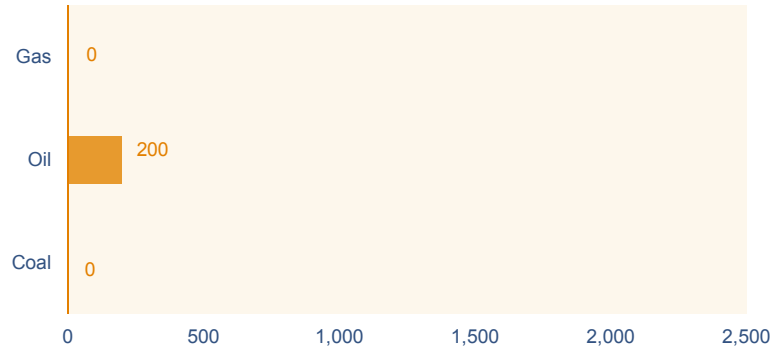
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	121	120	96	↑	
Energy security	126	124	83	↑	**C**
Energy equity	128	126	123	↑	**D**
Environmental sustainability	51	52	50	↑	**B**
Contextual performance	126	124	113	↑	
Political strength	128	128	124	↑	
Societal strength	128	128	128	→	
Economic strength	102	103	58	↑	
Overall rank and balance score	**126**	**124**	**104**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	7.0	GDP per capita (PPP, USD); GDP Group	1,844 (IV)
TPEP / TPEC (net energy exporter)	78.95	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.02	CO_2 emissions (tCO_2) per capita	0.03
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	3.5

INDEX COMMENTARY

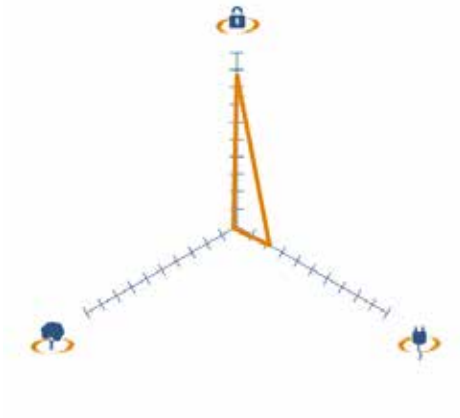
In 2013, Chad improves its overall ranking significantly, but remains in the lowest quartile of the Index. The three sides of Chad's energy trilemma are rather unbalanced, with a small degree of energy security being balanced on both sides by extremely low levels of energy equity and an above-average performance on environmental sustainability. Chad has a very strong ratio of total energy production to total energy consumption because of the very low energy consumption related to the low energy access rate. However, performance on other indicators of energy security, for example, diversity of electricity generation or transmission and distribution losses is weak. It is worth noting that Chad's substantial 'back-casted' improvement on this dimension, which in turn drives most of Chad's rise in this year's Index ranking, is because there is no oil production data for Chad in the sources the Index uses for years before 2011. As a result, previous years' rankings undervalue Chad's energy production. Energy equity is by far the country's weakest energy dimension with unaffordable high energy prices and 96.5% of the population without access to electricity. The country's environmental sustainability remains moderate, with unchanged energy and emission intensity and rather poor air and water quality. Contextually, political and societal strength are very poor, although small improvements have been made. Economic strength increases due to slightly better macroeconomic stability.

BALANCE SCORE
ADD

CHINA

INDEX RANK
78

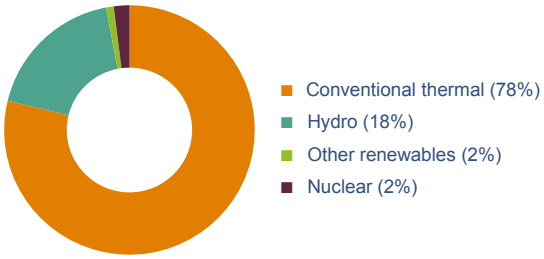
ENERGY SUSTAINABILITY BALANCE



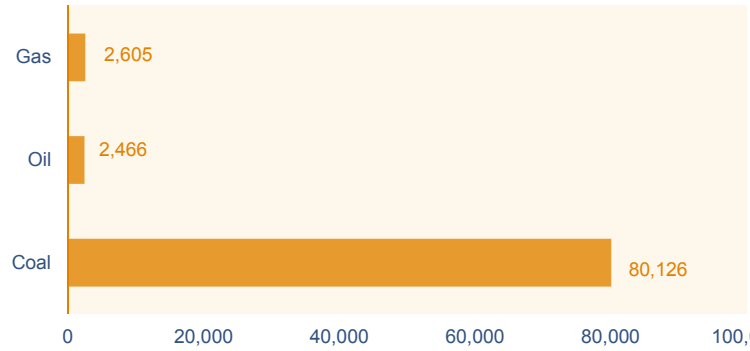
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	87	85	90	↓	
Energy security	10	12	18	↓	**A**
Energy equity	102	100	101	↓	**D**
Environmental sustainability	127	125	126	↓	**D**
Contextual performance	43	44	44	→	
Political strength	77	79	76	↑	
Societal strength	60	61	61	→	
Economic strength	7	9	7	↑	
Overall rank and balance score	**74**	**76**	**78**	↓	**ADD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	45.3	GDP per capita (PPP, USD); GDP Group	8,391 (III)
TPEP / TPEC (net energy importer)	0.90	Energy intensity (koe per USD)	0.26
Emission intensity (kCO_2 per USD)	0.73	CO_2 emissions (tCO_2) per capita	5.42
Energy affordability (USD per kWh)	0.05	Population with access to electricity (%)	99.7

INDEX COMMENTARY

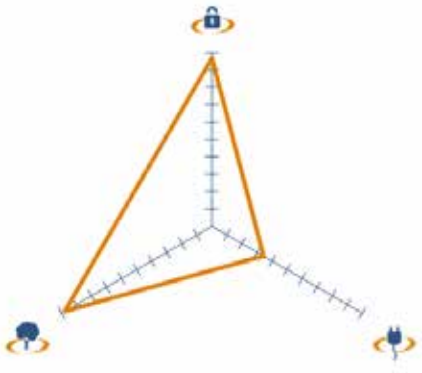
China drops two places in the Index, mainly because of a decrease in energy security, which saw all underlying indicators except the diversity of electricity production suffer a slight decline. However, energy security remains by far the strongest of this 'Highly-industrialised' country's three dimensions as it struggles to replicate its success in this dimension with equally strong performances in the other two dimensions of the energy trilemma. Energy equity performance remains low, and gasoline prices and household expenditure on electricity increase slightly. There are efforts to decrease energy and emission intensity as well as CO_2 emissions from electricity generation are made. However, China fails to improve its ranking on the environmental sustainability dimension, as peer countries improve more. Contextual performance remains mostly stable, with mediocre results for indicators of political and societal strength, and a continued strong economic performance.

INDEX RANK
24

COLOMBIA

BALANCE SCORE
AAC

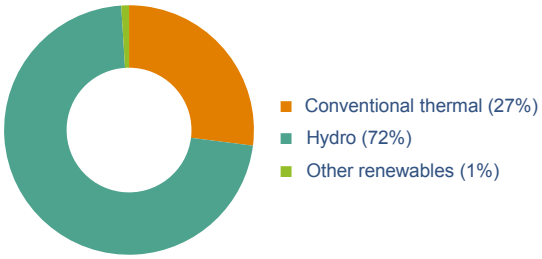
ENERGY SUSTAINABILITY BALANCE



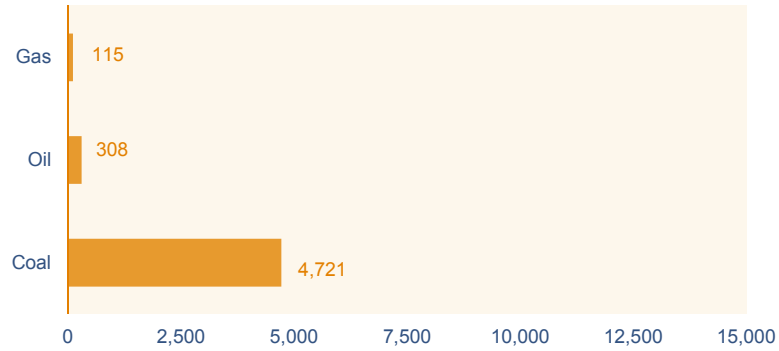
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	15	15	13	↑	
Energy security	12	6	5	↑	**A**
Energy equity	86	86	85	↑	**C**
Environmental sustainability	4	4	4	→	**A**
Contextual performance	76	68	67	↑	
Political strength	85	77	72	↑	
Societal strength	70	73	73	→	
Economic strength	68	59	56	↑	
Overall rank and balance score	**29**	**26**	**24**	↑	**AAC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	38.1	GDP per capita (PPP, USD); GDP Group	10,315 (III)
TPEP / TPEC (net energy exporter)	3.30	Energy intensity (koe per USD)	0.08
Emission intensity (kCO_2 per USD)	0.14	CO_2 emissions (tCO_2) per capita	1.22
Energy affordability (USD per kWh)	0.11	Population with access to electricity (%)	96.8

INDEX COMMENTARY

Colombia continues to strengthen its overall Index position and moves up another two places. A member of the 'Hydro-powered' grouping of countries, Colombia exhibits extremely strong performance on the energy security and environmental sustainability dimensions of the energy trilemma, but, like many of its peers, is still struggling with a lagging energy equity ranking. Continued strong performance on the energy security dimension is largely driven by the energy exporter's favourable total energy production to consumption ratio and its large strategic oil reserves. Energy equity, Colombia's weakest dimension, sees lower (but still high) gasoline prices and a slightly increased household expenditure on electricity. Environmental sustainability performance continues to be among the best in the world. Contextually, indicators of political and economic strength see some improvement, while societal strength remains largely unchanged.

TRENDS AND OUTLOOK

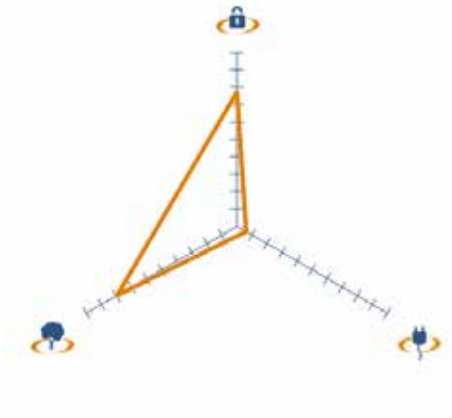
- Colombia, although relatively high positioned in the Index, still faces major challenges such as: expanding coverage of energy services, and finding solutions based on non-conventional energies; improving quality and reliability of energy services; diversification of the energy mix; and sustaining the positive economic development without increasing CO_2 emissions.
- Main areas policymakers are focusing on are: 1) ensuring the continued development of the mining and energy sector as one of the main drivers of economic growth and social development; 2) promoting of energy efficiency on energy demand and supply side, and consolidating a culture for sustainable use of natural resources; 3) strengthening the participation of different stakeholders in the development phases of the industry; 4) increasing exploration of natural gas; 5) developing and implementing efficient mass transportation systems; 6) ensuring the expansion of electricity generation capacity; and 7) strengthening guarantees and investment opportunities in the country, and boosting investment in science and technology in the energy sector.
- Furthermore, Colombia was an active participant at the Rio+20 summit, and is committed to continue this effort in: setting the objectives of sustainable development; seeking food security; protecting water sources; promoting the use of renewable energy; sustainable city development; protecting the oceans; and increasing employment to reduce poverty.

BALANCE SCORE
BBD

CONGO (DEMOCRATIC REPUBLIC)

INDEX RANK
80

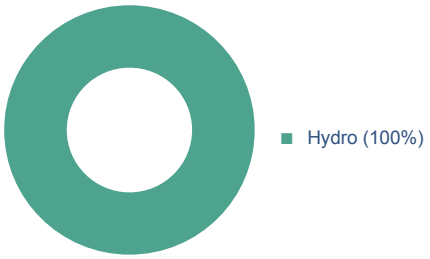
ENERGY SUSTAINABILITY BALANCE



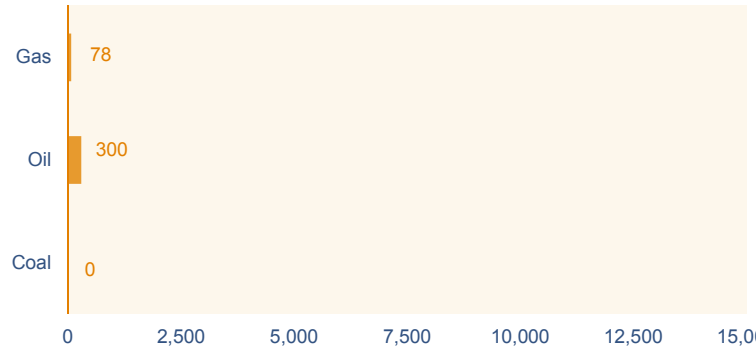
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	70	63	56	↑	
Energy security	51	47	30	↑	**B**
Energy equity	125	124	121	↑	**D**
Environmental sustainability	27	24	27	↓	**B**
Contextual performance	128	129	129	→	
Political strength	129	129	129	→	
Societal strength	129	129	129	→	
Economic strength	114	113	115	↓	
Overall rank and balance score	**93**	**88**	**80**	↑	**BBD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	349 (IV)
TPEP / TPEC (net energy exporter)	1.10	Energy intensity (koe per USD)	n.a.
Emission intensity (kCO_2 per USD)	0.14	CO_2 emissions (tCO_2) per capita	0.05
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	15.2

INDEX COMMENTARY

Congo (DR) improves its overall rank in this year's Index by eight places. Energy security and environmental sustainability performance continue to be quite good, but the country still struggles with providing affordable, high-quality energy to all its citizens. Energy equity performance is very poor as only about 15% of the population has access to electricity. Once the country develops economically and is able to provide a larger share of its population with access to modern energy services, it will face the challenge of meeting the growing demand while sustaining the current levels of energy security and environmental sustainability. Contextual performance remains very poor, especially on indicators of societal and political strength, with marginally better results on indicators of economic strength. No improvements were made on these contextual indicators during the past year.

INDEX RANK

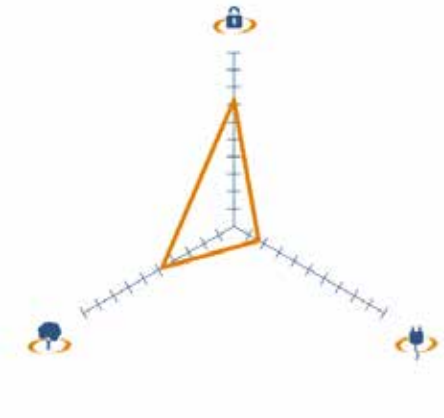
93

CÔTE D'IVOIRE

BALANCE SCORE

BCD

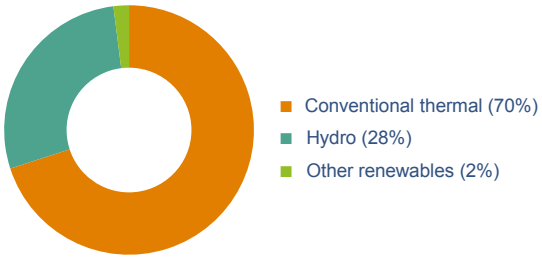
ENERGY SUSTAINABILITY BALANCE



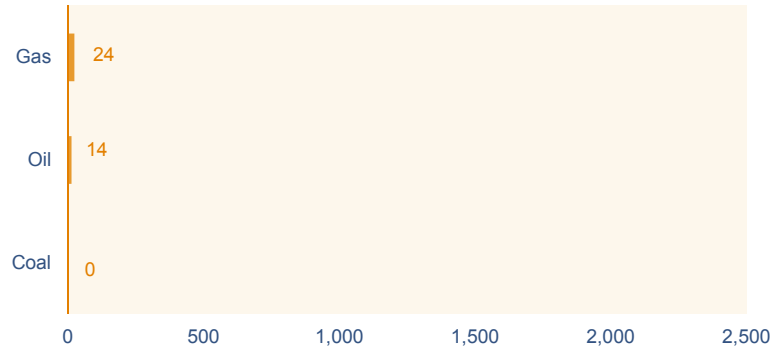
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	76	73	72	↑	
Energy security	43	36	36	→	B
Energy equity	108	111	108	↑	D
Environmental sustainability	68	61	68	↓	C
Contextual performance	122	122	128	↓	
Political strength	125	126	124	↑	
Societal strength	125	126	126	→	
Economic strength	104	106	116	↓	
Overall rank and balance score	**96**	**91**	**93**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	1,591 (IV)
TPEP / TPEC (net energy exporter)	1.33	Energy intensity (koe per USD)	0.30
Emission intensity (kCO_2 per USD)	0.18	CO_2 emissions (tCO_2) per capita	0.29
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	58.9

INDEX COMMENTARY

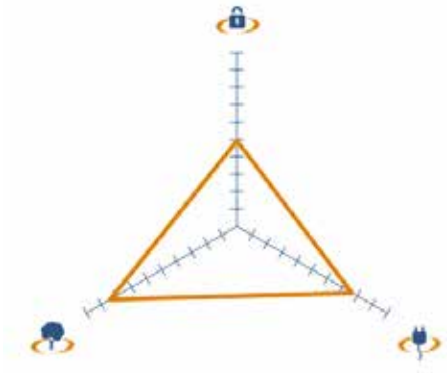
Côte d'Ivoire drops two places in the 2013 Index to rank 93 overall. The country struggles to balance the energy trilemma, with a fairly good performance on the energy security dimension offset by an average environmental sustainability result and low levels of energy equity. At the current level of economic and social development the country's energy security is strong enough, but improvements to the electricity infrastructure will soon be needed, as 24% of generated electricity is lost in transmission and distribution. Energy equity remains poor as over 40% of the population still does not have access to electricity, and energy services are not affordable. Once the country further develops economically and is able to provide an even larger share of its population with access to modern energy services it will be challenging for the country to meet the growing demand, sustain the current level of energy security and maintain the relatively low environmental impact. Contextual performance overall remains poor, with minimal improvements and notable declines seen in healthcare systems and macroeconomic stability.

BALANCE SCORE
ABC

CROATIA

INDEX RANK
30

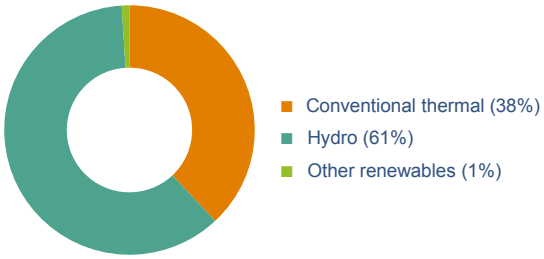
ENERGY SUSTAINABILITY BALANCE



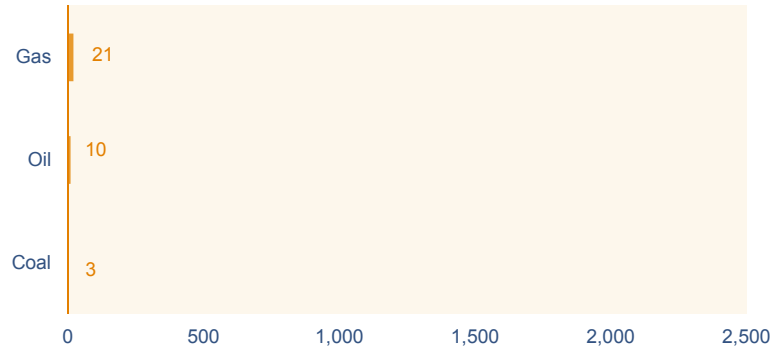
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	20	22	24	↓	
Energy security	53	59	66	↓	C
Energy equity	37	38	31	↑	B
Environmental sustainability	28	21	21	→	A
Contextual performance	58	61	61	→	
Political strength	44	43	45	↓	
Societal strength	48	48	48	→	
Economic strength	81	89	81	↑	
Overall rank and balance score	**28**	**30**	**30**	→	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	33.1	GDP per capita (PPP, USD); GDP Group	17,850 (II)
TPEP / TPEC (net energy importer)	0.48	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.27	CO_2 emissions (tCO_2) per capita	4.28
Energy affordability (USD per kWh)	0.10	Population with access to electricity (%)	100.0

INDEX COMMENTARY

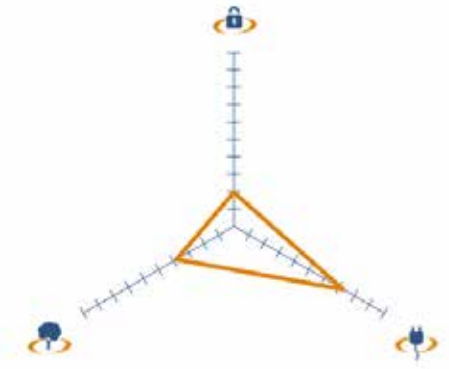
Croatia's overall Index ranking remains unchanged and it continues to balance the three sides of the energy trilemma relatively well, although energy security lags slightly behind. The country's energy security ranking declines, despite small improvements in further diversifying its electricity fuel mix, lowered transmission and distribution losses, and increased oil stocks. Croatia improves its ranking in the energy equity dimension because of lower household expenditure on electricity. The environmental impact of the country's economy continues to be well-managed, and CO_2 emissions from electricity generation decline. Contextual performance remains largely unchanged, with some deterioration among the political strength indicators. Economic strength remains Croatia's weakest contextual dimension, although an increased availability of domestic credit to the private sector has a positive impact on the country's economic stability.

INDEX RANK
63

CYPRUS

BALANCE SCORE
BCD

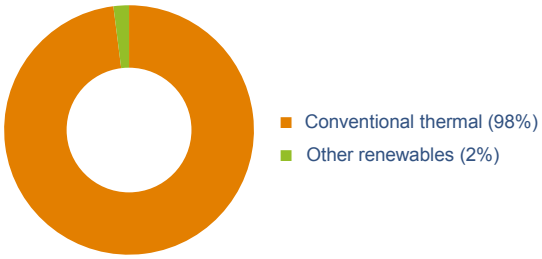
ENERGY SUSTAINABILITY BALANCE



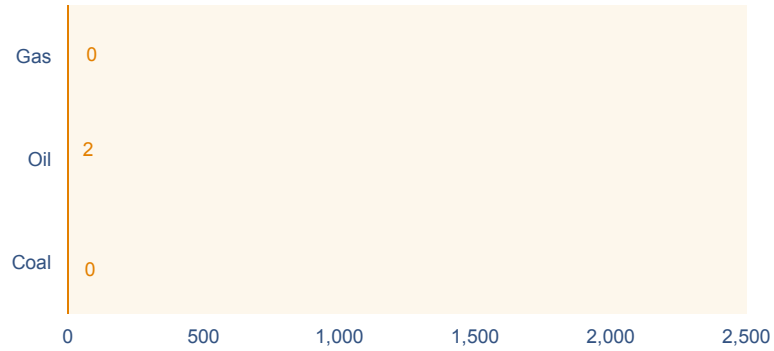
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	78	79	79	→	
Energy security	109	109	104	↑	D
Energy equity	30	27	36	↓	B
Environmental sustainability	88	84	80	↑	C
Contextual performance	28	22	34	↓	
Political strength	31	28	27	↑	
Societal strength	25	20	20	→	
Economic strength	34	32	60	↓	
Overall rank and balance score	**61**	**59**	**63**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	16.7	GDP per capita (PPP, USD); GDP Group	27,581 (II)
TPEP / TPEC (net energy importer)	0.01	Energy intensity (koe per USD)	0.11
Emission intensity (kCO_2 per USD)	0.33	CO_2 emissions (tCO_2) per capita	7.86
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

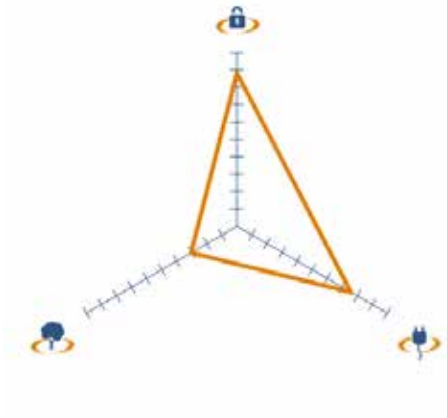
Cyprus drops four spots in this year's Index, mostly due to deteriorations in energy equity and economic strength. Cyprus continues to struggle with balancing the energy trilemma, as its continually-strong energy equity ranking is offset by weaker performances on the energy security and environmental sustainability dimensions. Energy security remains the weakest of the three energy dimensions because the country is highly reliant on fuel imports and struggles to diversify its electricity generation portfolio away from fossil fuels. Energy equity remains Cyprus's strongest energy dimension, but sees increased household expenditures on electricity. Reduction of energy and emission intensity, as well as cutting CO_2 emissions from electricity generation, leads to a better environmental sustainability performance. Indicators of contextual societal and political strength are good, and education improves notably this year. However, economic strength slides as macroeconomic stability decreases.

BALANCE SCORE
ABC

CZECH REPUBLIC

INDEX RANK
32

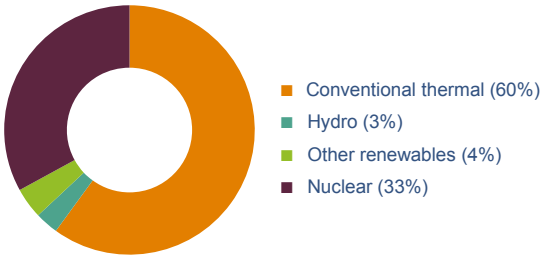
ENERGY SUSTAINABILITY BALANCE



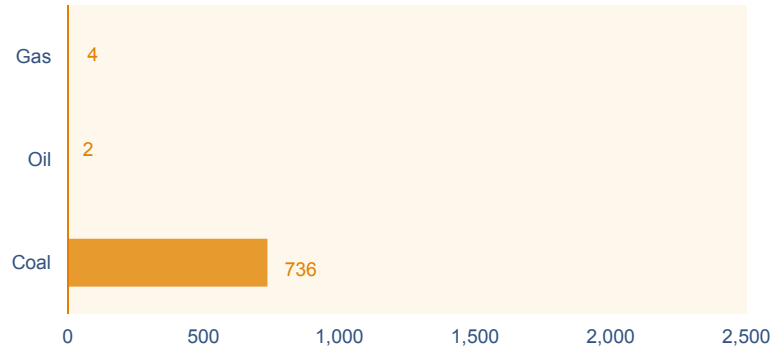
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	38	38	32	↑	
Energy security	18	16	16	→	**A**
Energy equity	32	37	32	↑	**B**
Environmental sustainability	91	90	90	→	**C**
Contextual performance	37	39	38	↑	
Political strength	21	21	18	↑	
Societal strength	32	40	40	→	
Economic strength	71	70	72	↓	
Overall rank and balance score	**32**	**35**	**32**	↑	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	39.6	GDP per capita (PPP, USD); GDP Group	27,112 (II)
TPEP / TPEC (net energy importer)	0.64	Energy intensity (koe per USD)	0.18
Emission intensity (kCO_2 per USD)	0.47	CO_2 emissions (tCO_2) per capita	10.78
Energy affordability (USD per kWh)	0.20	Population with access to electricity (%)	100.0

INDEX COMMENTARY

The Czech Republic moves up three places in the overall Index ranking. While the country has made significant progress in addressing the energy security and equity dimensions of the energy trilemma, the mitigation of its environmental impact lags far behind. Performance on the energy security dimension sees continued diversification of the electricity generation portfolio and a decline in the energy consumption growth rate. The country's energy equity ranking improves, despite slightly higher household expenditures on electricity. Performance on the environmental sustainability dimension remains relatively poor with comparatively high energy and emission intensity and increasing CO_2 emissions from electricity generation. Contextual performance is stable with economic strength remaining to be the weakest dimension due to a high cost of living.

TRENDS AND OUTLOOK

- The most recent policy development is the completion of the update of the national energy policy State Energy Concept of the Czech Republic (SEK), which is expected to undergo public review by technical experts and professionals and subsequently considered by the government. The policy is based on the following: 1) construction of new electricity generation units in the existing sites of nuclear power plants; 2) gradual transition from largely extracted lignite deposits towards natural gas and renewable energy sources as the main sources for electricity and heat production because domestic coal remains a stable segment of the country´s energy mix (decrease from today´s 45% to a perspective of less than 20% in the coming decades); 3) medium-term stabilising of combined heat and power (CHP), provision of coal / fuels for central heating; 4) significant efficiency increase in energy production sector and reaching considerable economies in use of all kinds of energy; and 5) reconstruction and development of network infrastructure (electricity, gas) to ensure system integration of decentralised production, operational reliability, as well as ancillary and transit services.
- Key issues to be considered by policymakers are: 1) diversification of imported fuels (oil, gas) and enlargement of transport routes and capacities; 2) acceleration and simplification of project administrative approval and permitting procedures for modernising and new constructions of energy infrastructure; and 3) strengthening international cooperation in the process implementing EU Internal Energy Markets and, creating common regional markets, especially for electricity and gas.

INDEX RANK

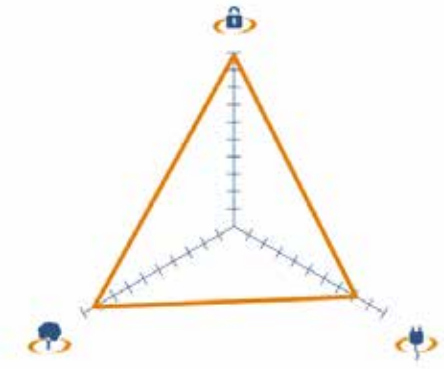
2

DENMARK

BALANCE SCORE

AAA

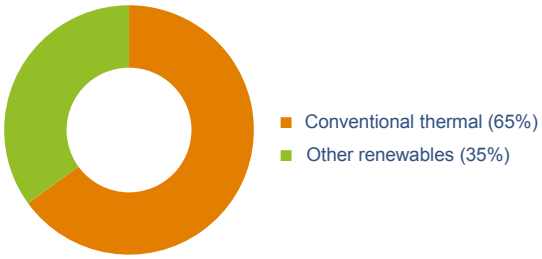
ENERGY SUSTAINABILITY BALANCE



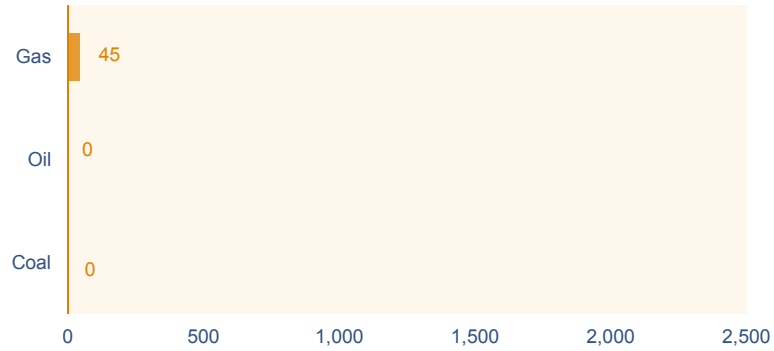
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	4	5	2	↑	
Energy security	3	5	3	↑	A
Energy equity	28	34	25	↑	A
Environmental sustainability	16	19	10	↑	A
Contextual performance	6	9	9	→	
Political strength	3	3	3	→	
Societal strength	6	15	15	→	
Economic strength	22	25	21	↑	
Overall rank and balance score	**2**	**5**	**2**	↑	**AAA**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	22.1	GDP per capita (PPP, USD); GDP Group	37,341 (I)
TPEP / TPEC (net energy exporter)	1.16	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	7.31
Energy affordability (USD per kWh)	0.38	Population with access to electricity (%)	100.0

INDEX COMMENTARY

With improvements in performance on all three energy dimensions, Denmark moves up three places to rank second overall in this year's Index. As one of the top Index performers, Denmark continues to balance all three sides of the energy trilemma well, providing its population with secure, affordable and environmentally-sensitive energy. Energy security remains the country's strongest energy dimension. Despite a decline in oil stocks, continued efforts to further diversify the electricity generation portfolio leave the country in a strong position to meet future energy demand. Indicators of energy equity,which are the least-strong of the three Danish energy dimensions for Denmark, improve across the board as energy becomes more affordable for the Danish people. Continued efforts to minimise the country's impact on the environment pay off as energy and emission intensity improve. Contextual performance is strong overall and very stable, with no noteworthy changes from last year.

TRENDS AND OUTLOOK

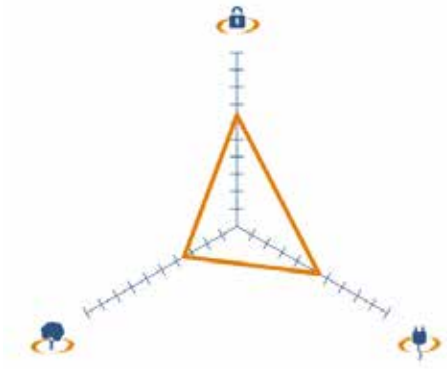
- In March 2012 a new Energy Agreement was reached in Denmark. The Agreement contains a wide range of ambitious initiatives, bringing Denmark closer to reaching the target of 100% renewable energy in the energy and transport sectors by 2050 by committing to large investments up to 2020 in energy efficiency, renewable energy and the overall energy system. Targets to reach by 2020 include approximately 50% of electricity consumption supplied by wind power, and more than 35% of final energy consumption supplied from renewable energy sources.
- To overcome the challenges and reach its ambitious targets of becoming independent of fossil fuels and reducing CO_2 emissions, Danish policymakers are focusing on the implications of: being fossil fuel free for the transport sector; the future role of the Danish natural gas grid; and the introduction of huge amounts of fluctuating renewable energy in the electricity grid.

BALANCE SCORE
BBC

EGYPT

INDEX RANK
76

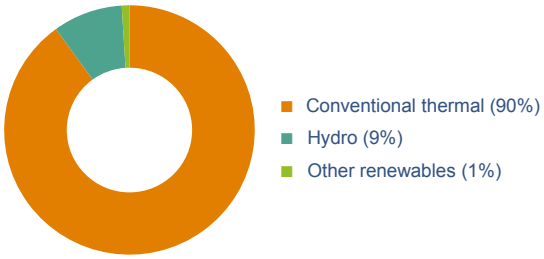
ENERGY SUSTAINABILITY BALANCE



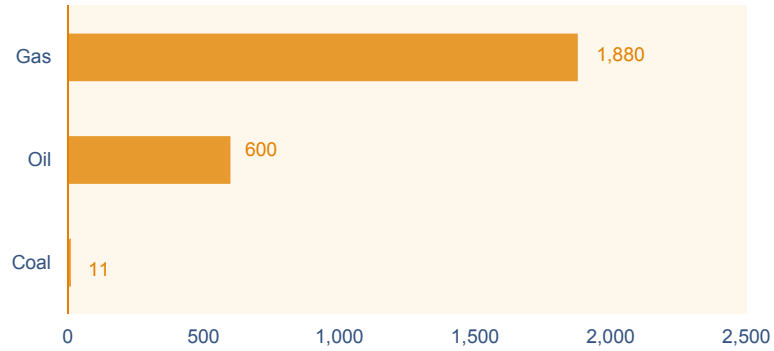
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	60	61	63	↓	
Energy security	42	52	47	↑	B
Energy equity	56	56	59	↓	B
Environmental sustainability	83	81	84	↓	C
Contextual performance	82	90	102	↓	
Political strength	86	91	107	↓	
Societal strength	79	90	90	→	
Economic strength	85	88	98	↓	
Overall rank and balance score	**68**	**73**	**76**	↓	**BBC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	37.4	GDP per capita (PPP, USD); GDP Group	6,455 (III)
TPEP / TPEC (net energy exporter)	1.17	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.39	CO_2 emissions (tCO_2) per capita	2.13
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.6

INDEX COMMENTARY

Egypt drops three places in the Index, down to the rank of 76. As a member of the 'Fossil-fueled' country grouping, Egypt shows a lopsided energy trilemma balance typical of that category with above-average energy security and equity offset by a weaker environmental sustainability performance. Energy security remains the country's strongest energy dimension and improves as the energy consumption growth rate slows. A slight increase in household expenditures on electricity leads to a drop in energy equity. The reduction of CO_2 emissions from electricity generation are not enough to improve Egypt's environmental sustainability ranking, as peer countries improve more. Contextual indicators remain weak, and political and economic strength are already slipping considerably even though the effects of the Arab Spring are not yet reflected in the data.

TRENDS AND OUTLOOK

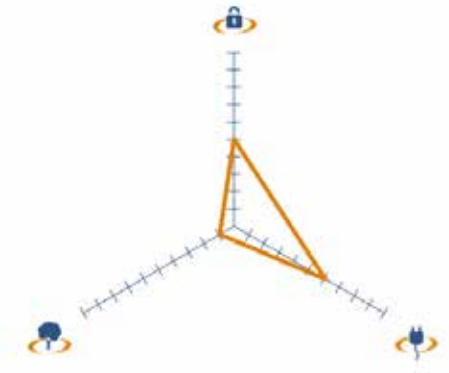
- As the most populous country in North Africa, Egypt is keen to improve its energy sustainability. Therefore, energy has become one of the most important topics in recent years. Due to the political transition the country is going through, challenges related to energy security need to be overcome. These challenges include an insufficient electricity capacity to meet the demand and no reserve capacities, low energy efficiency especially in the industrial sector, or the slow progress new and renewable energy projects make due to the incremental cost gap between fossil fuel and renewable technologies.
- The most recent energy policy developments are to address: 1) expansion of new power capacities at the least cost location; 2) diversification of power generation by expanding wind farms, and introducing solar PV and solar thermal generation to benefit from one of the best solar belt locations in the world; 3) improvement of the energy tariff structure to encourage energy saving measures; 4) encouragement of the private sector to invest in the development of energy infrastructure including renewable energy projects using build, own, operate (BOO) schemes; and 5) extension of the regional interconnection power grid capacity between Egypt and Arab, African and European countries.

INDEX RANK
68

ESTONIA

BALANCE SCORE
BCD

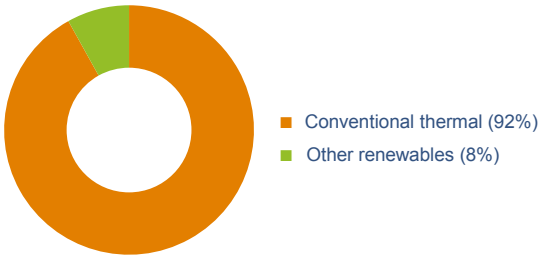
ENERGY SUSTAINABILITY BALANCE



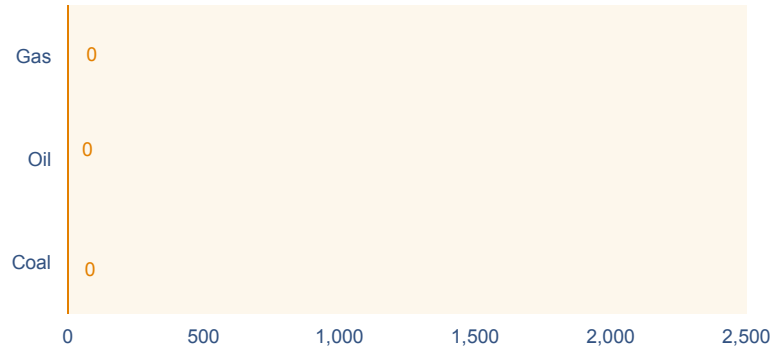
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	83	81	82	↓	
Energy security	74	64	65	↓	C
Energy equity	48	51	51	→	B
Environmental sustainability	115	117	117	→	D
Contextual performance	23	26	25	↑	
Political strength	24	24	26	↓	
Societal strength	28	30	30	→	
Economic strength	29	34	35	↓	
Overall rank and balance score	**66**	**65**	**68**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.2	GDP per capita (PPP, USD); GDP Group	20,657 (II)
TPEP / TPEC (net energy importer)	0.72	Energy intensity (koe per USD)	0.23
Emission intensity (kCO_2 per USD)	0.90	CO_2 emissions (tCO_2) per capita	16.00
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Although Estonia's performance remains relatively stable across all dimensions, very slight deteriorations in energy security and political and economic strength result in the country slipping three places in this year's Index. Estonia continues to struggle with balancing the energy trilemma, as the country's poor performance in mitigating its environmental impact lags far behind its energy security and energy equity rankings. The energy security dimension sees the energy consumption growth rate outpacing economic growth, but also a more desirable total energy production to consumption ratio as the result of boosted production. Meanwhile, both gasoline and electricity become slightly more expensive for Estonians, although the country's energy equity ranking stays flat. Estonia's environmental sustainability performance continues to be poor with high energy and emission intensity and high CO_2 emissions from electricity generation, which are undoubtedly related to its electricity fuel mix that relies very heavily on fossil fuels. Estonia's contextual performance remains solid.

TRENDS AND OUTLOOK

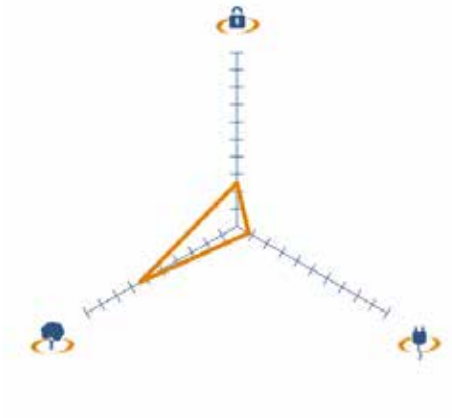
- Estonia has over the last couple of years successfully worked on improving its security of energy supply by diversifying its energy imports, increasing the domestic electricity production capacity to exceed domestic demand and increasing the share of domestically produced liquid fuels and thereby its export capability. Estonia still struggles with environmental sustainability, mainly due to CO_2 emissions from electricity production.
- Recently, Estonia has had several excellent developments: 1) due to the increase of production of renewable energy, the government is now in a position to negotiate decreasing subsidies for renewable energy with the energy industry. In the first half of 2012 the share of renewable electricity production reached 20.4% of consumption; 2) new shale oil production units are being built, leading to less dependence on imports of petroleum products; and 3) regulated electricity prices were completely abolished as of 1 January 2013, which is expected to lead to a slight increase of electricity prices.
- The key trends, which are expected to support Estonia's moving up in the Index rankings, are: 1) the continued increase of the share of renewable energy in the electricity production mix; 2) the building of new interconnection power grid capacity with neighbouring countries; and 3) the ability to satisfy most of its need for diesel fuel from refining shale oil. However, Estonian policymakers also need to focus on the other two aspects of the energy trilemma, environmental sustainability and energy equity, while keeping energy security levels high.

BALANCE SCORE
BDD

ETHIOPIA

INDEX RANK
112

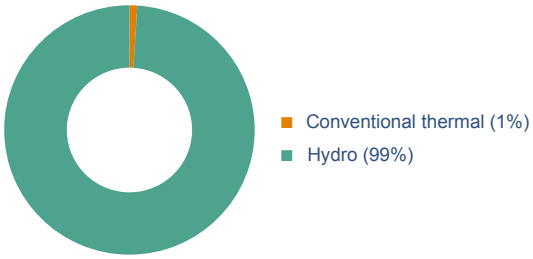
ENERGY SUSTAINABILITY BALANCE



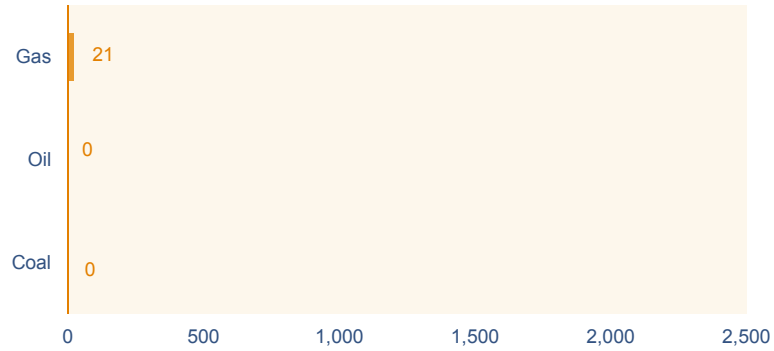
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	104	102	99	↑	
Energy security	104	102	97	↑	**D**
Energy equity	120	118	119	↓	**D**
Environmental sustainability	50	51	47	↑	**B**
Contextual performance	123	117	122	↓	
Political strength	115	115	113	↑	
Societal strength	116	116	116	→	
Economic strength	123	95	124	↓	
Overall rank and balance score	**117**	**110**	**112**	↓	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	14.6	GDP per capita (PPP, USD); GDP Group	1,119 (IV)
TPEP / TPEC (net energy importer)	0.35	Energy intensity (koe per USD)	0.41
Emission intensity (kCO_2 per USD)	0.07	CO_2 emissions (tCO_2) per capita	0.07
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	23.0

INDEX COMMENTARY

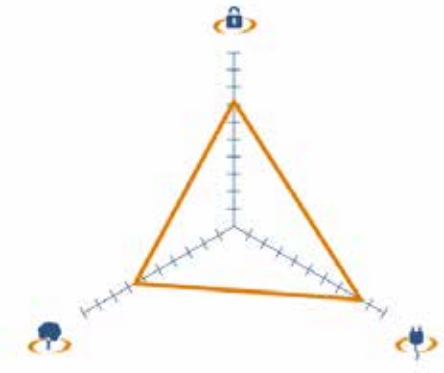
Although Ethiopia's overall energy performance improves this year, weakening contextual indicators of economic strength cause the country to fall two places in the overall Index rankings. As one of the 'Hydro-powered' countries, Ethiopia exhibits many of the same challenges in balancing the energy trilemma that are faced by the other countries in that group. A strong environmental sustainability performance is unfortunately overshadowed by poorer performances results on the energy security and equity dimensions. With regards to Ethiopia's energy security, this year sees a more favorable ratio of total energy production to consumption. But, the country continues to struggle with high transmission and distribution losses and a homogenous electricity mix because it is almost solely reliant on hydropower. Household expenditure on electricity decreases, which improves the country's energy equity ranking. Environmental sustainability, Ethiopia's strongest dimension, sees further reductions in emission intensity and CO_2 emissions per kWh of electricity generated. Contextual performance on indicators of political and societal strength is weak but stable. The country's economic strength falls to quite an extent because of a drop in macroeconomic stability.

INDEX RANK
13

FINLAND

BALANCE SCORE
ABB

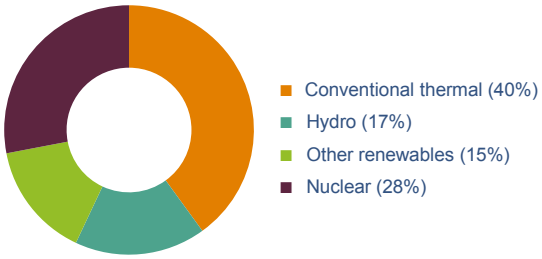
ENERGY SUSTAINABILITY BALANCE



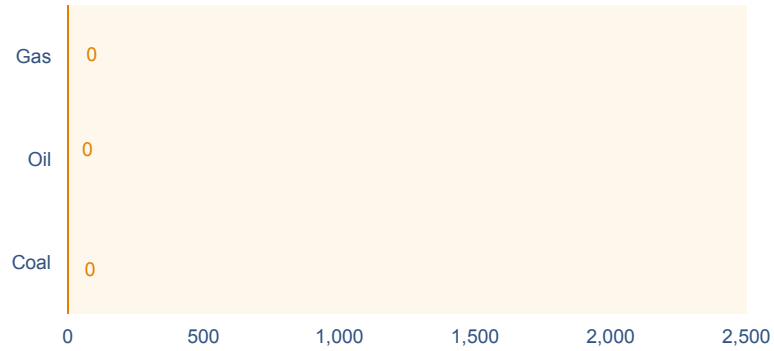
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	13	14	17	↓	
Energy security	22	25	37	↓	B
Energy equity	16	20	21	↓	A
Environmental sustainability	44	49	45	↑	B
Contextual performance	7	7	6	↑	
Political strength	2	1	2	↓	
Societal strength	1	1	1	→	
Economic strength	32	35	34	↑	
Overall rank and balance score	**11**	**11**	**13**	↓	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.1	GDP per capita (PPP, USD); GDP Group	35,994 (I)
TPEP / TPEC (net energy importer)	0.35	Energy intensity (koe per USD)	0.20
Emission intensity (kCO_2 per USD)	0.31	CO_2 emissions (tCO_2) per capita	10.06
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Finland slips two places this year to an overall rank of 13, mostly due to a drop in energy security. As a consistent top performer in the Index, Finland continues to balance the three sides of the energy trilemma well. The decline in energy security is mostly driven by the slowing decline of the energy consumption growth rate and an increased reliance on fuel imports. Energy equity performance continues to be strong, although there is a slight increase in household expenditures on electricity. Environmental sustainability, Finland's weakest energy dimension, sees increases in CO_2 emissions from electricity generation. Performance on contextual indicators remains excellent, although economic strength stays lower than societal and political strength due to the high cost of living.

TRENDS AND OUTLOOK

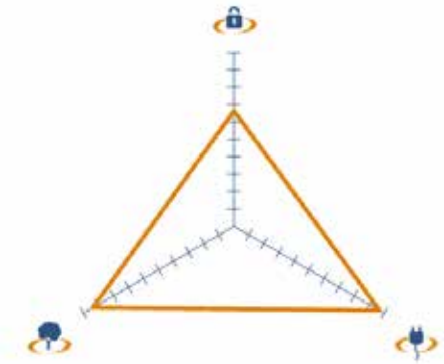
- Even though Finland's electricity fuel mix still shows a large share of conventional thermal power generation, it has to be noted that three-quarters of that figure is combined heat and power production. This should not be viewed as conventional because it reaches efficiency ratios up to two times compared to conventional thermal generation.
- Recent energy policy developments in Finland include: 1) a proposal to introduce a windfall tax that will make hydro and nuclear energy less competitive; 2) streamlining the approval of wind farms; and 3) tax hikes on fossil fuels in heat generation that will mainly affect light fuel oil in domestic heating and other fossil fuels in district heating and industrial cogeneration, and which will increase costs but also 'clean' the fuel mix.
- A number of policies are under discussion, including: 1) an ambition to phase out coal completely by 2025; 2) limit the use of peat, a domestic biofuel that is not categorised as a renewable; and 3) limitat of oil consumption and support for electric mobility.

BALANCE SCORE
AAB

FRANCE

INDEX RANK
10

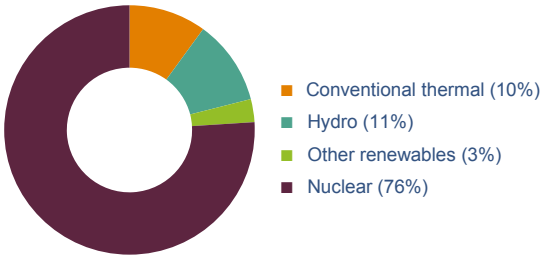
ENERGY SUSTAINABILITY BALANCE



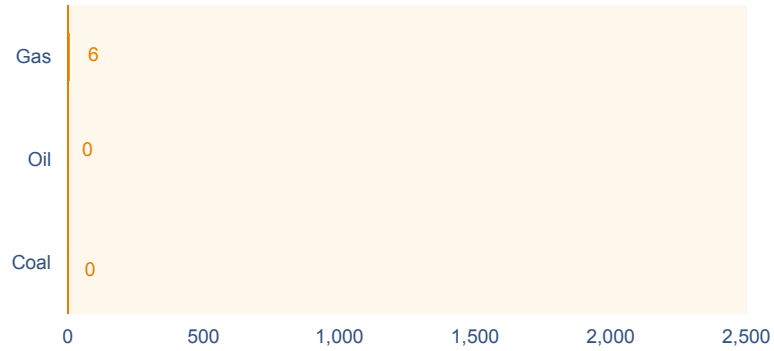
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	6	5	6	↓	
Energy security	40	41	44	↓	**B**
Energy equity	6	8	5	↑	**A**
Environmental sustainability	9	9	9	→	**A**
Contextual performance	24	29	28	↑	
Political strength	25	20	27	↓	
Societal strength	18	19	19	→	
Economic strength	39	57	52	↑	
Overall rank and balance score	**7**	**9**	**10**	↓	**AAB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	18.3	GDP per capita (PPP, USD); GDP Group	35,090 (I)
TPEP / TPEC (net energy importer)	0.46	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.16	CO_2 emissions (tCO_2) per capita	4.89
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

France slips one place in this year's Index rankings, but remains in the top 10 overall. The three sides of the energy trilemma remain relatively well-balanced in France, although energy security lags slightly behind. Overall energy security performance dips slightly this year, with the increased energy consumption growth rate outweighing an improved diversity of the sources of electricity generation. Energy equity improves, with the price of energy staying essentially flat. Environmental sustainability performance remains unchanged and excellent, which is not unexpected as France uses fossil fuels to generate only 10% of its electricity. Contextual performance remains good, although indicators of political strength dip slightly.

INDEX RANK

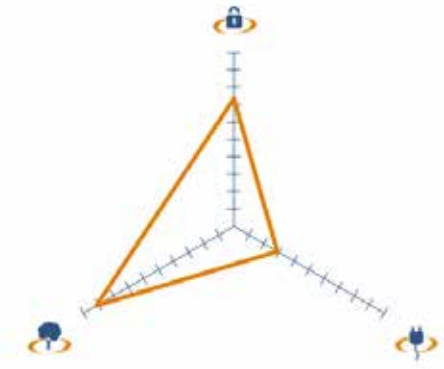
56

GABON

BALANCE SCORE

ABC

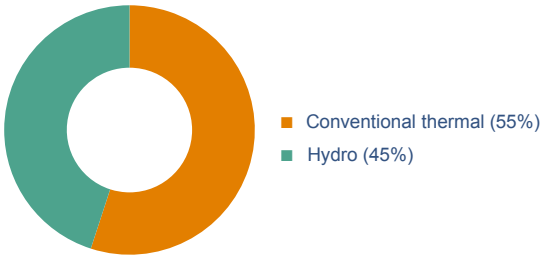
ENERGY SUSTAINABILITY BALANCE



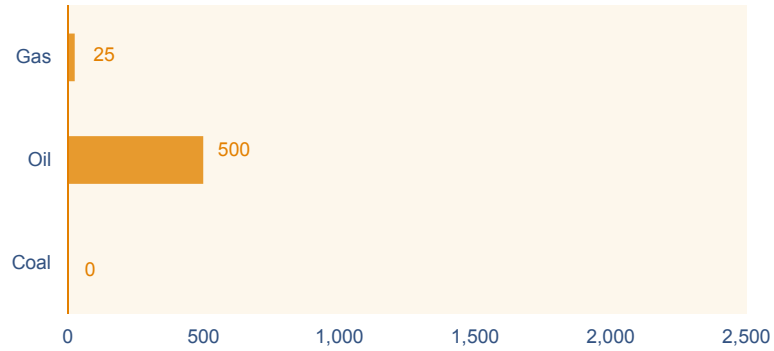
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	48	45	33	↑	
Energy security	50	46	35	↑	B
Energy equity	97	97	92	↑	C
Environmental sustainability	10	10	12	↓	A
Contextual performance	116	116	116	→	
Political strength	98	95	92	↑	
Societal strength	96	95	95	→	
Economic strength	126	124	127	↓	
Overall rank and balance score	**65**	**62**	**56**	↑	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	53.7	GDP per capita (PPP, USD); GDP Group	15,530 (II)
TPEP / TPEC (net energy exporter)	11.87	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.13	CO_2 emissions (tCO_2) per capita	1.78
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	81.6

INDEX COMMENTARY

Gabon improves six places in this year's Index. The country continues to struggle with balancing the energy trilemma, as strong performances in energy security and environmental sustainability are outweighed by a poor energy equity ranking. Gabon's energy security performance improves considerably as the energy growth rate declines. Household expenditure on electricity also declines leading to an improved energy equity ranking, and environmental performance remains largely stable overall, with slight increase in CO_2 emissions from electricity generation. As the country further develops economically and is able to provide a larger share of its population with access to modern energy services, it will be challenging for the country to meet the growing demand, sustain the current level of energy security and maintain the relatively low environmental impact. Contextual performance is still poor but stable, with indicators of economic strength being weaker than those of political and societal strength.

BALANCE SCORE

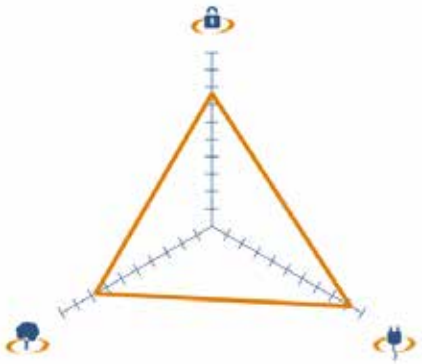
ABB

GERMANY

INDEX RANK

11

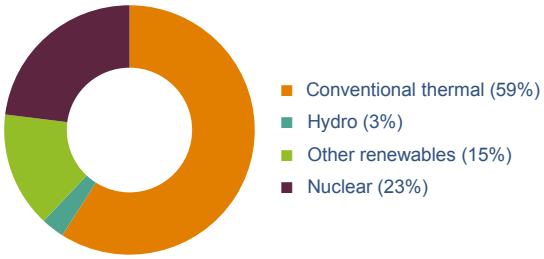
ENERGY SUSTAINABILITY BALANCE



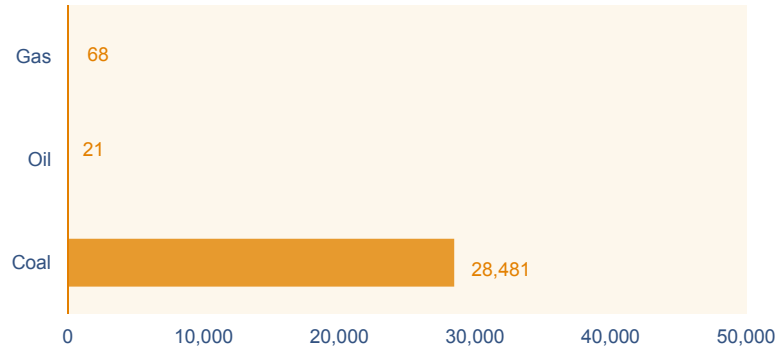
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	9	8	10	↓	
Energy security	23	24	31	↓	B
Energy equity	14	13	11	↑	A
Environmental sustainability	32	31	30	↑	B
Contextual performance	14	13	13	→	
Political strength	16	16	16	→	
Societal strength	19	18	18	→	
Economic strength	24	26	24	↑	
Overall rank and balance score	**10**	**8**	**11**	↓	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	28.1	GDP per capita (PPP, USD); GDP Group	38,077 (I)
TPEP / TPEC (net energy importer)	0.34	Energy intensity (koe per USD)	0.11
Emission intensity (kCO_2 per USD)	0.26	CO_2 emissions (tCO_2) per capita	8.96
Energy affordability (USD per kWh)	0.34	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Germany drops three places in this year's Index as energy security declines slightly. Germany continues to balance the three facets of the energy trilemma well, with a very strong energy equity ranking leading its performance on the other two dimensions. Germany continues to struggle with the ratio of total energy production to consumption and sees an increasing reliance on energy imports. The energy equity dimension remains Germany's strongest, and the country's global ranking improves despite increases in the prices of gasoline and electricity. Environmental sustainability performance remains solid, and Germany continues to lower its CO_2 emissions from electricity generation even further. Its performance on contextual indicators is strong and stable.

TRENDS AND OUTLOOK

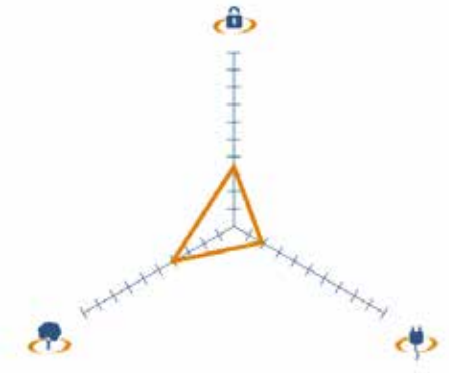
- The most recent policy development in Germany, initiated before 2010, is the German Energy Transition. The goal of the policy is a strong increase in power generation from renewable sources, a reduction of primary energy usage and CO_2 emissions. Furthermore, following the accident in Fukushima (Japan) in March 2011, the government made the decision to abandon the use of nuclear power completely by 2022. Eight out of 17 facilities were closed immediately, while the remaining nine nuclear power plants will be phased out gradually to ensure system stability. However, the decision to phase-out nuclear by 2022 constitutes a challenge to Germany's energy mix.
- To achieve the increase in power generation from renewable sources, the Renewable Energy Law (EEG) guarantees a fixed price independent of demand and supply for renewable power plants. The law first came into effect in 2000 with revisions in 2006, 2008, and 2012. Even though there are visible successes, the law is disabling free market mechanisms because it allows the sector to rely on subsidies rather than encouraging competition for innovative, efficient and inexpensive technologies. Investors are reluctant to invest in new conventional power plants, which will still be needed to secure future energy demand.
- Subsidies for renewable energy and investments in grid infrastructure to integrate the increasing amounts of volatile renewable energy into the system have led and will continue to lead to higher electricity prices. Policymakers must set the right framework towards a free and efficient European electricity market to limit the burden.
- Furthermore, the European emission trading systems is an important tool to tackle climate goals. With a European effort in energy politics, particularly when it comes to future market designs, investments in conventional power plants could be enabled to ensure security of energy supply.

INDEX RANK
102

GHANA

BALANCE SCORE
CCD

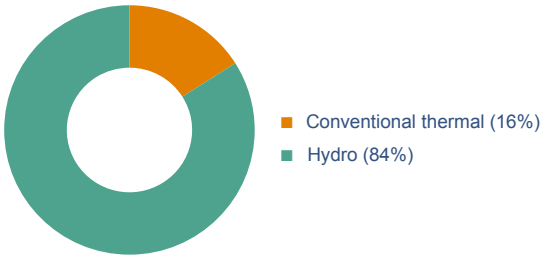
ENERGY SUSTAINABILITY BALANCE



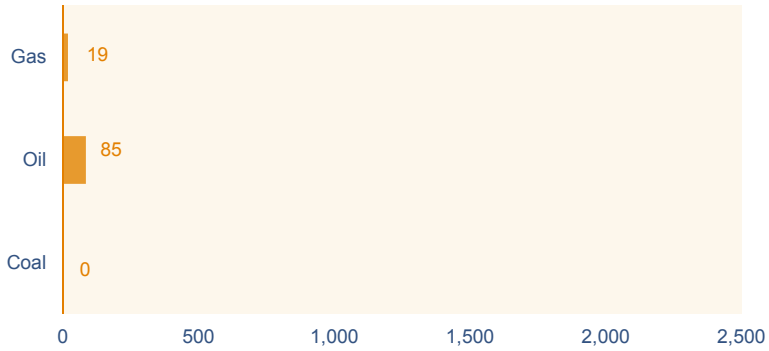
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	100	102	103	↓	
Energy security	86	90	85	↑	C
Energy equity	106	106	105	↑	D
Environmental sustainability	77	75	77	↓	C
Contextual performance	89	88	87	↑	
Political strength	64	64	62	↑	
Societal strength	83	75	75	→	
Economic strength	121	121	120	↑	
Overall rank and balance score	**102**	**104**	**102**	↑	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.4	GDP per capita (PPP, USD); GDP Group	3,113 (IV)
TPEP / TPEC (net energy importer)	0.43	Energy intensity (koe per USD)	0.26
Emission intensity (kCO_2 per USD)	0.26	CO_2 emissions (tCO_2) per capita	0.43
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	60.5

INDEX COMMENTARY

Ghana improves its overall Index ranking by two places this year to finish at rank 102. Ghana's three energy dimensions remain unbalanced, as its energy equity ranking continues to lag performance on the other two dimensions. Energy security performance improves this year, with a decreased energy consumption growth rate and increased strategic oil reserves. However, transmission and distribution losses of electricity remain among the highest in the world. Providing its people with access to modern energy services continues to be a challenge for Ghana, which has a 61% electrification rate that poses an obstacle that must be overcome if the country seeks to develop further economically. The environmental sustainability dimension is Ghana's strongest, and overall performance remains mediocre and largely flat. The exception is a small increase in CO_2 emissions from electricity generation, although this indicator is one of Ghana's best because the country uses hydropower to generate the majority of its electricity. Contextual performance stays weak, with political and societal strength being more robust than economic strength. Nevertheless, slight improvements are made across the board, indicating that Ghana is heading in the right direction.

TRENDS AND OUTLOOK

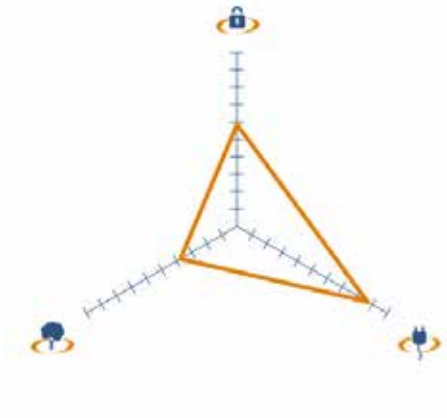
- In order to improve energy security, energy equity and environmental sustainability Ghana needs to address a number of related challenges, such as: 1) the lack of credible, sustained and focused energy policy; 2) the inability to execute policies; 3) governmental interference; and 4) ineffective regulatory authorities.
- Recent policy developments include: 1) the enactment of Electricity Regulations, 2008 (L.I 1937), which is intended to provide for the planning, expansion, safety criteria, reliability and cost effectiveness of the Interconnected Transmission System, and to regulate the wholesale electricity market; 2) the enactment of the Renewable Energy Act, 2011 (Act 832) to improve the development, management and utilisation of renewable energy sources for production of heat and power in an efficient and environmentally sustainable manner; and 3) the incorporation of Ghana Gas Company in July 2011 with the responsibility to build, own, and operate infrastructure required for gathering, processing, transporting and marketing of natural gas in Ghana.

BALANCE SCORE
ABC

GREECE

INDEX RANK
39

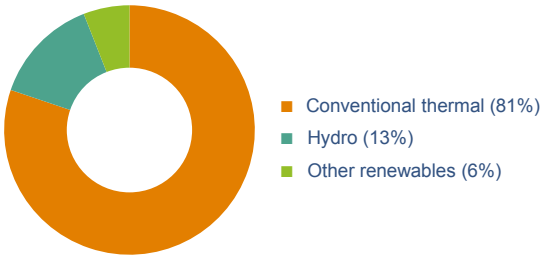
ENERGY SUSTAINABILITY BALANCE



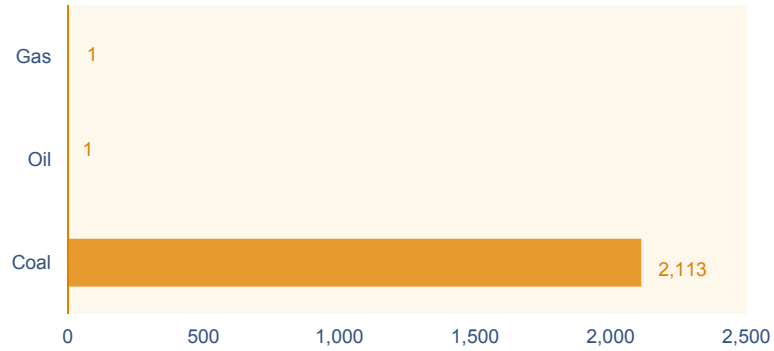
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	62	62	42	↑	
Energy security	97	88	54	↑	**B**
Energy equity	12	26	18	↑	**A**
Environmental sustainability	78	76	81	↓	**C**
Contextual performance	47	46	48	↓	
Political strength	50	50	51	↓	
Societal strength	43	37	37	→	
Economic strength	58	62	64	↓	
Overall rank and balance score	**54**	**55**	**39**	↑	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	16.0	GDP per capita (PPP, USD); GDP Group	25,510 (II)
TPEP / TPEC (net energy importer)	0.29	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.32	CO_2 emissions (tCO_2) per capita	7.18
Energy affordability (USD per kWh)	0.16	Population with access to electricity (%)	100.0

INDEX COMMENTARY

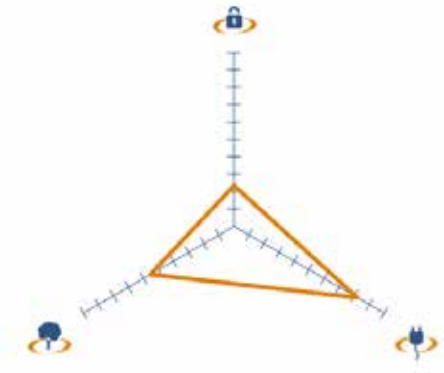
With a jump in its energy security ranking, Greece improves its overall Index ranking this year by 16 places. However, Greece continues to struggle balancing the three sides of the energy trilemma, with a very good energy equity ranking leading decent energy equity and weaker environmental sustainability performances. Greece's energy security ranking surges this year more due to its outperformance of other countries than significant changes in absolute performance. Nevertheless, this year sees improvements in the country's declining energy consumption growth rate and a much more favourable energy import to export ratio. Energy equity remains very high, with Greece continuing to offer all of its citizens affordable energy and high-quality electricity. Environmental sustainability stays Greece's weakest dimension, with the main drivers for this lower result being a high level of emissions-intensity and CO_2 emissions from electricity generation, that rely very heavily on burning fossil fuels. Contextual performance remains more or less flat, with the exception of macroeconomic stability dropping even further this year.

INDEX RANK
40

HONG KONG, CHINA

BALANCE SCORE
ABD

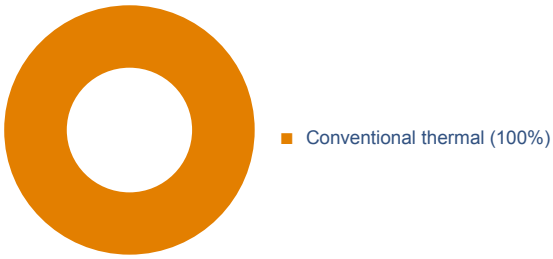
ENERGY SUSTAINABILITY BALANCE



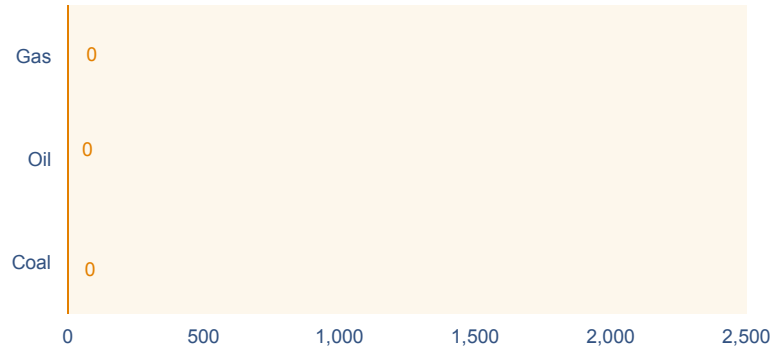
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	57	54	58	↓	
Energy security	77	84	99	↓	D
Energy equity	33	25	24	↑	A
Environmental sustainability	64	60	58	↑	B
Contextual performance	3	14	18	↓	
Political strength	8	10	11	↓	
Societal strength	15	50	50	→	
Economic strength	2	1	15	↓	
Overall rank and balance score	**31**	**38**	**40**	↓	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	50,296 (I)
TPEP / TPEC (net energy importer)	0.00	Energy intensity (koe per USD)	0.05
Emission intensity (kCO_2 per USD)	0.14	CO_2 emissions (tCO_2) per capita	6.18
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Hong Kong drops two places in this year's Index, largely due to further deteriorations in energy security and a small decline in economic strength. While Hong Kong ranks very well on the energy equity dimension, it struggles to replicate this performance on the energy security and environmental sustainability dimensions. Hong Kong's low energy security ranking is driven primarily by a lack of domestic energy production, and its sole reliance on fossil fuels in power generation. Energy equity is high with relatively affordable energy and full access rate to quality electricity. Environmentally, Hong Kong, like China, suffers from very high levels of air and water pollution. Contextual performance remains strong, with this year's most notable change being a drop in macroeconomic stability.

TRENDS AND OUTLOOK

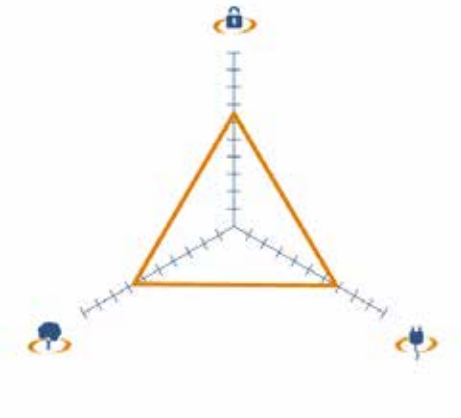
- As 25% of Hong Kong's electricity is imported the Hong Kong government has set a goal to ensure that the energy needs of the community are met safely, reliably, efficiently and at reasonable prices, while minimising the environmental impact of electricity generation.
- While Hong Kong does not have much indigenous energy resources, active steps have been taken to ensure safe and stable energy supply. To secure clean and reliable electricity supply, Hong Kong signed a Memorandum of Understanding (MOU) on energy cooperation with mainland China in August 2008, which provided assurance to the continual supply of nuclear energy and enhanced supply of natural gas from China to Hong Kong. The recent completion and commissioning of the Hong Kong Branch Line of the Second West-East Natural Gas Pipeline has helped ensure a stable and secure supply of natural gas from the Mainland for power generation. The Government has put in place a contingency plan for oil supply that co-ordinates both the public and private sectors in the allocation and consumption of essential oil products in the event of an oil supply disruption. A code of practice has also been put in place that requires major oil companies to maintain a minimum of 30 days' supply of gas oil and naphtha.
- To increase energy diversity natural gas has been introduced as feedstock for electricity generation since the 1990s. Moreover, with the introduction of LPG vehicles around 2000, LPG is used as a fuel for more than 20,000 taxis and light buses. The increased uses of natural gas and LPG reduce Hong Kong's dependence on conventional oil products.
- A wide range of measures to protect the environment and improve air quality have been implemented with first positive results. The Clean Air Plan for Hong Kong, released in March 2013, outlines comprehensively and clearly the challenges Hong Kong is facing with regard to air quality, as well as relevant policies, measures and plans to tackle the issue. Furthermore, a long-term monitoring of marine, river and beach water quality has been underway since 1986.

BALANCE SCORE
BBB

HUNGARY

INDEX RANK
31

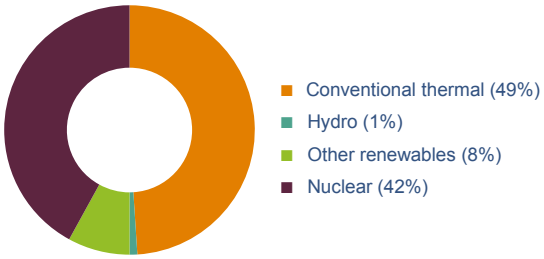
ENERGY SUSTAINABILITY BALANCE



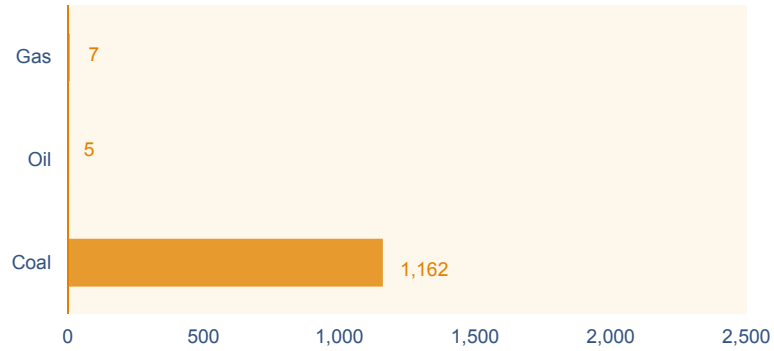
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	29	23	31	↓	
Energy security	49	39	46	↓	B
Energy equity	41	41	42	↓	B
Environmental sustainability	45	44	44	→	B
Contextual performance	51	44	41	↑	
Political strength	34	33	32	↑	
Societal strength	40	43	43	→	
Economic strength	82	73	68	↑	
Overall rank and balance score	**34**	**28**	**31**	↓	**BBB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.2	GDP per capita (PPP, USD); GDP Group	19,571 (II)
TPEP / TPEC (net energy importer)	0.39	Energy intensity (koe per USD)	0.15
Emission intensity (kCO_2 per USD)	0.28	CO_2 emissions (tCO_2) per capita	4.75
Energy affordability (USD per kWh)	0.21	Population with access to electricity (%)	100.0

INDEX COMMENTARY

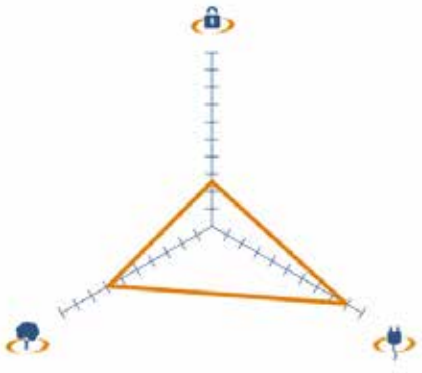
Hungary slips three places this year to finish 31st in the Index. Although Hungary is not included in the 'Pack Leaders' country group, it is an excellent example of a country that has managed to balance the three competing sides of the energy trilemma, with equally good scores on all dimensions. Energy security slips a little this year with the slowing decline of the energy consumption growth rate. With regards to energy equity, the cost of energy for Hungarian citizens increases slightly, but this dimension remains Hungary's strongest. Performance on indicators of environmental sustainability remains flat. Contextual performance also stays mostly unchanged, but the most notable differences are slight improvements in education and macroeconomic stability.

INDEX RANK
33

ICELAND

BALANCE SCORE
ABC

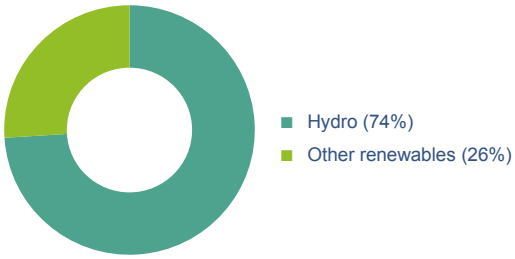
ENERGY SUSTAINABILITY BALANCE



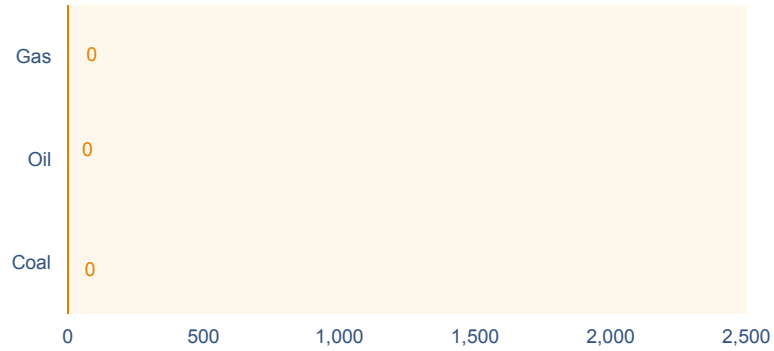
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	45	43	40	↑	
Energy security	98	98	96	↑	C
Energy equity	13	12	15	↓	A
Environmental sustainability	42	40	41	↓	B
Contextual performance	39	28	26	↑	
Political strength	15	17	15	↑	
Societal strength	5	7	7	→	
Economic strength	111	71	70	↑	
Overall rank and balance score	**38**	**32**	**33**	↓	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.4	GDP per capita (PPP, USD); GDP Group	38,039 (I)
TPEP / TPEC (net energy importer)	0.80	Energy intensity (koe per USD)	0.61
Emission intensity (kCO_2 per USD)	0.20	CO_2 emissions (tCO_2) per capita	6.67
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

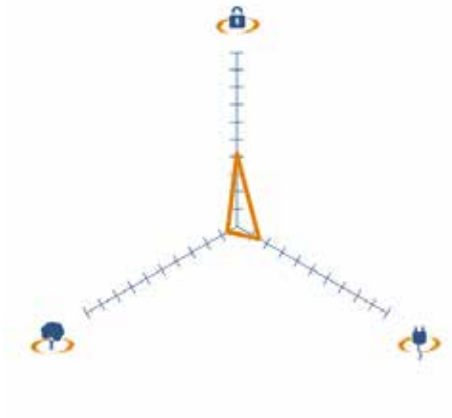
Iceland slips one place in this year's Index, while exhibiting minimal overall change in performance across all energy and contextual dimensions. Iceland, which performs quite well on the energy equity dimension and mitigates its environmental impact fairly well, struggles with providing energy security. The country's energy consumption growth rate, in particular, has historically been quite high, although the country has made some successful efforts to slow this growth recently. Furthermore, Iceland is heavily reliant on hydropower and has no strategic oil stocks, two things that also contribute to its low energy security rank. Iceland's energy equity remains among the best in the world, as it provides its citizens with affordable, quality energy. Environmental sustainability performance is also fairly good, especially as Iceland's electricity fuel mix is virtually emission-free. The big blemish here is the country's high level of energy intensity. Contextually, this year sees small improvements all across the board, although macroeconomic stability remains very low, but improving, in the wake of the recent collapse of the country's banks.

BALANCE SCORE
CDD

INDIA

INDEX RANK
115

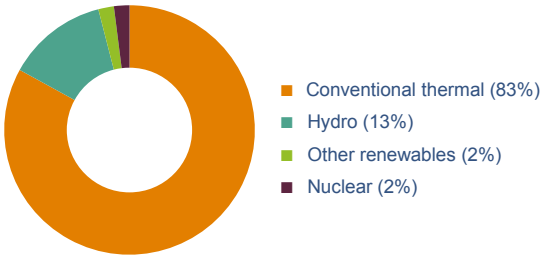
ENERGY SUSTAINABILITY BALANCE



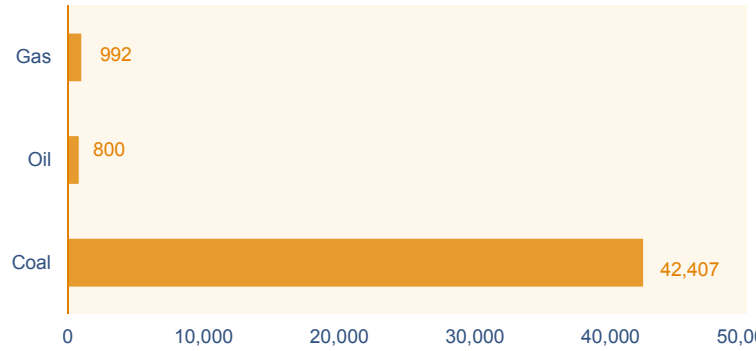
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	124	124	124	→	
Energy security	87	86	76	↑	C
Energy equity	110	110	110	→	D
Environmental sustainability	123	123	121	↑	D
Contextual performance	67	77	76	↑	
Political strength	90	97	93	↑	
Societal strength	76	80	80	→	
Economic strength	44	54	54	→	
Overall rank and balance score	**115**	**117**	**115**	↑	**CDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	18.0	GDP per capita (PPP, USD); GDP Group	3,667 (IV)
TPEP / TPEC (net energy importer)	0.70	Energy intensity (koe per USD)	0.18
Emission intensity (kCO_2 per USD)	0.44	CO_2 emissions (tCO_2) per capita	1.48
Energy affordability (USD per kWh)	0.05	Population with access to electricity (%)	75.0

INDEX COMMENTARY

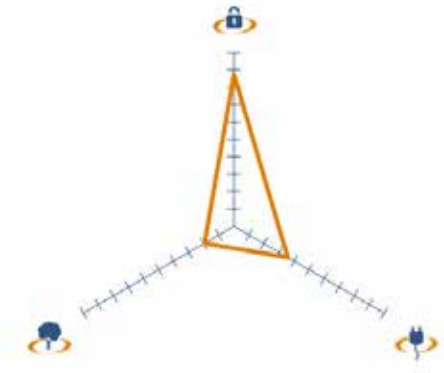
India moves up two places in the overall Index rankings, largely on the strength of improved energy security. As one of the 'Highly-industrialed' countries, India has dimensional rankings that are typical of the group. It has a stronger energy security performance, followed by a weaker energy equity result and a very poor performance on the environmental sustainability dimension. From an energy security standpoint, the energy consumption growth rate slows considerably this year. Meanwhile the energy infrastructure remains unstable with transmission and distribution losses, both technical and non-technical, equal to 23% of electricity generated. Energy equity performance is flat but still low. High gasoline prices and expensive electricity means that only 75% of the population has access to electricity. India's environmental sustainability ranking continues to be its weakest, with air and water quality and CO_2 emissions from electricity generation remaining large challenges for the rapidly-developing country. Contextual performance is stable across the board, with economic strength still ranking as India's best contextual dimension.

INDEX RANK
73

INDONESIA

BALANCE SCORE
ACD

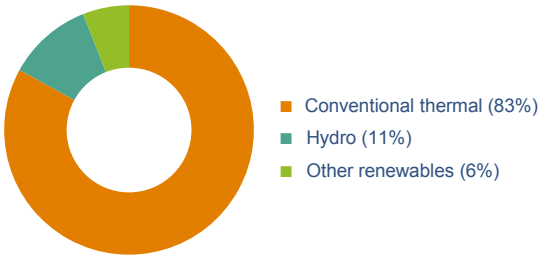
ENERGY SUSTAINABILITY BALANCE



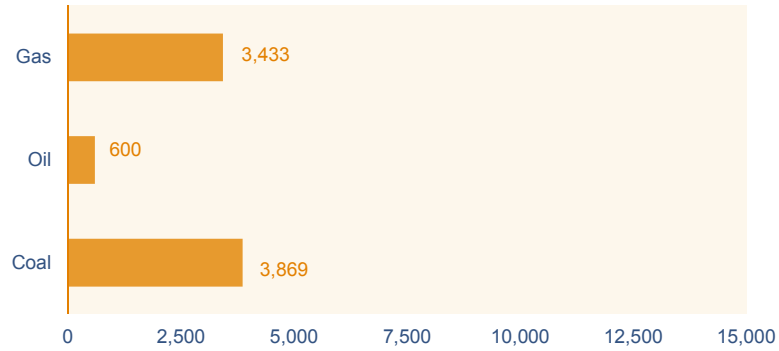
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	89	87	68	↑	
Energy security	39	37	17	↑	**A**
Energy equity	93	94	83	↑	**C**
Environmental sustainability	108	109	104	↑	**D**
Contextual performance	69	71	72	↓	
Political strength	88	92	95	↓	
Societal strength	74	82	82	→	
Economic strength	50	41	42	↓	
Overall rank and balance score	**83**	**85**	**73**	↑	**ACD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	46.5	GDP per capita (PPP, USD); GDP Group	4,669 (IV)
TPEP / TPEC (net energy exporter)	2.28	Energy intensity (koe per USD)	0.22
Emission intensity (kCO_2 per USD)	0.43	CO_2 emissions (tCO_2) per capita	1.76
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	94.2

INDEX COMMENTARY

Indonesia moves up 12 places in this year's Index and sees substantial improvements across all three energy dimensions. However, Indonesia faces the same challenges in balancing the competing sides of the energy trilemma as its peers in the 'Highly-industrialised' group of countries do, with the very strong energy security ranking offset by weaker energy equity and environmental sustainability performance. Energy security is robust, with a very favorable total energy production to consumption ratio, and a slowing energy consumption growth rate. Energy equity improves as gasoline and electricity become slightly more affordable, but is still low overall. Performance on the environmental sustainability dimension also lags quite a bit, as the country is extremely energy- and emission-intense, and emits large quantities of CO_2 in generating electricity, which it does overwhelmingly by burning fossil fuels. Contextually, performance on indicators of political and societal strength is stable, but on the lower end of the spectrum – with the exception of education, which is quite good. Economic strength, buoyed by a strong macroeconomic stability, is Indonesia's best contextual dimension.

TRENDS AND OUTLOOK

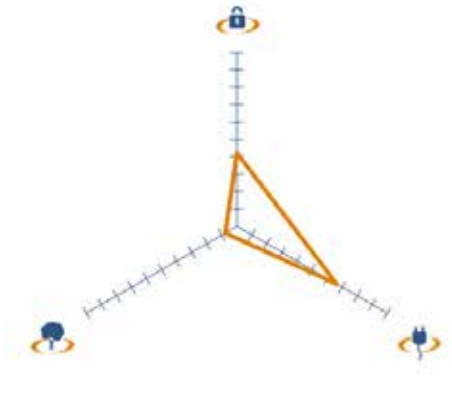
- Fossil fuels remain the main energy source, and levels of development and deployment of efficient and low-carbon and carbon-free energy technologies is slower than expected to fulfill sustained energy demand growth, which remains positive under significant energy subsidies to support social and economic development.
- Recent energy policy developments include: 1) energy policy targets of the Presidential Decree No. 5, 2006 on National Energy Policy and its Blueprint of National Energy Management 2005-2025. The targets include: reducing energy elasticity to less than 1, aligned with the target of economic growth; enhancing the national energy mix with oil below 20%, natural gas more than 30%, coal to more than 33%, and the remaining 17% from new and renewable energy; 2) the Ministerial Decree on feed-in-tariffs for renewable energy that gives more opportunity for development of small renewable energy with private participations. This will give remote islands the opportunity to accelerate access to electricity; and 3) preparations to issue a new national energy policy as the implementation of Energy Law No. 30, 2007.
- Key issues policymakers need to continue to focus on include: 1) removing energy subsidies; 2) intensifying the efforts to increase the use of new and renewable energy through research and development, pilot projects, providing incentives, capacity building; 3) imbed low-carbon and carbon-free technologies in the long-term energy plan; 4) increase energy efficiency on supply and demand sides; and 5) attract more investments to the energy sector.

BALANCE SCORE
BCD

IRAN

INDEX RANK
91

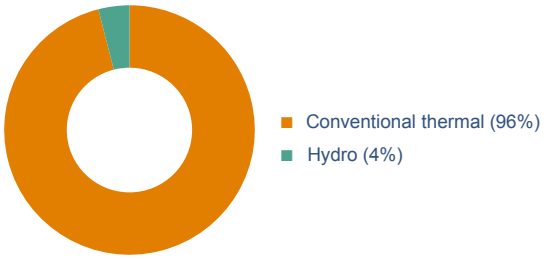
ENERGY SUSTAINABILITY BALANCE



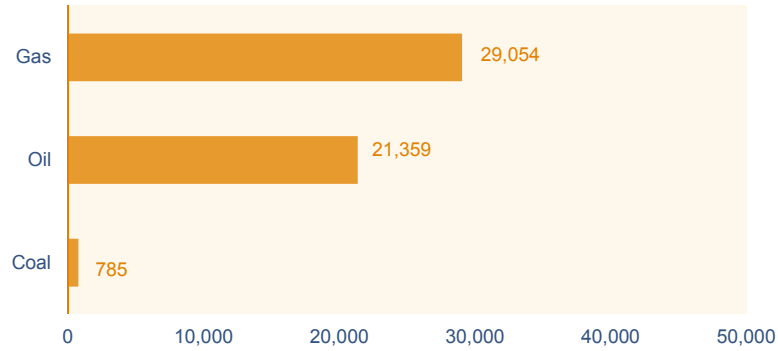
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	79	66	87	↓	
Energy security	73	50	75	↓	C
Energy equity	34	31	44	↓	B
Environmental sustainability	121	118	119	↓	D
Contextual performance	100	93	95	↓	
Political strength	120	120	115	↑	
Societal strength	90	81	81	→	
Economic strength	79	69	89	↓	
Overall rank and balance score	**90**	**77**	**91**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	13,312 (III)
TPEP / TPEC (net energy importer)	1.60	Energy intensity (koe per USD)	0.26
Emission intensity (kCO_2 per USD)	0.63	CO_2 emissions (tCO_2) per capita	6.94
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	98.4

INDEX COMMENTARY

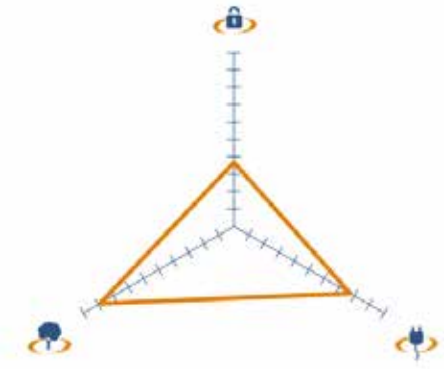
Iran drops 14 places in this year's Index as energy security, energy equity, and economic strength all fall, and across-the-board performance reverts to 2011 levels after improvements last year. Iran's balancing of the various dimensions of the energy trilemma is lopsided, with a respectable energy equity ranking but slightly lagging performance in energy security counterbalanced by the country's lack of mitigation of its environmental impact. A high energy consumption growth rate, high distribution losses of electricity (an amount equal to 15% of total electricity generated), and low diversity of the electricity generation portfolio result in a lower energy security rank than might be expected from an OPEC country, despite favourable energy production to consumption and import to export ratios and vast strategic reserves. Energy equity remains Iran's strongest energy dimension, even though the relative price of electricity increases for Iranian households. Performance on the environmental sustainability dimension remains a serious challenge for Iran as it continues to perform rather poorly across all indicators, with high energy and emission intensity, levels of pollution, and amounts of CO_2 emitted from electricity generation. Contextually, indicators of political and societal strength continue to be flat and low, with the exception of education. Economic strength, which in the past has been Iran's strongest contextual dimension, falls this year due to increasing macroeconomic instability.

INDEX RANK
20

IRELAND

BALANCE SCORE
ABC

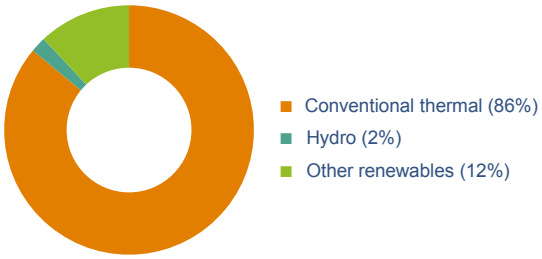
ENERGY SUSTAINABILITY BALANCE



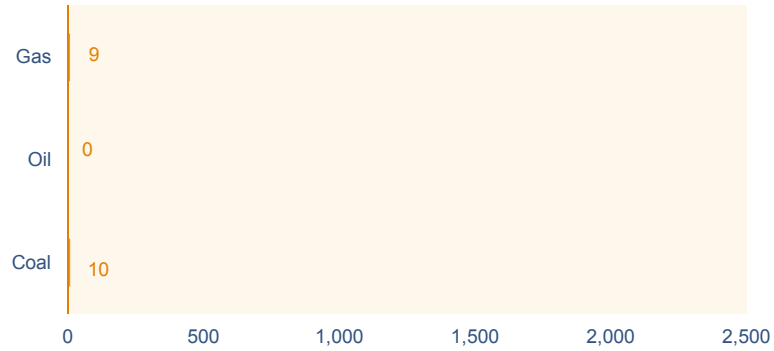
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	30	27	25	↑	
Energy security	84	85	82	↑	C
Energy equity	35	28	30	↓	B
Environmental sustainability	17	15	15	→	A
Contextual performance	16	18	18	→	
Political strength	14	14	14	→	
Societal strength	14	11	11	→	
Economic strength	35	46	51	↓	
Overall rank and balance score	**22**	**21**	**20**	↑	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	29.0	GDP per capita (PPP, USD); GDP Group	40,895 (I)
TPEP / TPEC (net energy importer)	0.08	Energy intensity (koe per USD)	0.09
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	7.98
Energy affordability (USD per kWh)	0.27	Population with access to electricity (%)	100.0

INDEX COMMENTARY

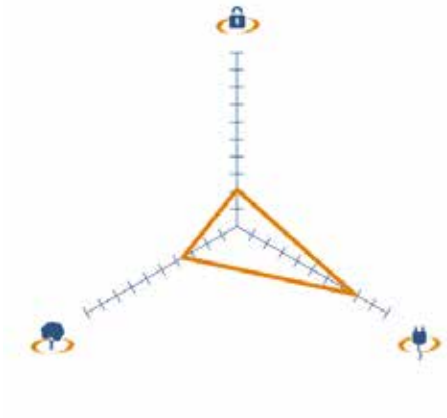
Ireland improves by one place in this year's Index rankings. While Ireland performs quite well on indicators of energy equity and environmental sustainability, it struggles to replicate this success on the energy security dimension. Although performance improves on most indicators of energy security this year, Ireland continues to struggle with low rates of energy production (only 8% of the total energy it consumes) and a lack of diversity in its electricity generation portfolio. Gasoline prices and household expenditures on electricity increase, but energy equity performance remains good. Despite its heavy reliance on burning fossil fuels to generate electricity (and the attendant CO_2 emissions), Ireland does very well on the environmental sustainability dimension, thanks to extremely high air and water quality and the country's low energy intensity. Contextually, Ireland continues to do well on almost all indicators, with the notable exception being the continuing decline of macroeconomic stability.

BALANCE SCORE
BCD

ISRAEL

INDEX RANK
67

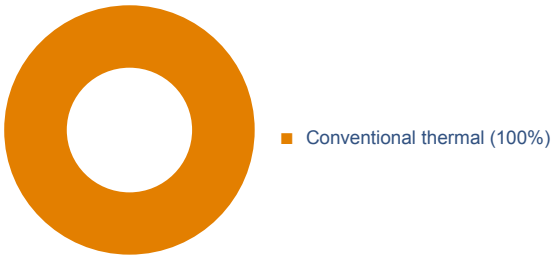
ENERGY SUSTAINABILITY BALANCE



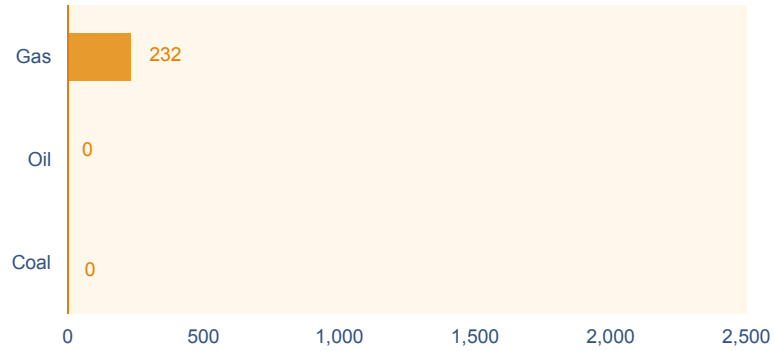
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	72	75	73	↑	
Energy security	99	100	102	↓	**D**
Energy equity	24	30	29	↑	**B**
Environmental sustainability	86	83	83	→	**C**
Contextual performance	50	41	45	↓	
Political strength	57	52	50	↑	
Societal strength	34	31	31	→	
Economic strength	63	56	66	↓	
Overall rank and balance score	**62**	**63**	**67**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	31.4	GDP per capita (PPP, USD); GDP Group	31,466 (II)
TPEP / TPEC (net energy importer)	0.06	Energy intensity (koe per USD)	0.11
Emission intensity (kCO_2 per USD)	0.31	CO_2 emissions (tCO_2) per capita	8.30
Energy affordability (USD per kWh)	0.15	Population with access to electricity (%)	100.0

INDEX COMMENTARY

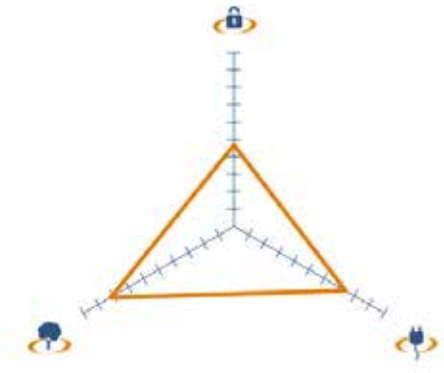
While overall energy performance stays roughly the same, Israel drops four spots in this year's Index, in a large part due to a decline in economic strength. The three sides of Israel's energy trilemma continue to be unbalanced, with weaker energy security and environmental sustainability performance, and a high degree of energy equity. Energy security continues to be Israel's weakest dimension due to the small country's heavy reliance on energy imports (it produces only 6% of the total energy it consumes), low oil reserves, and a homogenous electricity fuel mix that uses only conventional thermal energy. Energy equity remains Israel's strongest energy dimension, despite a slight increase in household expenditures on electricity. Environmental sustainability performance remains fairly stable, with low, but slightly improving, results for air and water quality, emission intensity, and CO_2 emissions from electricity generation. Contextually, Israel has a high degree of societal strength, decent political strength that is marred by a low degree of political stability, and an economy with a high cost of living and declining macroeconomic stability.

INDEX RANK
28

ITALY

BALANCE SCORE
ABC

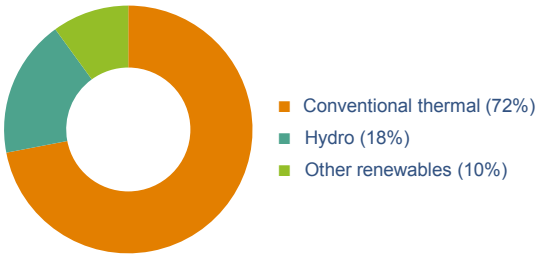
ENERGY SUSTAINABILITY BALANCE



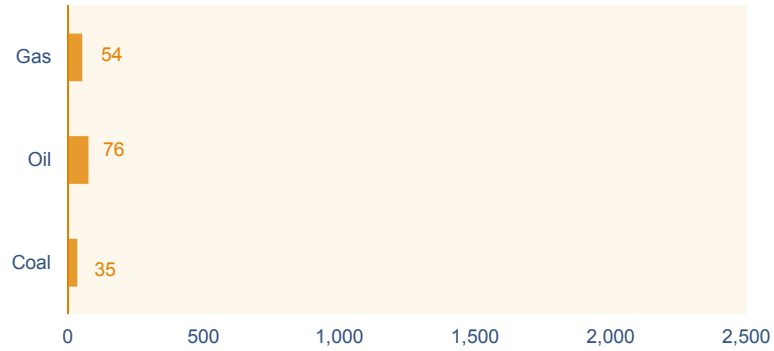
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	33	26	25	↑	
Energy security	83	76	69	↑	C
Energy equity	32	29	34	↓	B
Environmental sustainability	24	22	24	↓	A
Contextual performance	40	38	39	↓	
Political strength	43	44	43	↑	
Societal strength	44	32	32	→	
Economic strength	48	50	59	↓	
Overall rank and balance score	**33**	**27**	**28**	↓	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	23.9	GDP per capita (PPP, USD); GDP Group	30,422 (II)
TPEP / TPEC (net energy importer)	0.17	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.24	CO_2 emissions (tCO_2) per capita	6.36
Energy affordability (USD per kWh)	0.29	Population with access to electricity (%)	100.0

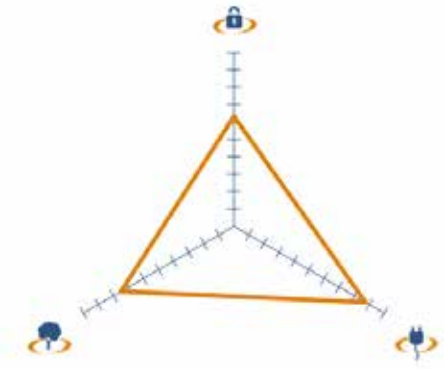
INDEX COMMENTARY

Italy drops one place in this year's Index, slipping to rank 28. Italy is well on its way to balancing the three sides of the energy trilemma, with good performances on the energy equity and environmental sustainability dimensions and a weaker, but improving, energy security ranking. Hampered by an unfavourable total energy production to consumption ratio (the country produces only 17% of the energy it consumes), Italy is increasing both its energy production and the diversity of its electricity fuel mix to try to increase its long-term energy security. The energy equity dimension sees increasing fuel and electricity prices, but, on the whole, Italy continues to provide its citizens with relatively affordable, high-quality energy. Environmental sustainability performance remains relatively stable, with slight declines in CO_2 emissions from electricity generation. However, Italy's ranking on this dimension slips as its improvements are outperformed by other environmentally-conscious countries. Contextual performance is also largely unchanged, with the most notable difference being a drop in macroeconomic stability.

TRENDS AND OUTLOOK

- Italy has reached important mitigation policy objectives by transforming its thermoelectric fleet into one of the most efficient in Europe and by changing the energy mix for power generation from oil to cleaner natural gas and renewable energy. Furthermore, several measures were adopted for improving energy efficiency in the residential-commercial and transport sectors. However, additional efforts are necessary to upgrade the existing infrastructure, buildings and car-truck fleets.
- Recent policy developments include: 1) two ministerial decrees, approved in July 2012, with reshaped incentives for electricity production from renewable energy and tariffs increasingly in line with those applied in other EU countries; 2) the Dl Sviluppo decree came into force in July 2012 and confirmed tax breaks for restructuring activities, and the improvement of energy performances in buildings (confirmed for 2013 by DI 63/2013); and 3) the government's commitment to support the development of natural gas infrastructures to improve diversification and support the expansion of renewable energy. Measures are expected to have a positive impact on both energy security and environmental sustainability by lowering the environmental impact of electricity production, reducing Italy's dependence on imported fossil fuels and improving the Italian balance of payment.
- However, concerns remain around the energy equity dimension. The challenge of increasing costs of energy for families and businesses, mainly due to the surge in oil and gas import prices, but also due to incentives to drive the development of renewable energy, needs to be addressed. For example, there needs to be a further integration and convergence towards EU spot liquid markets and price formulas. However, positive developments in natural gas wholesale prices are foreseen in 2013 due to the second phase of the "Reform of the economic conditions of the natural gas protection service" (AEEG Resolution 196/2012/R/gas).

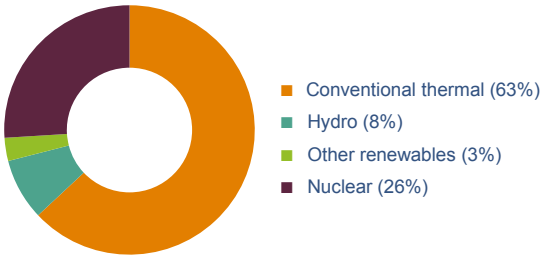
ENERGY SUSTAINABILITY BALANCE



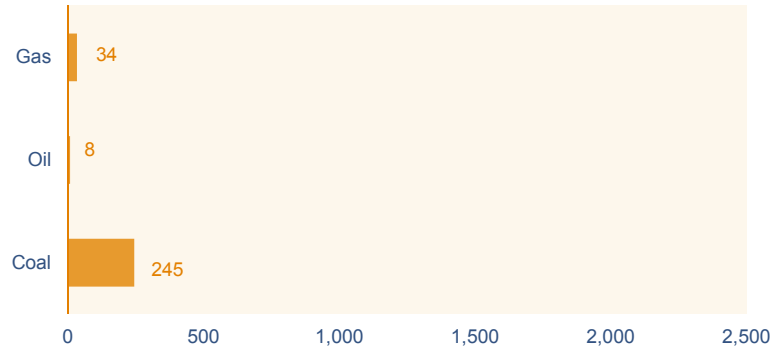
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	14	13	14	↓	
Energy security	46	49	48	↑	B
Energy equity	8	9	17	↓	A
Environmental sustainability	31	29	33	↓	B
Contextual performance	29	30	32	↓	
Political strength	18	22	22	→	
Societal strength	17	12	12	→	
Economic strength	59	65	71	↓	
Overall rank and balance score	**13**	**14**	**16**	↓	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.5	GDP per capita (PPP, USD); GDP Group	34,853 (I)
TPEP / TPEC (net energy importer)	0.19	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.29	CO_2 emissions (tCO_2) per capita	8.71
Energy affordability (USD per kWh)	0.28	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Japan's overall Index ranking slips two places this year, a change mainly driven by slight drops in energy equity, environmental sustainability and economic strength. Japan continues to balance the three sides of the energy trilemma well, although the resource-poor country's energy security ranking lags slightly. Overall energy security performance remains largely unchanged as the energy importer continues to struggle with unfavourable total energy production to consumption and therefore import to export ratios. While the electricity fuel mix remains quite diverse, it should be noted that the full effects of the 2011 Fukushima nuclear accident are not yet entirely realized in the data (which use the most current numbers available); as a result of that crisis, many of the country's nuclear reactors remain closed and the future of nuclear power in Japan remains uncertain. Japan's rank on the energy equity dimension falls this year due to increased energy prices and a slight dip in the perceived quality and reliability of electricity. Environmental sustainability performance is essentially flat, but ranks slightly lower this year because of outperformance by other countries. Contextually, indicators of political and societal strength repeat their outstanding performance for yet another year, while economic strength continues to decline, due to weakening macroeconomic stability and the continued high cost of living.

TRENDS AND OUTLOOK

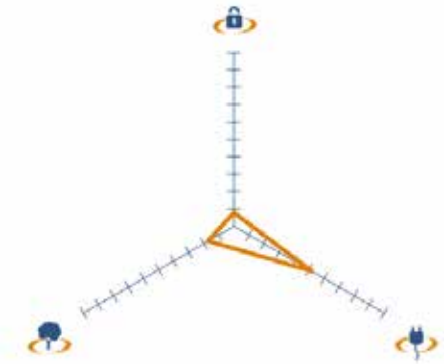
- Most recent energy policy developments include the implementation of a feed-in tariff (FIT) system as of July 1, 2012 which is expected to increase the penetration of renewable energies, such as solar PV and wind. However, the FIT system is viewed with some criticism, as purchasing prices are set high based on the estimated cost of individual renewable energies and a heavy burden on household's (including households on welfare) electricity bill is expected. Also there are concerns that the domestic PV will not be able to compete against lower-cost imports in the national market.
- In December 2012 Japan's government changed. The new, liberal Government is reversing the previous policy of abolishing nuclear power. Under a new nuclear safety standard, Japan plans to restart nuclear plants where safety has been confirmed. In July 2013 a newly established independent organisation, the Nuclear Regulation Authority (NRA), started to accept applications from nuclear operators (electric power companies) to undergo safety examinations based on the new standard including severe accident management.
- However, the future composition of Japan's energy sector, especially the future of nuclear power, is still unclear as some questions remain 1) will the NRA implement the new safety standard practically and properly using present reviewers, and 2) can agreements on the restart from neighbouring municipalities and prefectural governors be obtained easily?

INDEX RANK
96

JORDAN

BALANCE SCORE
BDD

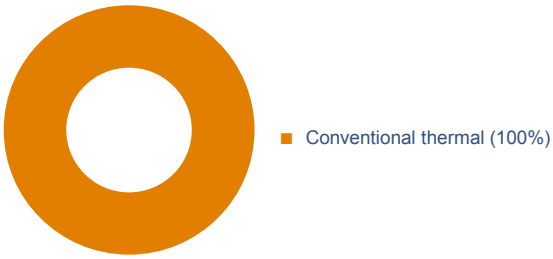
ENERGY SUSTAINABILITY BALANCE



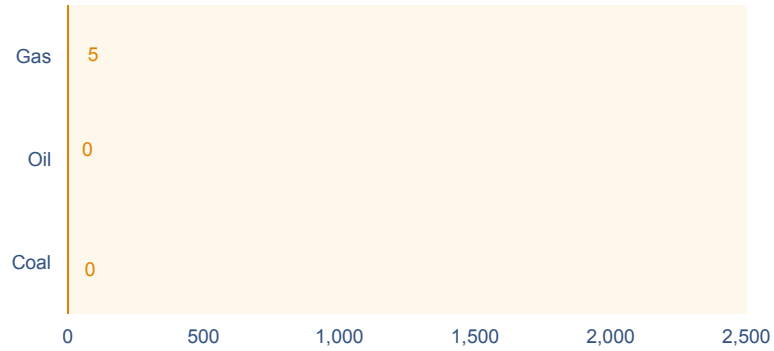
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	105	105	113	↓	
Energy security	107	108	119	↓	D
Energy equity	55	62	63	↓	B
Environmental sustainability	112	110	107	↑	D
Contextual performance	46	47	49	↓	
Political strength	62	66	67	↓	
Societal strength	50	49	49	→	
Economic strength	37	37	38	↓	
Overall rank and balance score	**89**	**93**	**96**	↓	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.9	GDP per capita (PPP, USD); GDP Group	5,907 (IV)
TPEP / TPEC (net energy importer)	0.03	Energy intensity (koe per USD)	0.23
Emission intensity (kCO_2 per USD)	0.58	CO_2 emissions (tCO_2) per capita	3.00
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.4

INDEX COMMENTARY

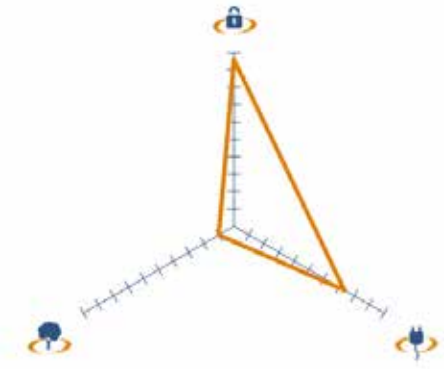
Small dips in performance all across the board cause Jordan to drop three places in this year's Index. One of the 'Back of the Pack' countries, Jordan has its weaker performances on the energy security and environmental sustainability dimensions balanced out by a decent energy equity ranking. The country's low energy security, the weakest of the three dimensions, is driven by a combination of its unfavourable total energy production to consumption and import to export ratios, its homogenous fossil-fuelled electricity fuel mix, and the high proportion of electricity lost in transmission and distribution. This year's decline in performance comes largely as the result of even greater transmission and distribution losses. Energy equity is Jordan's is strongest energy dimension, with high gasoline prices, but reasonably affordable electricity. While pollution levels are moderate considering the country is powered by fossil fuels, high energy and emission intensity and large (but shrinking) amounts of CO_2 emissions being emitted in electricity generation result in a low environmental sustainability ranking. Contextually, Jordan ranks above-average and performance is mostly flat, with political and macroeconomic stability being the country's weakest indicators.

BALANCE SCORE
ABD

KAZAKHSTAN

INDEX RANK
58

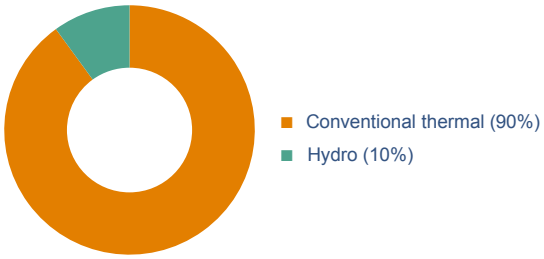
ENERGY SUSTAINABILITY BALANCE



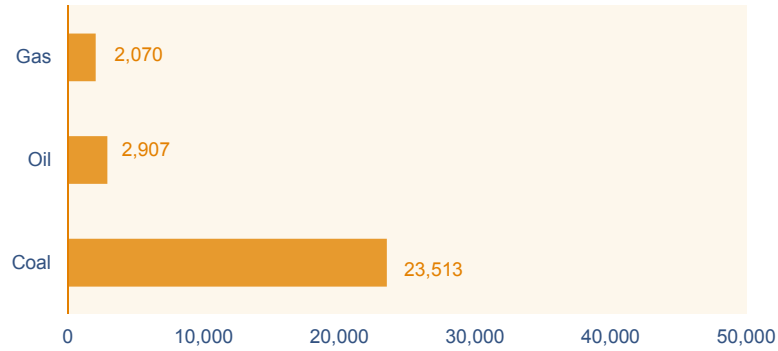
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	52	51	43	↑	
Energy security	5	8	6	↑	**A**
Energy equity	40	35	35	→	**B**
Environmental sustainability	122	119	116	↑	**D**
Contextual performance	74	84	90	↓	
Political strength	65	69	83	↓	
Societal strength	86	102	102	→	
Economic strength	69	76	79	↓	
Overall rank and balance score	**56**	**57**	**58**	↓	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	37.9	GDP per capita (PPP, USD); GDP Group	13,253 (III)
TPEP / TPEC (net energy exporter)	2.58	Energy intensity (koe per USD)	0.40
Emission intensity (kCO_2 per USD)	1.21	CO_2 emissions (tCO_2) per capita	13.95
Energy affordability (USD per kWh)	0.04	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Kazakhstan falls one place in this year's Index with performance on the three energy dimensions either constant or improving. Kazakhstan, a 'Fossil-fuelled' country, has strong energy security and energy equity rankings, and a very poor environmental sustainability performance. The country's exceptional energy security gets better this year as transmission and distribution losses decline and Kazakhstan further diversifies its electricity generation portfolio away from fossil fuels to include more hydropower. Energy equity continues to be good, despite rising gasoline prices, as the perceived quality of the country's very affordable electricity increases. While Kazakhstan's performance on the environmental sustainability dimension still lags very far behind performance on the other two dimensions, improvements are made across the board in energy intensity, emission intensity, and CO_2 emissions from electricity generation. Contextual indicators of political, societal, and economic strength all remain on the lower end of the spectrum, with the notable exception of the country's robust macroeconomic stability. Political stability weakens considerably this year.

TRENDS AND OUTLOOK

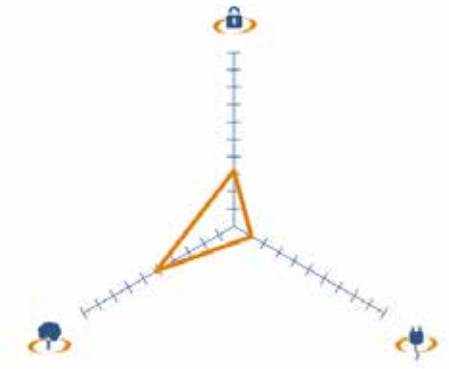
- The Kazakhstan government together with the business sector, energy industry and industrial associations, has developed and implemented a clear energy strategy and well-defined energy policy that support the development of a sustainable energy system.
- The most recent policy developments that are expected to improve Kazakhstan's energy sustainability balance include: 1) strengthening state institutions responsible for energy efficiency in production, extraction and consumption of energy; 2) clear and comprehensive energy saving programmes to reduce energy intensity of industry targets (reduce 10% by 2015 and 25% by 2020 compared to 2008); 3) the adoption of policies to support the development and inclusion of available renewable energy sources (RES) into the energy mix (electricity generated from RES should reach 1 billion kWh per year by 2014, almost 3 times the 2009 level); and 4) plans and programs to facilitate the modernisation of existing power generation, power grids and oil refining installations.
- Policymakers will continue existing successful practices to maintain a favourable investment climate, which allows improvements to the country's energy sustainability balance, and also attracts investment into the exploration and production of energy resources for export to world markets. There is a need to continue the development of power generating facilities by introducing cutting-edge technologies that will not only ensure domestic supply, but also enable the country to offer significant amounts of electricity to markets in neighbouring countries. Furthermore, reducing energy intensity and supporting the use of available renewable energy resources have to remain a key focus.

INDEX RANK
108

KENYA

BALANCE SCORE
BCD

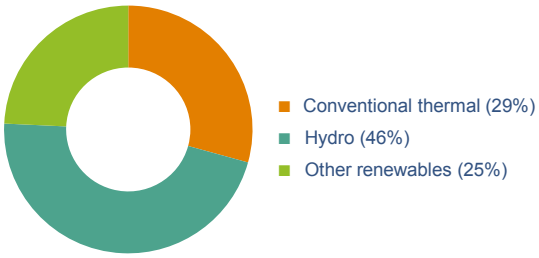
ENERGY SUSTAINABILITY BALANCE



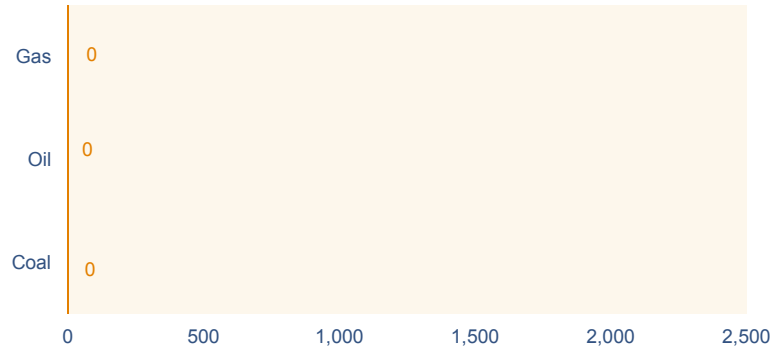
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	99	107	100	↑	
Energy security	90	93	88	↑	C
Energy equity	113	114	114	→	D
Environmental sustainability	62	74	63	↑	B
Contextual performance	115	115	118	↓	
Political strength	103	101	102	↓	
Societal strength	118	122	122	→	
Economic strength	98	90	99	↓	
Overall rank and balance score	**107**	**113**	**108**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	14.8	GDP per capita (PPP, USD); GDP Group	1,741 (IV)
TPEP / TPEC (net energy importer)	0.23	Energy intensity (koe per USD)	0.32
Emission intensity (kCO_2 per USD)	0.17	CO_2 emissions (tCO_2) per capita	0.26
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	23.0

INDEX COMMENTARY

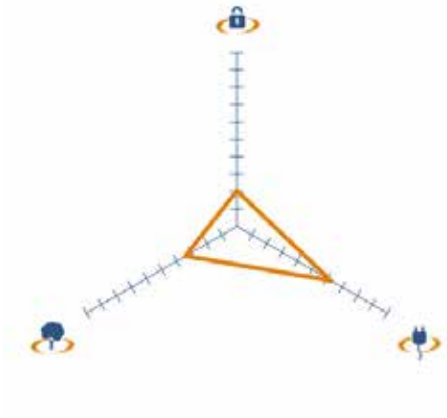
Kenya increases five places in the Index as performance on the energy dimensions improves. Kenya continues to struggle with balancing the energy trilemma, as energy equity lags behind its performances on the energy security and environmental sustainability dimensions. With Kenya producing less than a quarter of the total energy it consumes, overall energy security remains fairly low. However, the country continues to keep its economy growing faster than energy consumption rates, which is good for the future. Energy equity remains Kenya's weakest energy dimension, with high gasoline prices and only 23% of its citizens having access to expensive electricity services. Environmental sustainability is Kenya's strongest dimension, and this year sees big reductions in CO_2 emissions from electricity generation. Kenya will face the challenge of keeping these emissions low (fossil fuels currently make up only around a quarter of Kenya's electricity fuel mix) as it works to strengthen its economy and increase energy equity. Contextual performance continues to be low, with this year's big changes being improvements in education and a dip in macroeconomic stability.

BALANCE SCORE
BCD

KOREA (REPUBLIC)

INDEX RANK
64

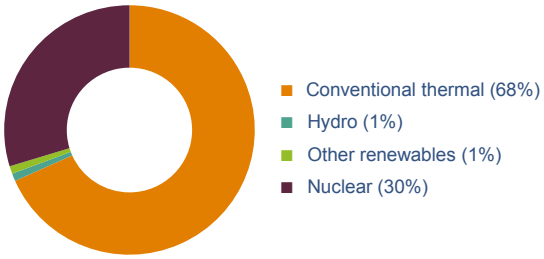
ENERGY SUSTAINABILITY BALANCE



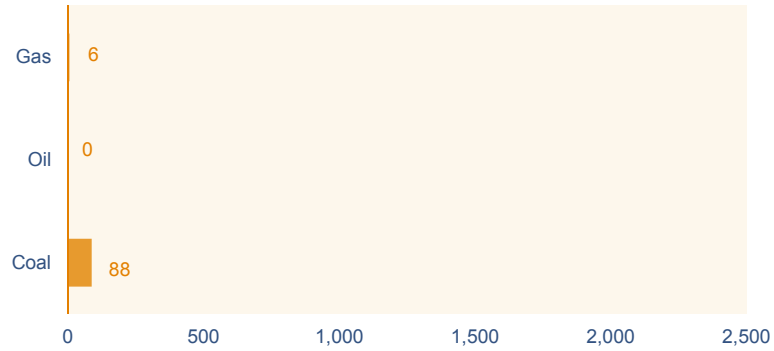
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	73	72	85	↓	
Energy security	92	89	103	↓	**D**
Energy equity	39	32	49	↓	**B**
Environmental sustainability	81	86	85	↑	**C**
Contextual performance	22	21	16	↑	
Political strength	41	41	37	↑	
Societal strength	27	26	26	→	
Economic strength	12	11	9	↑	
Overall rank and balance score	**55**	**54**	**64**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	31,220 (II)
TPEP / TPEC (net energy importer)	0.14	Energy intensity (koe per USD)	0.19
Emission intensity (kCO_2 per USD)	0.43	CO_2 emissions (tCO_2) per capita	12.01
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	93.3

INDEX COMMENTARY

Korea drops 10 places in the Index, mostly due to deteriorations in energy security and energy equity. Korea has a low level of energy security and struggles with mitigating its environmental impact, but performs better on the energy equity dimension. Korea continues to be heavily reliant on fuel imports and its energy import to export ratio worsens this year. A decline in energy equity performance is driven by rising gasoline prices and a considerable drop in the perceived quality of electricity but nevertheless, this energy dimension remains Korea's strongest. Indicators measuring environmental sustainability are all constant, with the exception of a minor increase in CO_2 emissions from electricity generation. Contextual performance is good, especially on indicators of economic strength, and this year sees good progress made in increasing political strength, the weakest of Korea's three contextual dimensions.

TRENDS AND OUTLOOK

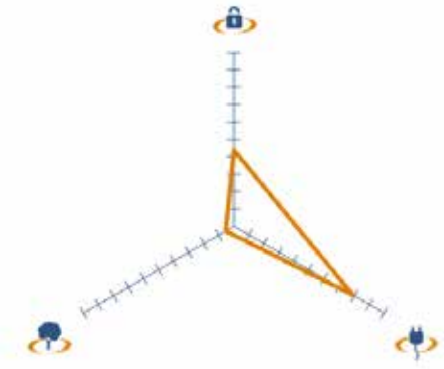
- Energy Security remains a major challenge with a very low stability of resource supplies and an energy import dependency of around 97%. As a counter measure Korea (Republic) has invested in overseas resource development, but this brings new challenges such as low production capacity, lack of human resources, technical skills and so on. There are environmental sustainability calls for action given the high energy intensity levels, growing energy consumption and increasing GHG emissions.
- Recent policy measures to enhance energy security include: 1) expanding cooperation with resource-rich countries; 2) strengthening the competitiveness of energy developing companies; and 3) establishing the Overseas Resource Development Fund to fund energy development projects in addition to giving government loans and guarantees. Environmental sustainability policy measures include: 1) the expansion of renewable energy with targets until 2030; 2) the shift from government-financed feed-in-tariffs to a renewable portfolio standard in 2012 to create new demand for renewable energy; and 3) the strong support of RD&D. Nuclear energy plays an essential role in the countries energy system in terms of energy security, economics, climate change and load demand.
- Policymakers need to continue focusing on: 1) the enhancement of overseas energy development; 2) the development of renewable energy; and 3) the expansion of the nuclear power sector considering safety issues, waste disposal, and increasing public acceptance by providing objective information and being transparent.

INDEX RANK
66

KUWAIT

BALANCE SCORE
BCD

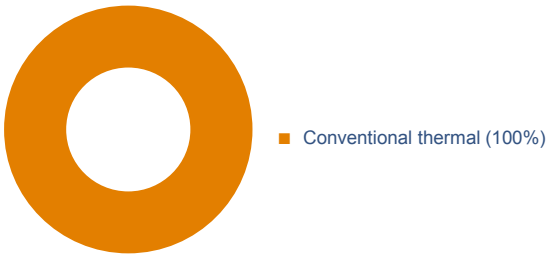
ENERGY SUSTAINABILITY BALANCE



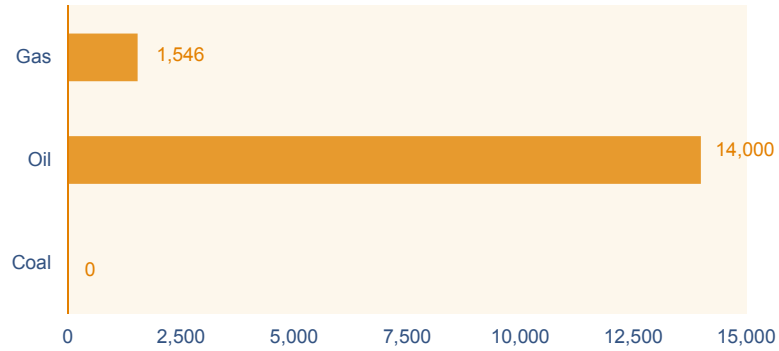
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	92	77	80	↓	
Energy security	95	62	73	↓	C
Energy equity	38	33	28	↑	B
Environmental sustainability	120	122	122	→	D
Contextual performance	36	36	36	→	
Political strength	56	56	60	↓	
Societal strength	55	53	53	→	
Economic strength	5	6	4	↑	
Overall rank and balance score	**77**	**61**	**66**	↓	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	42.3	GDP per capita (PPP, USD); GDP Group	38,332 (I)
TPEP / TPEC (net energy exporter)	4.38	Energy intensity (koe per USD)	0.27
Emission intensity (kCO_2 per USD)	0.74	CO_2 emissions (tCO_2) per capita	35.12
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1

INDEX COMMENTARY

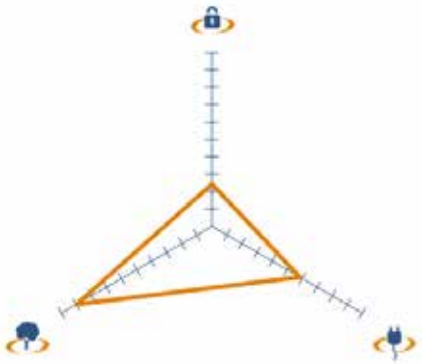
Kuwait drops five places in the overall Index ranking, largely because of a decline in energy security. A member of the 'Fossil-fuelled' grouping of countries, Kuwait has a very low ranking on the environmental sustainability dimension, especially when compared with its better performances on energy security and energy equity. Kuwait's energy security ranking is lower than expected for an OPEC country, as the energy consumption growth rate outpaces economic growth (a gap that widens this year), and its electricity fuel mix remains homogenous and entirely reliant on burning fossil fuels. Both gasoline and electricity remain quite affordable to Kuwaitis, making energy equity Kuwait's strongest energy dimension by far. The country's environmental sustainability ranking is still among the worst in the world, with high levels of energy and emission intensity and large amounts of CO_2 emissions resulting from electricity generation, although the latter sees some incremental improvement this year. Contextual performance remains largely stable, with slight deteriorations on the indicators of political strength, and Kuwait's economic strength continues to be among the highest in the world.

BALANCE SCORE
ABD

LATVIA

INDEX RANK
43

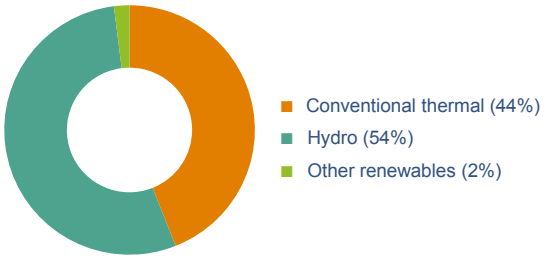
ENERGY SUSTAINABILITY BALANCE



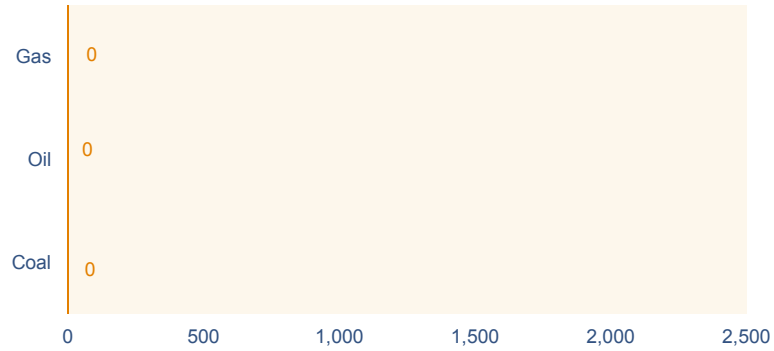
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	39	44	51	↓	
Energy security	76	78	98	↓	**D**
Energy equity	53	54	54	→	**B**
Environmental sustainability	14	18	14	↑	**A**
Contextual performance	52	51	43	↑	
Political strength	42	37	41	↓	
Societal strength	41	42	42	→	
Economic strength	73	78	62	↑	
Overall rank and balance score	**37**	**42**	**43**	↓	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	26.3	GDP per capita (PPP, USD); GDP Group	16,717 (II)
TPEP / TPEC (net energy importer)	0.22	Energy intensity (koe per USD)	0.14
Emission intensity (kCO_2 per USD)	0.24	CO_2 emissions (tCO_2) per capita	3.34
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Latvia falls one place in the Index, mostly due to a decline in energy security. The country faces challenges with balancing the energy trilemma similar to those that are faced by the 'Hydro-powered' grouping of countries, with lower levels of energy security and energy equity being counterpoints to a strong environmental sustainability performance. Latvia, which imports over three-fourths of the energy it consumes, struggles with its energy security ranking the most. Performance on this dimension declines this year as its energy consumption growth rate rises. The country performs much better on the energy equity dimension, with affordable (although not quite cheap) prices of gasoline and electricity. Latvia's environmental sustainability performance is its best, and among the top worldwide, with low levels of pollution and minimal CO_2 emissions from electricity generation. This is likely related to the fact that the majority of electricity generated in Latvia comes from hydropower. Contextually, the biggest changes are a decrease in political stability and significant improvements in macroeconomic stability.

TRENDS AND OUTLOOK

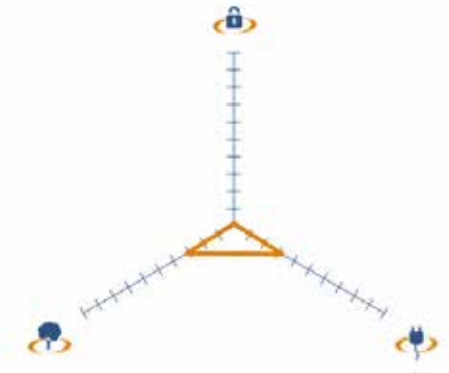
- Latvia's current power generation capacity, which consists of hydropower plants (HPP) and combined heat-electric generation plants (CHP), is insufficient to meet the electricity demand. To address this issue and other challenges the Cabinet of Ministers in Latvia issued the Guidelines for Energy Sector Development for 2007-2016 and defined main principles, goals and directions for the next 10 years including the goal to achieve energy self-sufficiency by 2016.
- Furthermore, in 2012 the Latvian government agreed on the Latvian Energy Long Term Strategy 2030 – Competitive Energy for Society. The main goals include: 1) reduce electricity and natural gas imports from third countries by 50%; 2) increase energy production from renewable resources up to 50% of gross energy consumption; 3) provide alternatives for natural gas deliveries; 4) open electricity market in Latvia and to integrate it into the Baltic electricity markets; and 5) increase interconnection power grid capacity to increase the effectiveness of the electricity market and to reduce electricity prices.
- The main challenges in Latvia will be to incentivise investments to develop new power plants and to balance the goals of increasing renewable energy generation (mainly wind) and keeping energy prices at an acceptable level to avoid negative impacts on the economy.

INDEX RANK
109

LEBANON

BALANCE SCORE
CCD

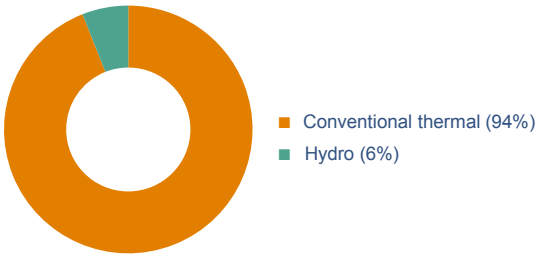
ENERGY SUSTAINABILITY BALANCE



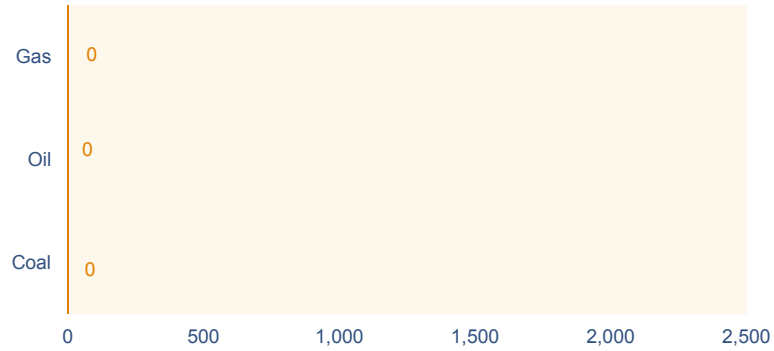
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	108	113	121	↓	
Energy security	125	122	127	↓	D
Energy equity	76	84	87	↓	C
Environmental sustainability	84	87	89	↓	C
Contextual performance	73	69	70	↓	
Political strength	105	95	96	↓	
Societal strength	66	69	69	→	
Economic strength	49	49	48	↑	
Overall rank and balance score	**101**	**105**	**109**	↓	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	19.7	GDP per capita (PPP, USD); GDP Group	15,449 (II)
TPEP / TPEC (net energy importer)	0.03	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.36	CO_2 emissions (tCO_2) per capita	4.54
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.9

INDEX COMMENTARY

Lebanon falls four places in the Index as performance declines on all three energy dimensions. The country's rankings on the three energy dimensions are all low, with energy security almost lacking entirely. Producing a mere 3% of the energy it consumes and having no oil stocks of its own, Lebanon is heavily reliant on fuel imports and is ill-equipped to handle any potential disruptions to its energy supply. The lack of diversity of its electricity fuel mix does not help either, as the country relies on burning fossil fuels to generate 94% of its electricity. Energy equity performance is comparatively better, although the quality of electricity services is perceived to be low and getting worse. Lebanon's environmental sustainability performance is weak as well, with notably high emission intensity and CO_2 emissions from electricity generation, although the latter improves incrementally this year. Contextually, Lebanon is plagued by low levels of political stability, control of corruption, and rule of law. The country's economic strength is its best contextual dimension, with a low cost of living and decent availability of domestic credit to the private sector. However, macroeconomic stability continues to be extremely poor.

TRENDS AND OUTLOOK

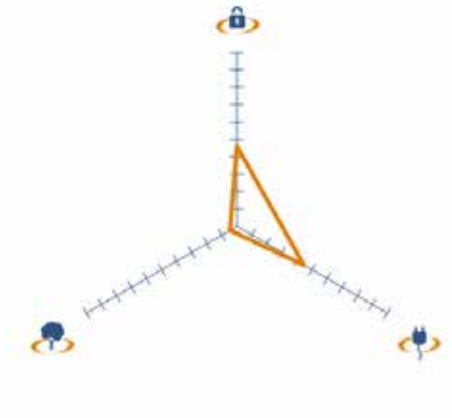
- Lebanon has a chronic electricity supply problem. However, in 2010, the government approved a promising strategy for the rehabilitation of the power sector, including the development of energy efficiency and renewable energy. The national target is to reach 12% of renewable energy out of the total electricity production in 2020. Energy efficiency target is to minimise demand by 5% in 2015. Challenges include mainly updating the legislative framework of the power sector.
- In addition to the policy paper, Lebanon is the first country in the Arab world to develop its National Energy Efficiency Action Plan (NEEAP) in 2011. Currently, the Renewable Energy Strategy is under preparation. Furthermore, Lebanon is embarking on a promising oil and gas exploration programme.
- Policymakers should focus on creating an enabling legislative framework for the development of renewable energy and energy efficiency, in addition to setting clear environmental regulations for the upcoming oil and gas industry.

BALANCE SCORE
CCD

LIBYA

INDEX RANK
117

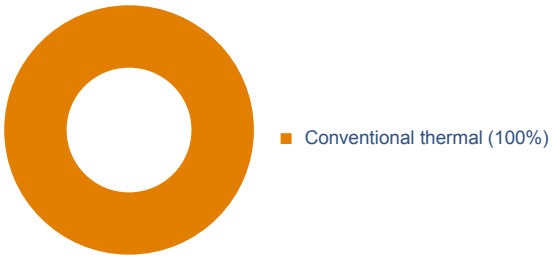
ENERGY SUSTAINABILITY BALANCE



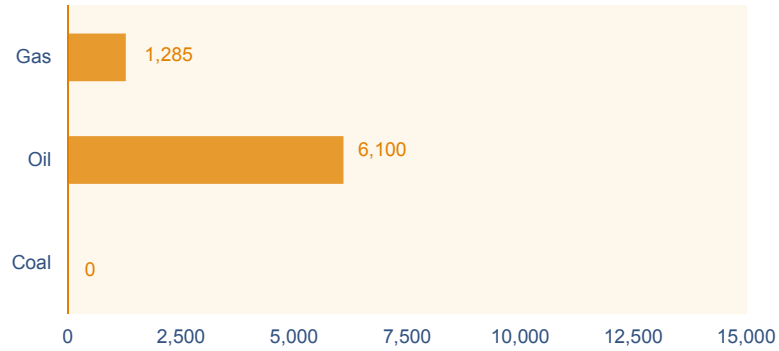
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	77	96	101	↓	
Energy security	41	53	70	↓	C
Energy equity	72	90	72	↑	C
Environmental sustainability	111	113	123	↓	D
Contextual performance	90	123	124	↓	
Political strength	98	113	126	↓	
Societal strength	112	117	117	→	
Economic strength	60	129	117	↑	
Overall rank and balance score	**86**	**109**	**117**	↓	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	5,904 (II)
TPEP / TPEC (net energy exporter)	5.13	Energy intensity (koe per USD)	0.37
Emission intensity (kCO_2 per USD)	0.98	CO_2 emissions (tCO_2) per capita	6.03
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

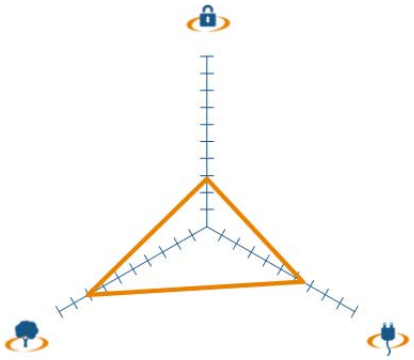
Libya drops eight places in the Index as a result of tumultuous change across both the energy and contextual dimensions. The energy trilemma remains unbalanced in Libya, with equally average performances in energy security and energy equity being dragged down by a very poor environmental sustainability ranking. Energy security falls considerably for the oil exporter as energy consumption growth outpaces economic growth and oil stocks decline. Energy equity sees big improvements as gasoline and electricity prices fall and the perceived quality of electricity services increases. Performance on the environmental sustainability dimension remains Libya's worst by far, and is among the worst in the world. Increased energy and emission intensity and even higher CO_2 emissions produced as a result of electricity generation are driven by an electricity generation portfolio that is entirely fossil-fuelled. Performance on contextual indicators is quite varied and different from last year, with some indicators improving and others deteriorating. Indicators of political strength, control of corruption, and rule of law all fall drastically. At the same time, other indicators of societal strength, like health and education, and macroeconomic stability all improve considerably. Libya's contextual ranking remains essentially the same, near the bottom of the Index.

INDEX RANK
42

LITHUANIA

BALANCE SCORE
ABC

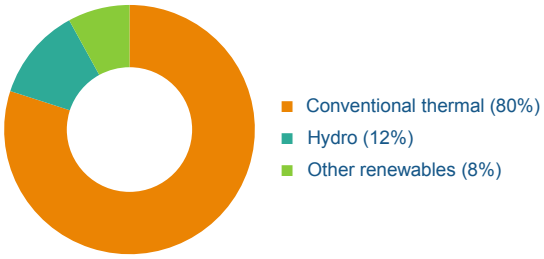
ENERGY SUSTAINABILITY BALANCE



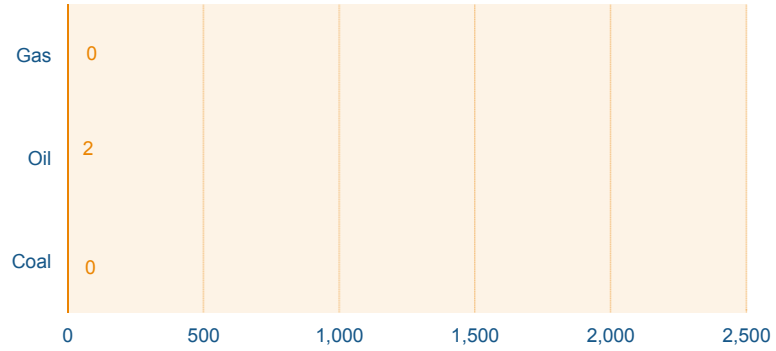
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	46	37	48	↓	
Energy security	86	80	93	↓	C
Energy equity	47	46	46	→	B
Environmental sustainability	22	16	26	↓	A
Contextual performance	38	40	42	↓	
Political strength	35	35	36	↓	
Societal strength	39	39	39	→	
Economic strength	57	63	69	↓	
Overall rank and balance score	**41**	**36**	**42**	↓	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	28.4	GDP per capita (PPP, USD); GDP Group	20,343 (II)
TPEP / TPEC (net energy importer)	0.05	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.24	CO_2 emissions (tCO_2) per capita	3.98
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

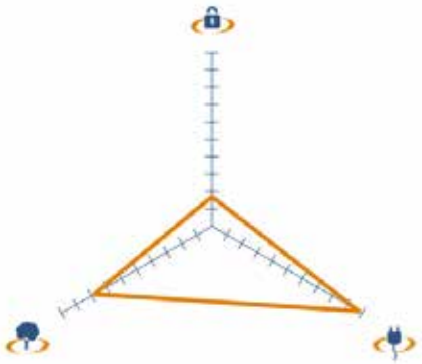
Lithuania falls six places in the overall Index rankings as energy security and environmental sustainability decline. The three sides of the energy trilemma are not very well-balanced by Lithuania, as it has a low degree of energy security, provides decent levels of energy equity, and manages its impact on the environment well. Energy security continues to be the most challenging dimension for Lithuania, which produces a mere 5% of the total energy it consumes. Despite declining energy consumption, the country's total energy production to consumption and energy import to export ratios have become much less favourable as domestic energy production, and the diversity of the electricity fuel mix has fallen in the wake of the closure of Lithuania's last nuclear power plant at the end of 2009. Transmission and distribution losses also increase from 7% to 23% of total electricity generated. Energy equity does not see significant changes. Performance on the environmental sustainability dimension declines but remains good. The biggest change is a large increase in CO_2 emissions from electricity generation. Again this is likely to be associated with stopping the use of nuclear power and shifting the electricity fuel mix back towards a heavier reliance on fossil fuels. Indicators of contextual performance decrease just slightly across the board.

BALANCE SCORE
ABD

LUXEMBOURG

INDEX RANK
19

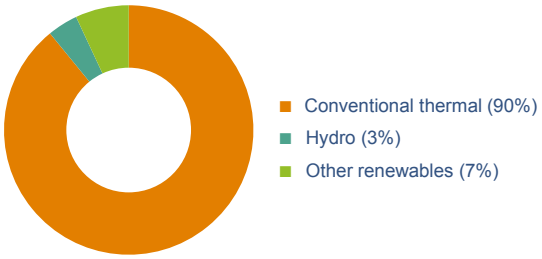
ENERGY SUSTAINABILITY BALANCE



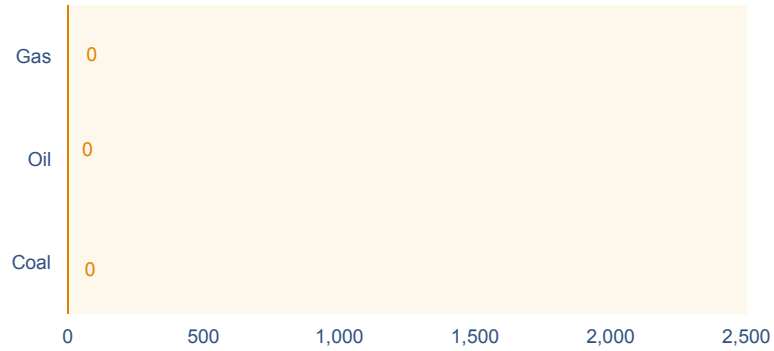
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	26	30	34	↓	
Energy security	96	96	107	↓	**D**
Energy equity	5	6	4	↑	**A**
Environmental sustainability	26	28	29	↓	**B**
Contextual performance	3	3	2	↑	
Political strength	4	7	5	↑	
Societal strength	20	13	13	→	
Economic strength	1	2	1	↑	
Overall rank and balance score	**17**	**18**	**19**	↓	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	13.6	GDP per capita (PPP, USD); GDP Group	79,778 (I)
TPEP / TPEC (net energy importer)	0.02	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.29	CO_2 emissions (tCO_2) per capita	19.76
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Luxembourg slides down one place in the overall Index rankings due to deteriorating energy security. Its balance of the energy trilemma remains lopsided, with excellent performances on the energy equity and environmental sustainability dimensions, but a low degree of energy security. This poor performance on the energy security dimension continues to be driven by its heavy reliance on fuel imports that total 98% of energy consumed, minimal oil stocks, and the low diversity of its electricity fuel mix, all of which worsen this year. These are all persisting challenges for Luxembourg, given the country's small geographical size and resource-poor natural endowments, but high level of economic development. Energy equity remains among the highest in the world, as the country continues to provide its citizens with (relatively) affordable gasoline and electricity. Luxembourg's environmental sustainability ranking drops slightly, but remains solid, as CO_2 emissions from electricity generation see an increase. Contextually, Luxembourg ranks second in the world overall and continues to receive top marks on all indicators of political, societal, and economic strength.

INDEX RANK

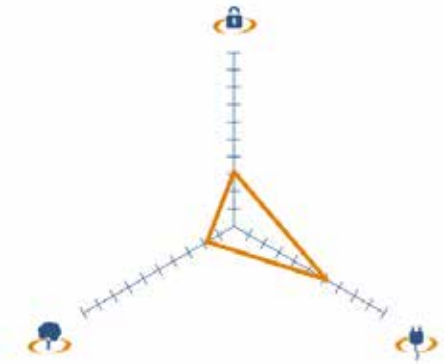
86

MACEDONIA

BALANCE SCORE

BCD

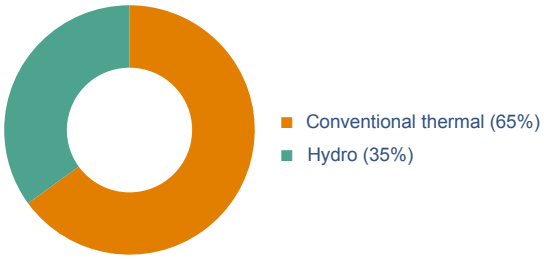
ENERGY SUSTAINABILITY BALANCE



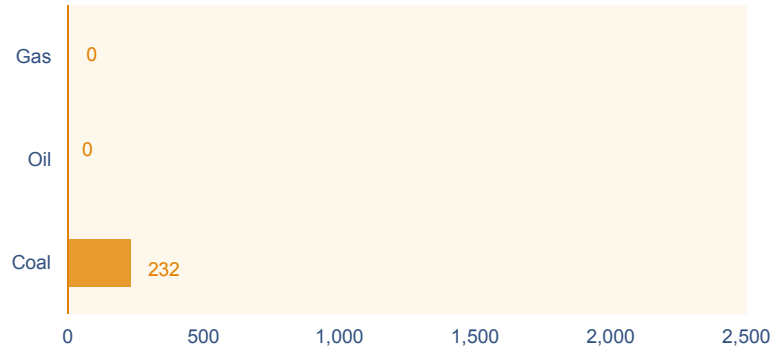
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	106	99	91	↑	
Energy security	101	99	89	↑	C
Energy equity	68	64	50	↑	B
Environmental sustainability	109	105	106	↓	D
Contextual performance	74	70	73	↓	
Political strength	68	72	71	↑	
Societal strength	62	63	63	→	
Economic strength	90	80	88	↓	
Overall rank and balance score	**99**	**95**	**86**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	10,444 (III)
TPEP / TPEC (net energy importer)	0.59	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.51	CO_2 emissions (tCO_2) per capita	4.83
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.0

INDEX COMMENTARY

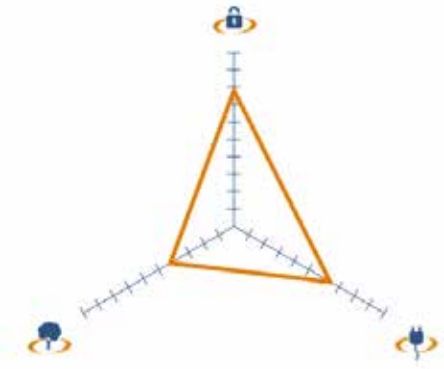
Macedonia moves up nine places in the Index, a jump driven by improvements in energy security and energy equity. Macedonia continues to struggle with balancing the three dimensions of the energy trilemma, with a decent level of energy equity being counterbalanced by energy security and environmental sustainability rankings that are in the bottom quartile of the world. Energy security increases this year, with the net importer boosting its domestic production and increasing the diversity of its electricity generation portfolio. Energy equity also improves, rising with the perceived quality of electricity services. However, performance on the environmental sustainability dimension, Macedonia's weakest, still lags behind. Although CO_2 emissions from electricity generation are down, energy and emission intensity increase, and pollution levels continue to pose a challenge. Performance on contextual indicators of political and societal strength is relatively constant, while macroeconomic stability weakens.

BALANCE SCORE
BBC

MEXICO

INDEX RANK
41

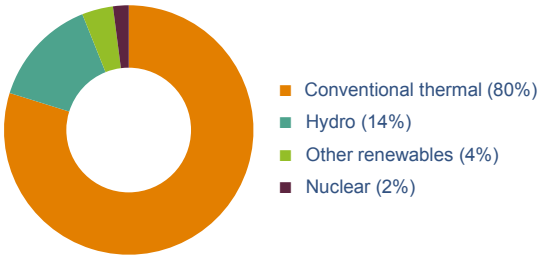
ENERGY SUSTAINABILITY BALANCE



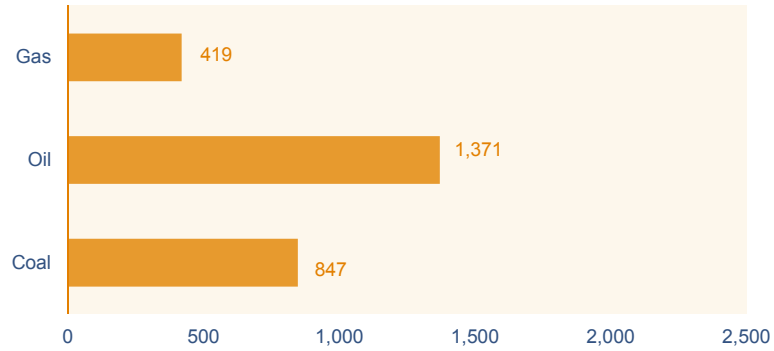
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	51	49	38	↑	
Energy security	28	35	29	↑	**B**
Energy equity	62	52	47	↑	**B**
Environmental sustainability	71	73	75	↓	**C**
Contextual performance	61	58	61	↓	
Political strength	68	68	65	↑	
Societal strength	73	68	68	→	
Economic strength	40	40	40	→	
Overall rank and balance score	**49**	**46**	**41**	↑	**BBC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	34.2	GDP per capita (PPP, USD); GDP Group	14,616 (II)
TPEP / TPEC (net energy exporter)	1.21	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.29	CO_2 emissions (tCO_2) per capita	3.64
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	99.2

INDEX COMMENTARY

Mexico moves up five places in the Index rankings as energy security and energy equity improve. Like the other 'Highly-Industrialised' countries, Mexico shows a strong performance in energy security, decent levels of energy equity, and an environmental sustainability ranking that lags behind. The net energy exporter's energy security improvement is driven by increasing energy production, large oil stocks, and an energy consumption growth rate that is well-managed. Energy equity improves this year as the price of electricity goes down while its perceived quality goes up. Mexico, which has a highly-industrialised economy and still generates 79% of its electricity by burning fossil fuels, continues to struggle the most with mitigating its impact on the environment. Mexico's biggest challenges in the environmental sustainability dimension remain air and water pollution. Contextually, Mexico's performance is overall stable, with average levels of political and societal strength and a comparatively stronger economy.

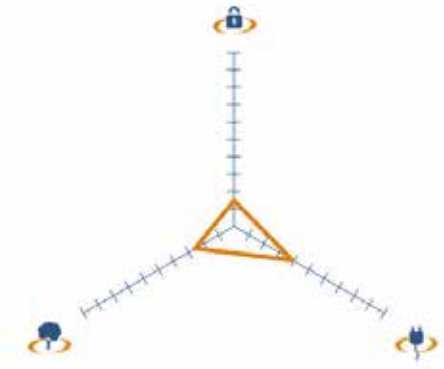
TRENDS AND OUTLOOK

- The most important policy development is the enactment of the General Law on Climate Change in June 2012. México is the second country, after the UK, that has enacted a law that frames the actions to be taken as far as climate change is concerned, both from an emission mitigation point of view as well as measures of adaptation. The three explicit goals are: 1) by 2020, there should be a 30% reduction in emissions with respect to a business as usual (BAU) projection; 2) by 2024, 35% of the electricity generation has to be from clean energies (non-GHG emitting technologies); and 3) by 2050, an aspirational goal of a 50% reduction in emissions with respect to a BAU projection.
- Furthermore, the first issue of the National Energy Strategy (NEA) was submitted and approved by Mexico's congress in 2009, with the provision it should be revisited on an annual basis. Among other provisions, NEA establishes the production from 'clean energy sources' in line with the General Law on Climate Change, and although no concrete projects have been decided, nuclear power is being considered as part of the 35% goal for clean energy technologies.
- The greatest challenges policymakers ought to focus on in order to meet the above mentioned targets are: 1) the continuation of a renewable energy program and the re-initiation of a nuclear programme; 2) continued increase of production of both oil and natural gas on and off-shore as well as the development of shale gas resources; and 3) improved energy efficiency and energy conservation including decreasing energy intensity.

INDEX RANK
105 MOROCCO

BALANCE SCORE
CCD

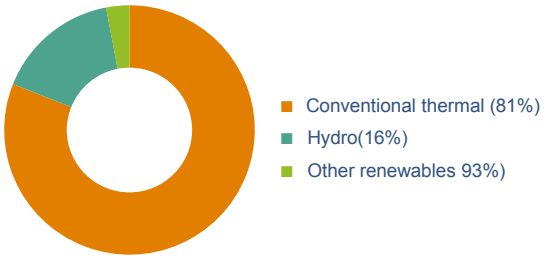
ENERGY SUSTAINABILITY BALANCE



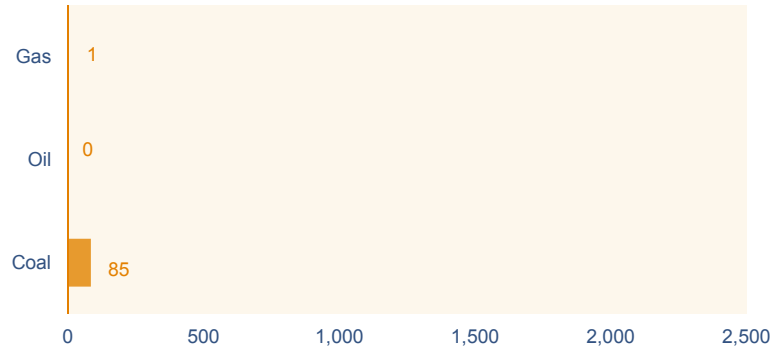
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	117	111	111	→	
Energy security	118	112	110	↑	**D**
Energy equity	80	79	79	→	**C**
Environmental sustainability	94	95	96	↓	**C**
Contextual performance	68	67	79	↓	
Political strength	78	81	80	↑	
Societal strength	80	71	71	→	
Economic strength	53	52	78	↓	
Overall rank and balance score	**104**	**102**	**105**	↓	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	32.8	GDP per capita (PPP, USD); GDP Group	5,075 (IV)
TPEP / TPEC (net energy importer)	0.06	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.32	CO_2 emissions (tCO_2) per capita	1.43
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	98.9

INDEX COMMENTARY

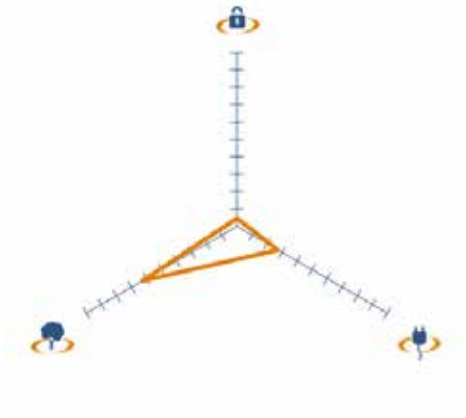
Morocco, a member of the 'Back of the Pack' country group, falls three places in the overall Index to rank 105, a drop caused largely by a decline in economic strength. Energy security continues to be Morocco's weakest dimension mainly because of its unfavourable total energy consumption to production ratio (the country only produces 6% of the energy it consumes) and an increasing energy consumption growth rate that is outpacing economic growth. However, this year sees Morocco increase the diversity of its electricity generation portfolio and reduce transmission and distribution losses, improvements that help to lift its energy security ranking. On the energy equity dimension, gasoline remains extremely expensive to Moroccans, although they see an increase in the quality of electricity supply. Mitigating its impact on the environment also remains a challenge for Morocco, as it continues to see high levels of pollution and rising CO_2 emissions levels from the generation of electricity. Contextually, indicators of political and societal strength remain constant and on the lower side. Formerly Morocco's strongest contextual dimension, economic strength falls as macroeconomic stability sees a big decline.

BALANCE SCORE
BCD

NAMIBIA

INDEX RANK
90

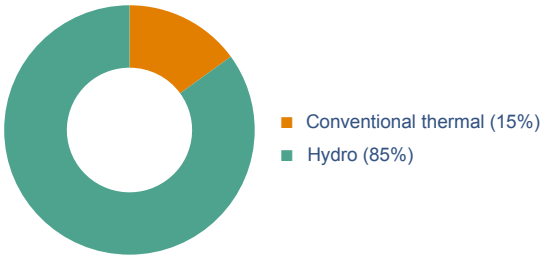
ENERGY SUSTAINABILITY BALANCE



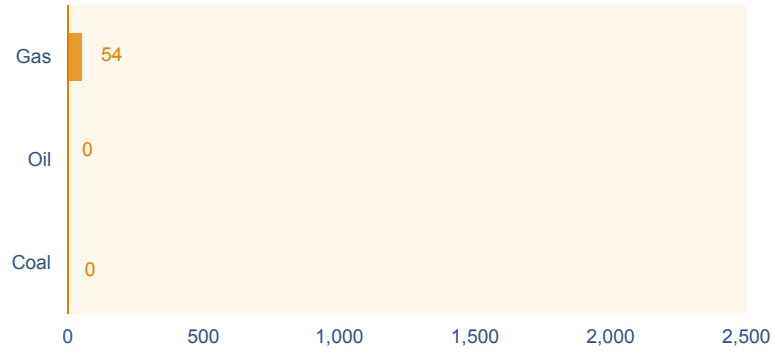
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	101	98	102	↓	
Energy security	122	125	123	↑	**D**
Energy equity	89	93	94	↓	**C**
Environmental sustainability	60	50	49	↑	**B**
Contextual performance	55	60	65	↓	
Political strength	48	49	48	↑	
Societal strength	75	76	76	→	
Economic strength	43	55	67	↓	
Overall rank and balance score	**91**	**92**	**90**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	34.3	GDP per capita (PPP, USD); GDP Group	7,399 (III)
TPEP / TPEC (net energy importer)	0.18	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.24	CO_2 emissions (tCO_2) per capita	1.41
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	43.7

INDEX COMMENTARY

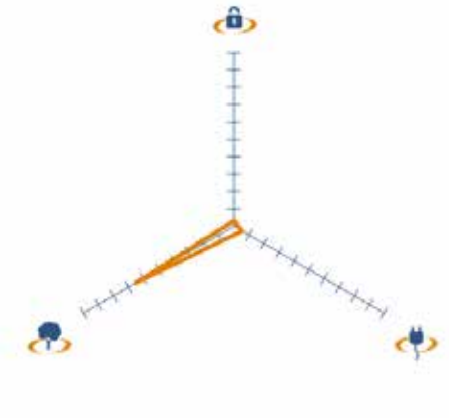
Namibia moves up two places in this year's Index to rank 90. Although not in the 'Hydro-powered' grouping of countries, Namibia does rely heavily on hydropower for electricity generation and exhibits an energy trilemma balance that is similar to some of those countries.It has a good environmental sustainability ranking that is offset by low levels of energy security and equity. Energy security, in particular, is a big challenge for Namibia, and the country ranks very low on this dimension. Energy consumption is falling, but what limited domestic energy production Namibia does have is falling faster. This year also sees both reduced diversity in the electricity fuel mix and transmission and distribution losses rising from 16% to 25% of total electricity generated. On the energy equity dimension, Namibians see rising gasoline and electricity prices. The country does comparatively well at mitigating its impact on the environment with low energy and emission intensity and declining CO_2 emissions from electricity generation, although it will take effort for Namibia to maintain this level of performance as the country continues to develop. Contextual indicators are average, and economic strength suffers from a noticeable drop in macroeconomic stability this year.

INDEX RANK
111

NEPAL

BALANCE SCORE
BDD

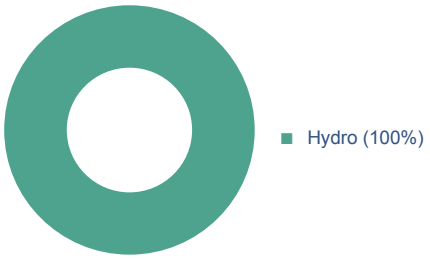
ENERGY SUSTAINABILITY BALANCE



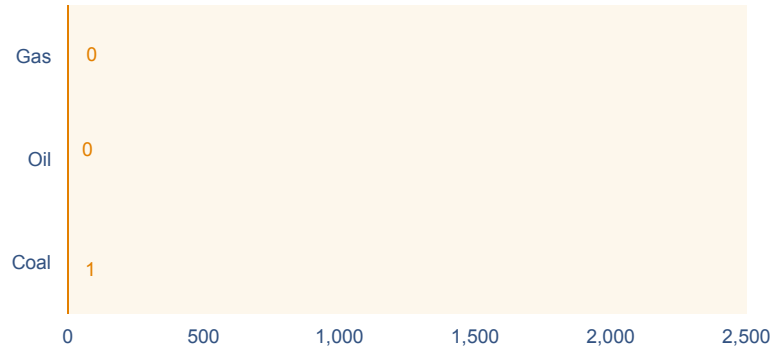
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	113	111	116	↓	
Energy security	119	118	125	↓	**D**
Energy equity	122	122	122	→	**D**
Environmental sustainability	47	47	46	↑	**B**
Contextual performance	96	89	88	↑	
Political strength	122	119	117	↑	
Societal strength	117	121	121	→	
Economic strength	40	24	22	↑	
Overall rank and balance score	**110**	**108**	**111**	↓	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	15.3	GDP per capita (PPP, USD); GDP Group	1,249 (IV)
TPEP / TPEC (net energy importer)	0.37	Energy intensity (koe per USD)	0.31
Emission intensity (kCO_2 per USD)	0.09	CO_2 emissions (tCO_2) per capita	0.10
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	76.3

INDEX COMMENTARY

Nepal, a 'Back of the Pack' country, drops three places in the Index, mostly because of decreased energy security, which becomes its weakest energy dimension. The decline in Nepal's energy security ranking is driven by a less favourable ratio of total energy production to consumption, but the root causes of its weak performance on this dimension continue to be the country's lacking oil stocks, its homogenous electricity fuel mix (100% hydropower), and the high transmission and distribution losses (34% of total electricity generated). Energy equity also remains extremely low in Nepal, with high gasoline prices and expensive electricity that is inaccessible (Nepal has a 76% electrification rate) and perceived to be of low quality. Despite poor performances on the energy security and energy equity dimensions, Nepal does comparatively well at mitigating its impact on the environment. Energy intensity is high and air and water qualities are low, but the country's reliance on hydropower for electricity results in almost no carbon emissions from electricity generation. Contextual performance is largely flat, with political strength and societal strength continuing to be among the lowest globally, and economic strength very high.

BALANCE SCORE

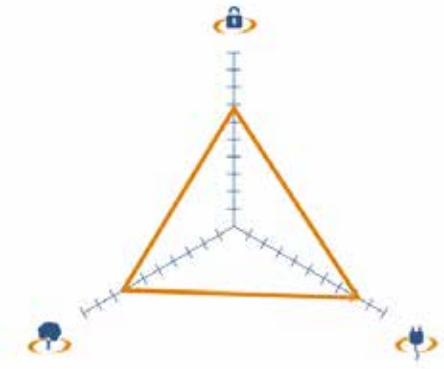
ABB

NETHERLANDS

INDEX RANK

12

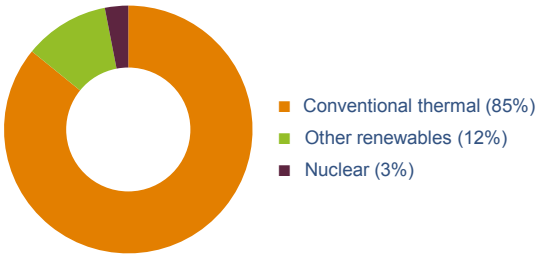
ENERGY SUSTAINABILITY BALANCE



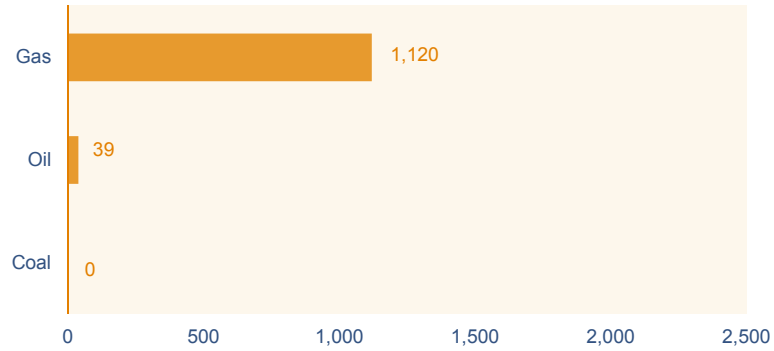
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	18	18	16	↑	
Energy security	48	48	42	↑	**B**
Energy equity	27	22	23	↓	**A**
Environmental sustainability	35	39	35	↑	**B**
Contextual performance	7	4	4	→	
Political strength	12	12	8	↑	
Societal strength	9	5	4	↑	
Economic strength	14	16	16	→	
Overall rank and balance score	**14**	**13**	**12**	↑	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.1	GDP per capita (PPP, USD); GDP Group	41,977 (I)
TPEP / TPEC (net energy importer)	0.71	Energy intensity (koe per USD)	0.13
Emission intensity (kCO_2 per USD)	0.27	CO_2 emissions (tCO_2) per capita	9.92
Energy affordability (USD per kWh)	0.24	Population with access to electricity (%)	100.0

INDEX COMMENTARY

The Netherlands moves up one place in the Index rankings to 12 overall. The Netherlands, a 'Pack Leader' country, balances the energy trilemma even better this year, as improvements in energy security and environmental sustainability help those dimensions catch up to the country's energy equity performance. Although total energy consumption increased this year, energy production increased even more, driving better energy security for the Dutch. Energy equity continues to be the country's strongest energy dimension, despite small increases in the prices of gasoline and electricity. The Netherlands also makes progress in reducing its environmental footprint, as energy and emission intensity decline and CO_2 emissions from electricity generation drop slightly. However, the Netherlands still relies of burning fossil fuels to generate a much higher proportion of its electricity (85%) than the other 'Pack Leaders', indicating that low and no-carbon sources of electricity need to be further developed if it wishes to remain part of this premier country group. Contextually, the Netherlands remains one of the world's top performers, with modest improvements being seen on indicators of political strength.

TRENDS AND OUTLOOK

- The Netherlands is well-positioned in the Index but still faces a number of challenges. These include: the public debate around installation of additional onshore wind capacity; high expectations of biomass and green gas in the face of challenging markets; ensuring solar surges and geothermal meet promises given the low starting base; and a FIT scheme that is not sufficient to reach targets. Furthermore, energy efficiency progress is fairly slow.
- Key energy policy developments are: 1) the green deals – specific arrangements between the national government and individual sustainability initiatives such as energy, water, resources, waste to remove red tape, adjust policies where appropriate, make knowledge available and so on; 2) energy innovation top sector approach designed to strengthen market steering, market involvement and market resources for energy innovation in seven key areas that include gas, solar, offshore wind, industrial efficiency and biomass/bio-based economy; and 3) the SDE+ (stimulation of sustainable/renewable energy) feed in scheme that is fully operational, has significant funding (>1,5 billion Euro/annum) and strong competition between options.
- Key trends include a strong de-centralisation of power generation such as solar, wind, small CHP, and to some degree also of gas production (green gas). Policymakers have to create the framework to stimulate or facilitate this development including the upgrade of the existing network such as smart grids. An important area for policymakers to focus on is the bio-based economy, and the liaison of a strong agricultural and chemical sector, and green gas. Finally, the Netherlands is expected to strengthen its position as a gas country, with an increased focus on the role of gas as a balancing fuel in a system that moves towards sustainability.

INDEX RANK

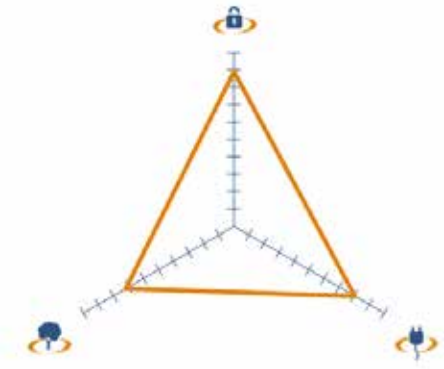
8

NEW ZEALAND

BALANCE SCORE

AAB

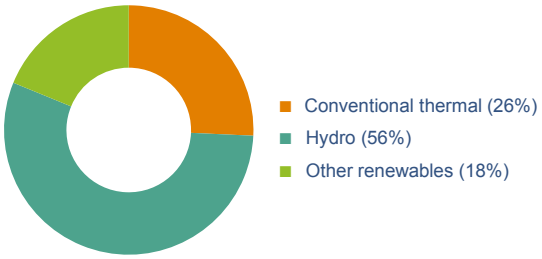
ENERGY SUSTAINABILITY BALANCE



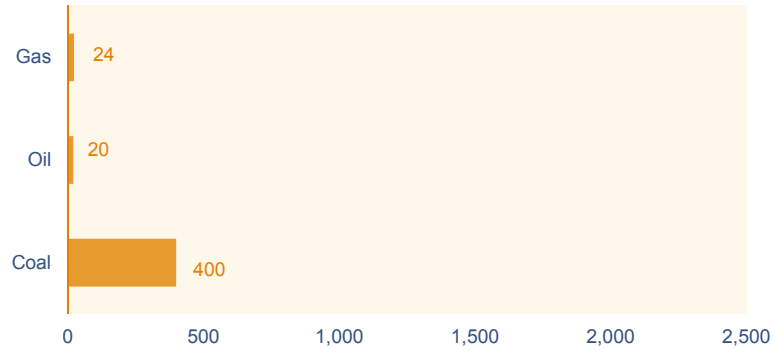
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	11	11	11	→	
Energy security	20	19	15	↑	A
Energy equity	15	18	26	↓	A
Environmental sustainability	40	36	37	↓	B
Contextual performance	5	5	6	↓	
Political strength	7	4	1	↑	
Societal strength	2	4	3	↑	
Economic strength	21	27	33	↓	
Overall rank and balance score	**9**	**7**	**8**	↓	**AAB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.6	GDP per capita (PPP, USD); GDP Group	28,667 (II)
TPEP / TPEC (net energy importer)	0.88	Energy intensity (koe per USD)	0.17
Emission intensity (kCO_2 per USD)	0.28	CO_2 emissions (tCO_2) per capita	6.93
Energy affordability (USD per kWh)	0.25	Population with access to electricity (%)	100.0

INDEX COMMENTARY

One of the 'Pack Leaders', New Zealand exhibits strong, well-balanced performance on all three facets of the energy trilemma. Energy security remains the country's strongest dimension. Increasing domestic energy production and the energy consumption growth rate being outpaced by economic growth for yet another year help New Zealand improve its total energy production to consumption ratio. Although a net energy importer, the country produces most (88%) of its own energy and continues to diversify its electricity fuel mix, which consists of a healthy and robust combination of fossil fuels, hydropower, and other renewables. Increasing gasoline and electricity prices cause New Zealand's energy equity ranking to drop. However, the perceived quality of the electricity services provided increases. New Zealand's environmental footprint is small; nevertheless environmental sustainability remains the country's most challenging dimension. Indicators are essentially flat, with a small reduction in the already low CO_2 emissions released from electricity generation. Contextual performance stays extremely strong, with the world's most robust political systems and a high degree of societal strength.

TRENDS AND OUTLOOK

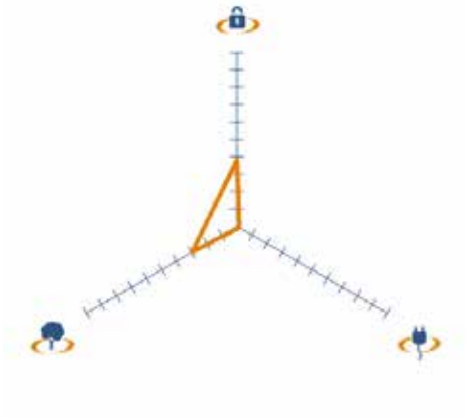
- New Zealand is well-positioned in the Index. It could yet see further improvements due to its progressively improving macroeconomic position, and its strong potential to increase renewable energy sources in electricity and heat generation, thereby lowering CO2 emissions and improving environmental sustainability performance without the need for subsidies. The aggressive pursuit of upstream exploration opportunities could further enhance energy security.
- The New Zealand Energy Strategy (NZES) and Energy Efficiency and Conservation Strategy set the government's overarching energy policy framework. Its four priorities (diverse resource development, environmental responsibility, efficient use of energy, and secure and affordable energy) should contribute to improvements in New Zealand's performance across all three energy dimensions. The NZES contains the aspirational goal to increase the amount of renewable electricity from 70% to 90% by 2025, facilitated by the emissions trading scheme (ETS), market mechanisms and grid investment, while not compromising security of supply or competitiveness.
- Trends to be watched are: 1) the implications of flat energy demand on future competition and investment, especially in the electricity market 2) the extent to which recent significant seismic events in both main islands impact energy policy, especially the approach to resilience of critical energy infrastructure and the associated costs; 3) whether the more aggressive pursuit of petroleum exploration opportunities proves successful; 4) the integration of intermittent renewables, and ultimately distributed generation, especially in the form of residential PV; 5) the growing involvement of the demand-side via participation in the electricity market and the more aggressive promotion of demand-side measures including energy efficiency; 6) the breakdown of bipartisan political support for reliance on market mechanisms to efficiently allocate resources and deliver competitive outcomes insofar as climate goals and energy policy.

BALANCE SCORE
CCD

NIGER

INDEX RANK
122

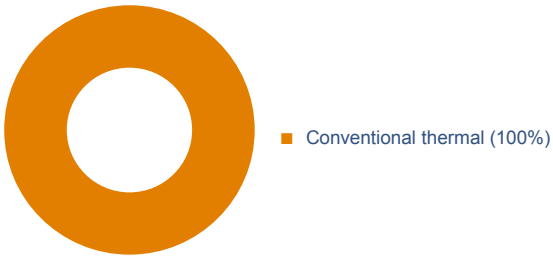
ENERGY SUSTAINABILITY BALANCE



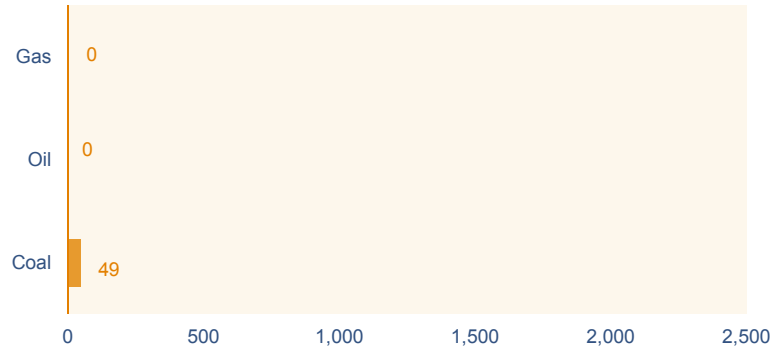
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	127	127	118	↑	
Energy security	114	115	80	↑	C
Energy equity	126	128	127	↑	D
Environmental sustainability	92	96	91	↑	C
Contextual performance	110	106	105	↑	
Political strength	112	108	108	→	
Societal strength	93	91	91	→	
Economic strength	101	99	103	↓	
Overall rank and balance score	**127**	**127**	**122**	↑	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	17.1	GDP per capita (PPP, USD); GDP Group	742 (IV)
TPEP / TPEC (net energy importer)	0.31	Energy intensity (koe per USD)	0.26
Emission intensity (kCO_2 per USD)	0.14	CO_2 emissions (tCO_2) per capita	0.09
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	9.3

INDEX COMMENTARY

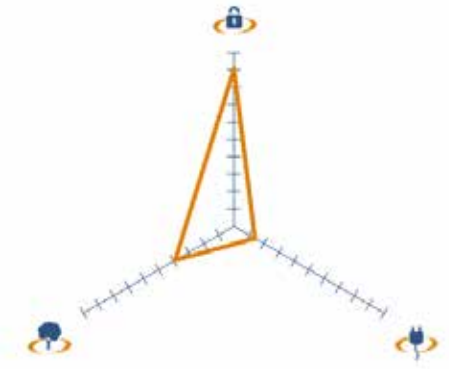
Niger makes improvements on all three energy dimensions and moves up five places in the Index rankings. While energy security and environmental sustainability performance are comparable, Niger struggles greatly with the energy equity portion of the energy trilemma. Niger's biggest improvement this year is on the energy security dimension, with total energy consumption falling despite considerable economic growth (a 12% increase in GDP). Domestic production also increases, as do the country's strategic oil stocks. Providing energy equity continues to be Niger's biggest challenge, as gasoline prices increase to become even more unaffordable, and over 90% of the population continues to live without access to modern electricity services. Indicators of the environmental sustainability dimension see some improvement, but energy intensity remains very high, and air and water quality very low. Contextual indicators remain weak, but are stable.

INDEX RANK
84

NIGERIA

BALANCE SCORE
ACD

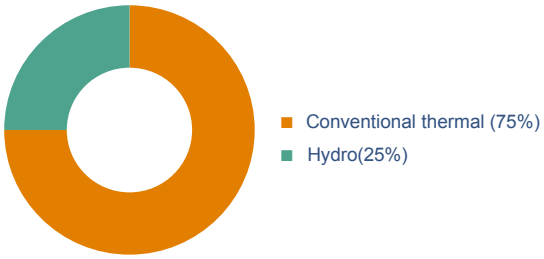
ENERGY SUSTAINABILITY BALANCE



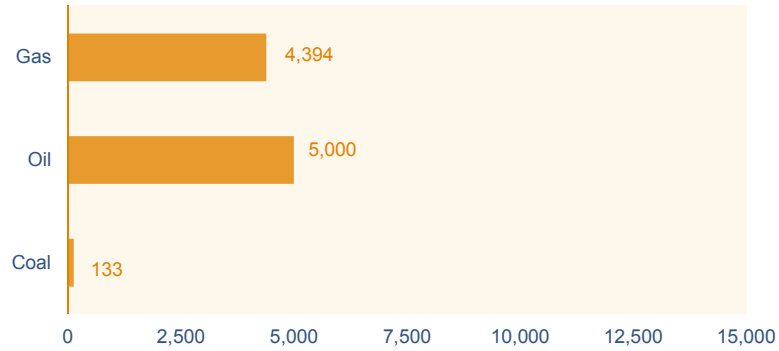
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	68	71	67	↑	
Energy security	9	13	13	→	**A**
Energy equity	115	109	111	↓	**D**
Environmental sustainability	79	82	79	↑	**C**
Contextual performance	124	128	121	↑	
Political strength	126	125	122	↑	
Societal strength	124	127	127	→	
Economic strength	105	117	97	↑	
Overall rank and balance score	**88**	**90**	**84**	↑	**ACD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	43.0	GDP per capita (PPP, USD); GDP Group	2,582 (IV)
TPEP / TPEC (net energy exporter)	8.74	Energy intensity (koe per USD)	0.32
Emission intensity (kCO_2 per USD)	0.13	CO_2 emissions (tCO_2) per capita	0.29
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	48.0

INDEX COMMENTARY

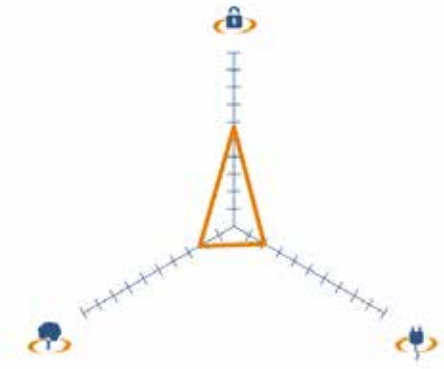
Nigeria rises six places to rank 84, with the most notable change being an improvement in its contextual performance. Nigeria has difficulty balancing the three sides of the energy trilemma, as it has an excellent level of energy security, but struggles with both providing energy equity and mitigating its impact on the environment. This year sees a decline in total energy consumption, but an increase in domestic production, thus making the energy exporter's production to consumption ratio even more favourable and allowing it to add to its strategic oil stocks. However, electricity transmission and distribution losses are up, increasing to 18% of the total amount of electricity generated. Energy equity remains by far Nigeria's weakest energy dimension, with gasoline becoming even more expensive and only less than half of Nigerians having access to modern electricity services. To sustain and continue economic growth and become par with South Africa, Nigeria needs to urgently solve its issues with power generation. Environmental sustainability performance also remains low, but some progress is made in lowering the high level of energy intensity and reducing the amount of CO_2 emissions from electricity generation. Contextual performance overall is weak, with low but improving indicators of political strength, low and slipping indicators of societal strength, and a comparatively higher level of economic strength, which is buoyed by improving macroeconomic stability.

BALANCE SCORE
BDD

PAKISTAN

INDEX RANK
114

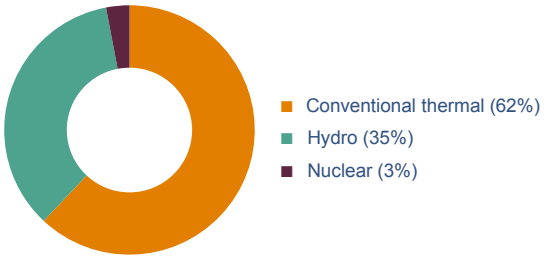
ENERGY SUSTAINABILITY BALANCE



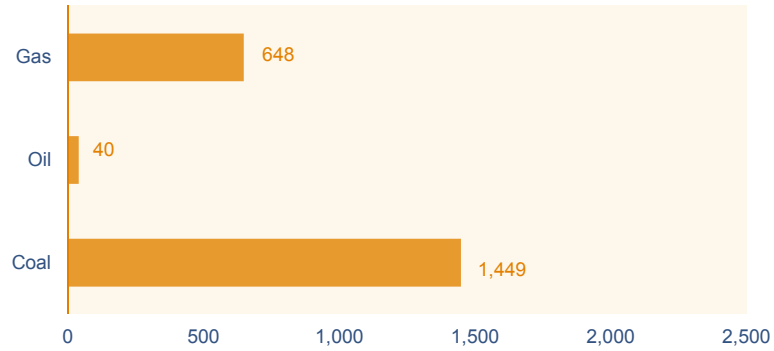
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	109	108	98	↑	
Energy security	75	73	56	↑	**B**
Energy equity	103	103	103	→	**D**
Environmental sustainability	107	108	100	↑	**D**
Contextual performance	125	125	126	↓	
Political strength	118	117	119	↓	
Societal strength	122	124	124	→	
Economic strength	117	119	123	↓	
Overall rank and balance score	**120**	**121**	**114**	↑	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	25.5	GDP per capita (PPP, USD); GDP Group	2,786 (IV)
TPEP / TPEC (net energy importer)	0.68	Energy intensity (koe per USD)	0.20
Emission intensity (kCO_2 per USD)	0.30	CO_2 emissions (tCO_2) per capita	0.74
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	91.4

INDEX COMMENTARY

Pakistan improves seven places in the overall Index rankings as energy security jumps this year. One of the 'Highly-industrialised' countries, Pakistan faces many of the same challenges as the other members of that group when it comes to balancing the energy trilemma, resulting in a stronger energy security ranking being offset by two equally weak performances on the energy equity and environmental sustainability dimensions. Total energy consumption increases in Pakistan, but both economic development (as measured by GDP) and domestic energy production increase more. Increasing diversity in the electricity generation portfolio, which is a mix of conventional thermal power, hydropower, and a small amount of nuclear power, also helps to boost Pakistan's energy security ranking. Meanwhile, energy equity remains low, as energy prices increase. Some improvements are made in reducing CO_2 emissions from electricity generation, but Pakistan continues to struggle with extremely high levels of air and water pollution. Performances on all indicators of political, societal, and economic strength are stable, but remain very poor.

TRENDS AND OUTLOOK

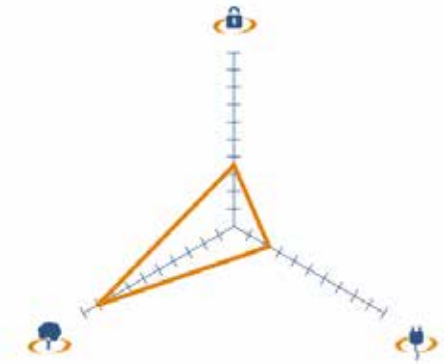
- Key trends, which are expected to support Pakistan's moving up in the Index rankings are: 1) the continued increase of the share of renewable energy in the electricity production mix; 2) stringent energy conservation rules and regulations; and 3) synergy in all energy related departments / ministries through development of a single ministry of energy.

INDEX RANK
74

PARAGUAY

BALANCE SCORE
ACD

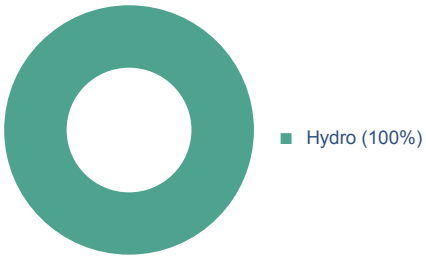
ENERGY SUSTAINABILITY BALANCE



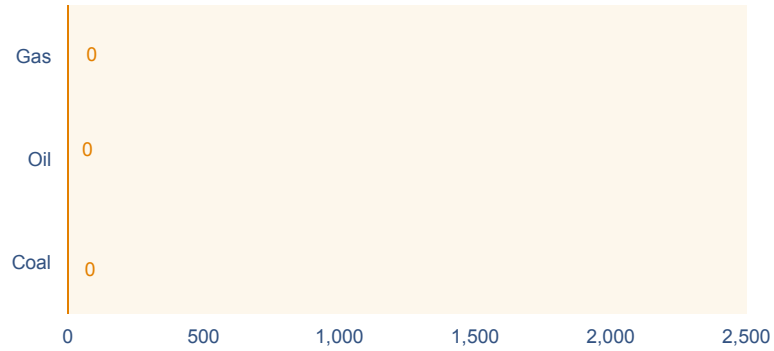
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	61	70	66	↑	
Energy security	67	95	84	↑	C
Energy equity	100	96	99	↓	D
Environmental sustainability	18	13	13	→	A
Contextual performance	113	108	89	↑	
Political strength	111	107	106	↑	
Societal strength	114	108	108	→	
Economic strength	92	87	50	↑	
Overall rank and balance score	**76**	**81**	**74**	↑	**ACD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	19.4	GDP per capita (PPP, USD); GDP Group	6,224 (III)
TPEP / TPEC (net energy exporter)	1.19	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.15	CO_2 emissions (tCO_2) per capita	0.73
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	97.4

INDEX COMMENTARY

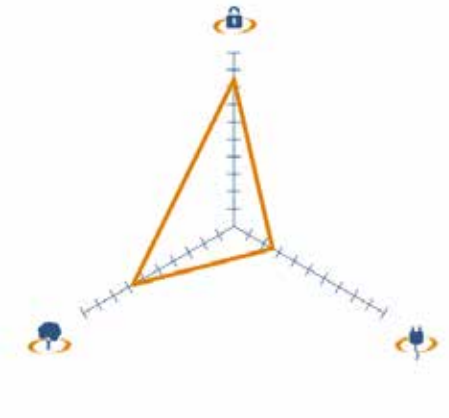
Paraguay improves seven places in the Index, lifted by improving performance on the energy security dimension and on indicators of economic strength. Paraguay, a 'Hydro-powered' country, has an energy trilemma balance that is typical of that country grouping, with average-to-low energy security and equity rankings balanced out by excellent marks on the environmental sustainability dimension. Paraguay's total energy consumption growth rate is relatively flat considering its strong economic growth, allowing it to strengthen its favourable energy consumption to production ratio and free up more energy (most of it excess electricity generated through hydropower) for export. Energy equity remains the most challenging of the three dimensions for Paraguay, as gasoline prices increase and energy continues to be very expensive. Environmental sustainability performance is unchanged and remains exceptional, with the country's emission-free-electricity generation being of note. Indicators of contextual political and societal strength remain on the lower side, but are improving, while increased macroeconomic stability and more plentiful domestic credit for the private sector help to boost Paraguay's ranking of economic strength.

BALANCE SCORE
ABC

PERU

INDEX RANK
45

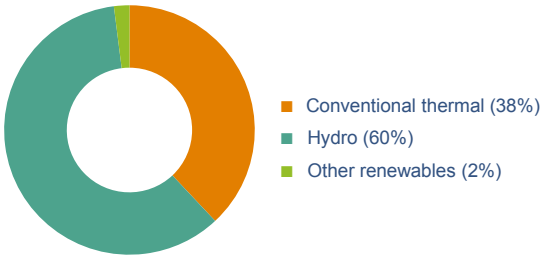
ENERGY SUSTAINABILITY BALANCE



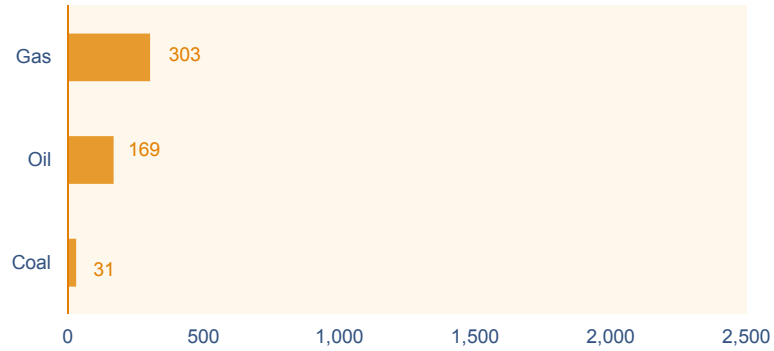
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	37	33	45	↓	
Energy security	8	9	21	↓	**A**
Energy equity	99	91	96	↓	**C**
Environmental sustainability	34	34	43	↓	**B**
Contextual performance	72	66	60	↑	
Political strength	79	76	69	↑	
Societal strength	82	79	79	→	
Economic strength	55	47	23	↑	
Overall rank and balance score	**47**	**41**	**45**	↓	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	33.9	GDP per capita (PPP, USD); GDP Group	10,062 (III)
TPEP / TPEC (net energy importer)	0.95	Energy intensity (koe per USD)	0.08
Emission intensity (kCO_2 per USD)	0.17	CO_2 emissions (tCO_2) per capita	1.55
Energy affordability (USD per kWh)	0.13	Population with access to electricity (%)	85.1

INDEX COMMENTARY

Peru slips four places in the Index rankings as deteriorations in performance on all three energy dimensions overshadow improvements made on the country's contextual dimensions. Although Peru is a member of the "Hydro-powered" grouping of countries, unlike in most of those countries, energy security outperforms the environmental sustainability dimension. However, in Peru, energy equity still lags quite a bit behind. Peru, which is able to meet 95% of its energy needs through domestic production, sees both total energy consumption continue to rise and production increase by even more to compensate. The drop in the country's strong energy security ranking is driven by declining oil stocks and an increase in electricity transmission and distribution losses. On the energy equity dimension, the affordability of gasoline is down, as is the perceived quality of the electricity that Peruvians receive. With hydropower making up 60% of Peru's electricity fuel mix, the country continues to perform decently (despite some declines) on most of the environmental sustainability indicators, with the exception of air and water pollution levels that continue to be among the highest in the world. Contextually, Peru sees positive progress across the board, with notable gains being made on indicators of political strength and on macroeconomic stability.

TRENDS AND OUTLOOK

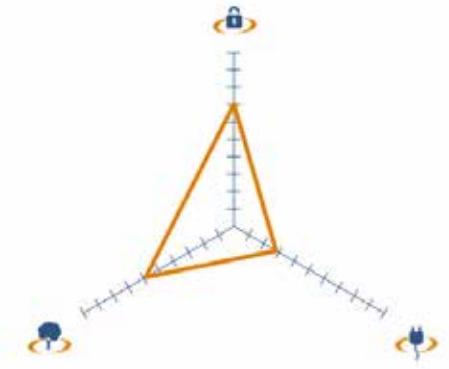
- Peru`s National Energy Policy 2010-2040 was approved at the end of 2010 with the goal to encourage and protect private investment in the sector; and to minimises the social and environmental impacts by promoting the development of energy markets, encouraging efficiency and the development of renewable energies at the local, regional, and national level.
- Schemes to support these goals are already in place and include: 1) a law, passed in April 2012, to promote energy security in hydrocarbons; 2) a scheme to promote the modernisation of oil refineries; 3) a universal energy access plan for the 2013-2022 period, implemented in May 2013, with clearly defined targets for different subcomponents; and 4) auctions and call for tenders to secure the implementation of hydro projects. Additional fiscal incentives are in place for small scale hydro, solar, wind, biomass, and geothermal.

INDEX RANK
65

PHILIPPINES

BALANCE SCORE
BBC

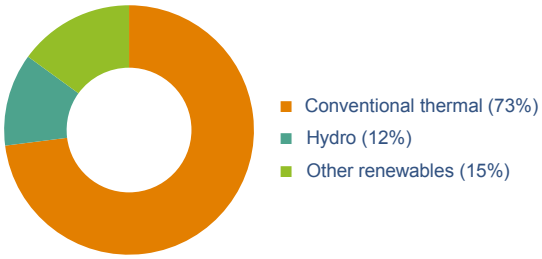
ENERGY SUSTAINABILITY BALANCE



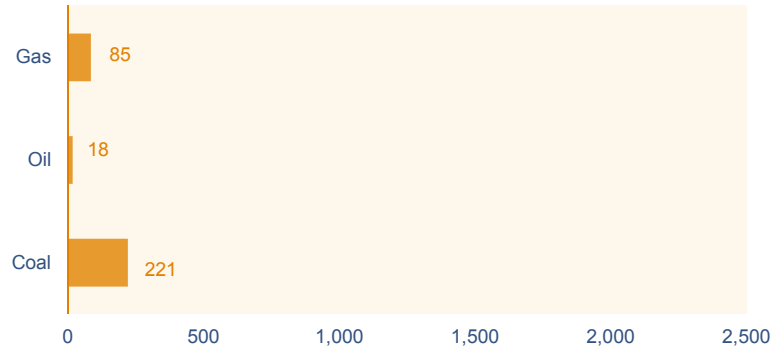
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	63	64	61	↑	
Energy security	38	42	39	↑	B
Energy equity	96	99	93	↑	C
Environmental sustainability	53	55	54	↑	B
Contextual performance	77	82	75	↑	
Political strength	91	98	94	↑	
Societal strength	85	100	100	→	
Economic strength	51	45	32	↑	
Overall rank and balance score	**64**	**71**	**65**	↑	**BBC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	31.1	GDP per capita (PPP, USD); GDP Group	4,152 (IV)
TPEP / TPEC (net energy importer)	0.40	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	0.82
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	83.3

INDEX COMMENTARY

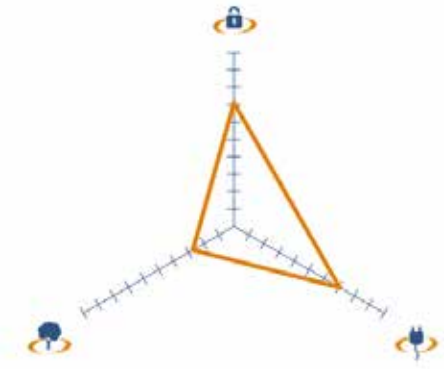
The Philippines moves up the Index ranking up by six places, riding on the strength of small across-the-board improvements on all energy and contextual dimensions. The Philippines' decent performances on the energy security and environmental sustainability dimensions are offset by its comparatively worse performance in energy equity. Energy security continues to be the Philippines' strongest energy dimension, as GDP growth continues to outpace the incremental rise in energy consumption. The country also reduces its electricity transmission and distribution losses this year. Energy equity remains low, as energy prices remain expensive and 17% of Filipinos continue to live without access to modern electricity services. Environmental sustainability performance is slightly above-average, helped along by an electricity fuel mix that is over one-quarter hydropower and other renewables. Emission intensity improves slightly this year. Indicators of political and societal strength, while still low, show incremental improvement. The country's respectable economic strength gets stronger as macroeconomic stability improves and domestic credit becomes more available to the private sector.

BALANCE SCORE **BBC**

POLAND

INDEX RANK **48**

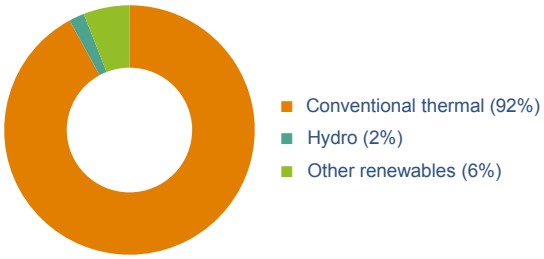
ENERGY SUSTAINABILITY BALANCE



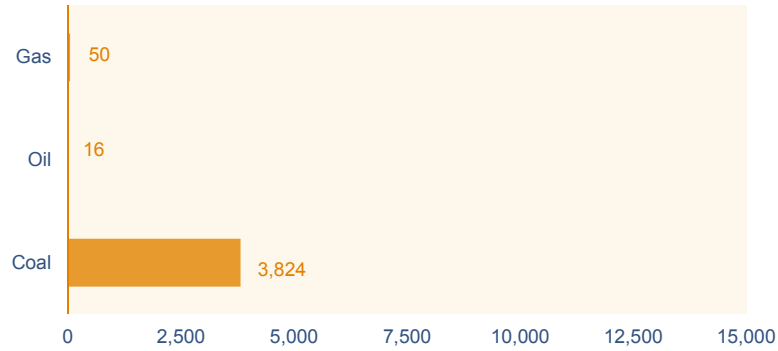
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	56	55	54	↑	
Energy security	35	34	38	↓	B
Energy equity	43	44	39	↑	B
Environmental sustainability	93	93	94	↓	C
Contextual performance	48	49	52	↓	
Political strength	32	29	30	↓	
Societal strength	33	34	34	→	
Economic strength	88	93	96	↓	
Overall rank and balance score	**50**	**50**	**48**	↑	**BBC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	34.2	GDP per capita (PPP, USD); GDP Group	20,013 (II)
TPEP / TPEC (net energy importer)	0.62	Energy intensity (koe per USD)	0.15
Emission intensity (kCO_2 per USD)	0.46	CO_2 emissions (tCO_2) per capita	8.30
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Poland moves up two places in the overall Index rankings, but continues to struggle with balancing the three sides of the energy trilemma, with good performances on the energy security and energy equity dimensions, and a poor environmental sustainability ranking. Poland's energy consumption growth rate is smaller than its GDP growth, but domestic energy production is flat. The country's improved ranking on this dimension is driven by the increased diversity of its electricity fuel mix (now 8% renewables) and reductions in electricity transmission and distribution losses. Energy costs for the Polish people increase slightly, but remain relatively affordable. The environmental sustainability dimension continues to be the most challenging for Poland. The problematic indicators are the high level of emission intensity and CO_2 emissions from electricity generation, although the latter improves slightly this year as the country increases its use of renewables. Contextual performance is mostly constant; Poland has decent levels of political and societal strength, but a comparatively weaker economy.

TRENDS AND OUTLOOK

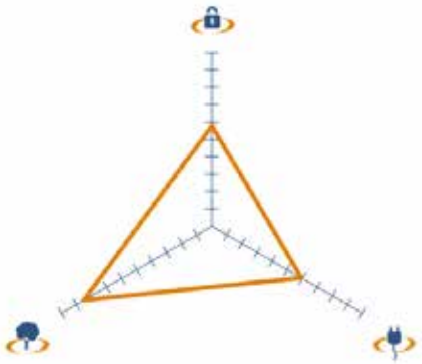
- The following most recent energy policy developments are expected to affect energy efficiency positively, increase energy security and improve the mitigation of the environmental impact: 1) diversification of the structure of electricity production by the decision to build nuclear plants; 2) improvement of energy efficiency by reducing energy consumption, increasing energy efficiency and reducing energy losses in manufacturing and distribution; 3) introduction of incentives that foster the development of renewable energy; 4) diversification of gas supplies; 5) increase of the competitiveness of fuels and energy by liberalisation of the markets; 6) increase energy security by improving the legal framework for exploration works for domestic primary energy fuels; and 7) limiting the energy sector impact on environment by the development of clean coal technologies.
- Expected future trends effecting Poland's sustainability balance and the issues for policymakers to focus on are: 1) the development of the country's network infrastructure by promoting the development of transmission systems for electricity, natural gas, petroleum, system monitoring stocks of crude oil, petroleum products and natural gas; 2) further diversification of sources for energy supply; 3) modernisation of the electricity production sector through building new, more efficient thermal power, greater use of biomass and biogas; 4) increase the security of primary fuel supply through investments in more efficient coal mining exploitation and exploration for conventional and unconventional gas; 5) increase transport biofuels production and use; 6) improvement of energy efficiency by reducing energy consumption, increasing energy efficiency and reducing energy losses in manufacturing and distribution; 7) further development and deployment of clean coal technologies; and 8) development of a low-carbon economy by improving energy intensity and by deploying low-emission technologies to achieve zero-emission growth.

INDEX RANK
23

PORTUGAL

BALANCE SCORE
ABB

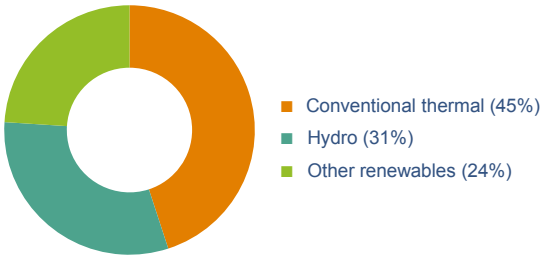
ENERGY SUSTAINABILITY BALANCE



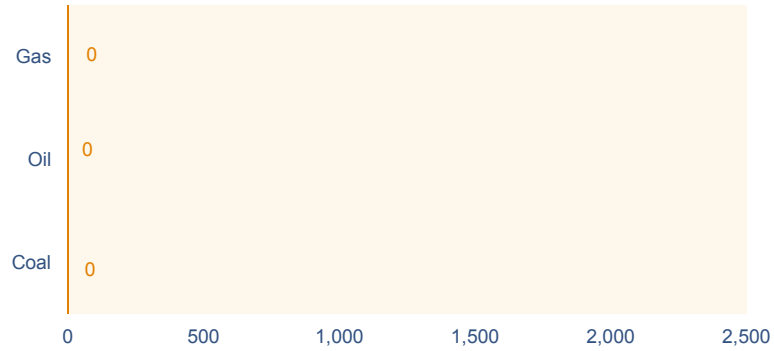
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	35	32	27	↑	
Energy security	59	58	55	↑	**B**
Energy equity	52	48	53	↓	**B**
Environmental sustainability	29	26	20	↑	**A**
Contextual performance	27	33	28	↑	
Political strength	27	34	35	↓	
Societal strength	30	28	28	→	
Economic strength	31	38	36	↑	
Overall rank and balance score	**25**	**25**	**23**	↑	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	22.6	GDP per capita (PPP, USD); GDP Group	23,658 (II)
TPEP / TPEC (net energy importer)	0.25	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.21	CO_2 emissions (tCO_2) per capita	4.54
Energy affordability (USD per kWh)	0.26	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Portugal improves by two places to rank 23 in the Index. Portugal's energy trilemma balance consists of two fair performances on the energy security and equity dimensions, and a very good performance in mitigating its impact on the environment. Regarding its energy security, Portugal sees total energy consumption increase after being stable for the last few years, but domestic energy production jumps to compensate. Despite already having one of the most well-rounded electricity generation portfolios in the world (a balance between fossil fuels, hydropower, and other renewables), Portugal further diversifies its electricity fuel mix this year. Energy equity sees a decline as both gasoline and electricity become more expensive. Portugal does better on the environmental sustainability dimension, as it continues to reduce its CO_2 emissions from electricity generation. On the indicators of contextual strength, Portugal once again exhibits a solid, well-rounded performance, despite its present economic situation.

TRENDS AND OUTLOOK

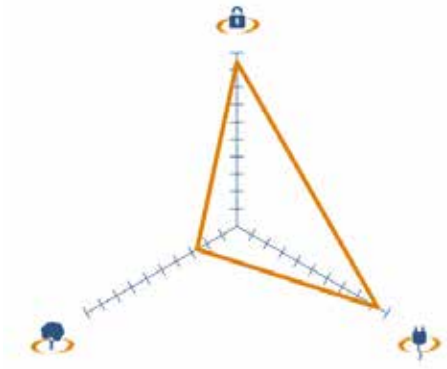
- Portuguese energy policies and investments in security and sustainability, already reflected in the Index results, will be pursued, as well as reduction of energy costs in order to strengthen economic competitiveness. Social tariffs for gas and electricity are in place to improve energyequity. The recast national energy efficiency action programme will give particular attention to buildings and transport sectors.
- New conversion units in Portuguese refineries allow the reduction of crude oil and oil product imports. At the same time, the refining company increases the share of equity oil in its supply. Furthermore, exploration for oil and gas in Protugal is in progress, both onshore and offshore.
- Renewable capacity, mainly wind and hydro generation, keeps expanding. In the last four years, the average share of renewables in total generation was above 40%.
- Support is being given to RD&D by the establishment of a 320 km^2 Sea Pilot Zone for wave energy testing, as well as to the demonstration stage of a promising deep-water offshore wind generation technology.
- Achieving improved interconnection power grid capacity between the Iberian Peninsula and central Europe remains a major goal, which will allow Portugal to increase market competition and develop existing renewable power export potential.

BALANCE SCORE
AAC

QATAR

INDEX RANK
18

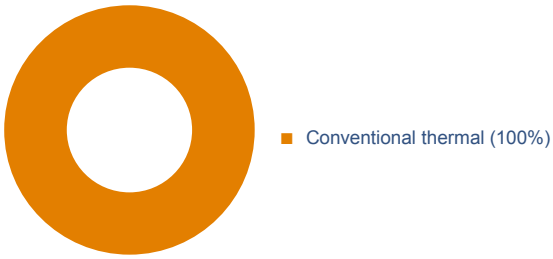
ENERGY SUSTAINABILITY BALANCE



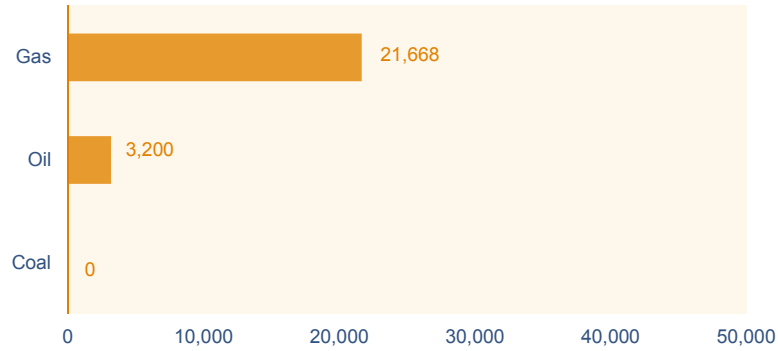
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	28	19	22	↓	
Energy security	16	7	8	↓	**A**
Energy equity	19	11	9	↑	**A**
Environmental sustainability	97	94	95	↓	**C**
Contextual performance	13	15	15	→	
Political strength	23	31	31	→	
Societal strength	24	29	29	→	
Economic strength	8	7	10	↓	
Overall rank and balance score	**19**	**17**	**18**	↓	**AAC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	77.8	GDP per capita (PPP, USD); GDP Group	97,987 (I)
TPEP / TPEC (net energy exporter)	5.93	Energy intensity (koe per USD)	0.18
Emission intensity (kCO_2 per USD)	0.49	CO_2 emissions (tCO_2) per capita	38.19
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1

INDEX COMMENTARY

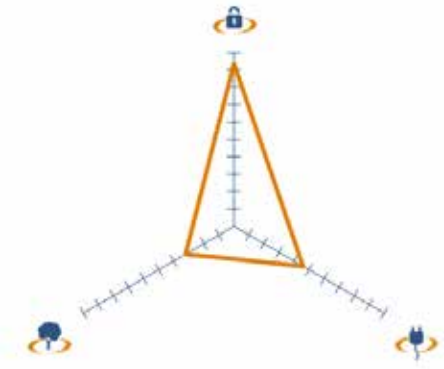
Qatar slips down one place in the overall Index rankings. A member of the 'Fossil-fuelled' country group, Qatar displays extremely high energy security and equity rankings and a very poor performance on the environmental sustainability dimension. Regarding its very robust energy security, Qatar's GDP growth continues to outpace its energy consumption growth rate, but that gap is slowly closing. Energy production increases and the total energy production to consumption ratio becomes even more favourable for the energy exporter. Although strategic oil stocks shrink, they remain comparatively large. Gasoline prices creep upwards, but remain very cheap, and the perceived quality of electricity services increases, helping to lift Qatar's energy equity ranking into the top 10 worldwide. Environmental sustainability performance remains unchanged and quite poor, with the worst indicators on this dimension being Qatar's high energy and emission intensity. Performance on all indicators of contextual strength is constant, with the notable exception of the availability of domestic credit to the private sector, which decreases.

INDEX RANK
52

ROMANIA

BALANCE SCORE
ACC

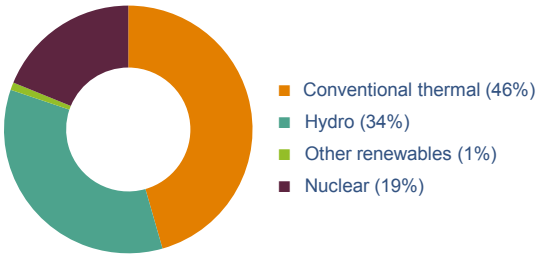
ENERGY SUSTAINABILITY BALANCE



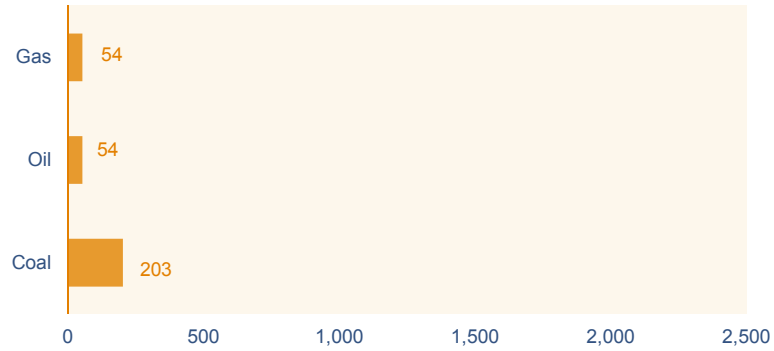
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	47	46	53	↓	
Energy security	4	4	9	↓	A
Energy equity	57	59	70	↓	C
Environmental sustainability	95	92	88	↑	C
Contextual performance	66	72	69	↑	
Political strength	54	53	56	↓	
Societal strength	53	65	65	→	
Economic strength	97	98	90	↑	
Overall rank and balance score	**51**	**52**	**52**	→	**ACC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	33.0	GDP per capita (PPP, USD); GDP Group	12,520 (III)
TPEP / TPEC (net energy importer)	0.80	Energy intensity (koe per USD)	0.15
Emission intensity (kCO_2 per USD)	0.32	CO_2 emissions (tCO_2) per capita	3.59
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Romania's overall Index ranking remains unchanged. There is an imbalance in Romania's energy trilemma. It has an extremely strong energy security ranking and much weaker performances on the energy equity and environmental sustainability dimensions. Both energy consumption and production are down, and the country maintains a healthy energy production to consumption ratio, meeting 80% of its energy needs itself. Romania further increases the diversity of its electricity generation portfolio, which is a well-rounded mix of fossil fuels, hydropower, nuclear power, and a small amount of other renewables. The country's energy equity ranking drops as gasoline becomes more expensive and the perceived quality of electricity services declines slightly. Although still the worst of Romania's three energy dimensions, the country's environmental sustainability performance sees some improvement as carbon emissions from electricity generation are reduced. However, air and water pollution continue to be a big challenge for Romania. Contextual performance is mostly stable and similar to last year, besides a small drop in political stability and an increase in macroeconomic stability.

TRENDS AND OUTLOOK

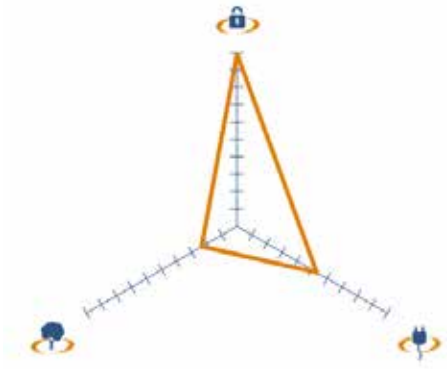
- The most recent energy policy development that is expected to have a positive influence on the country's energy sustainability balance is the revision of Romania's renewable energy law, which will offer differentiated, and potentially lucrative, green certificate packages across all renewable technologies. However, the implementation of the law has been postponed since 2008 and the delay has resulted in uncertainty of returns for investors already implementing projects and has discouraged potential new investors from entering the market.
- Key issues for policymakers to focus on include: 1) integration of renewable energy sources; 2) energy infrastructure development, especially in the electricity transmission and distribution grid; 3) market integration at regional and European level; and 4) increasing environmental sustainability efforts.

BALANCE SCORE
ABD

RUSSIA

INDEX RANK
54

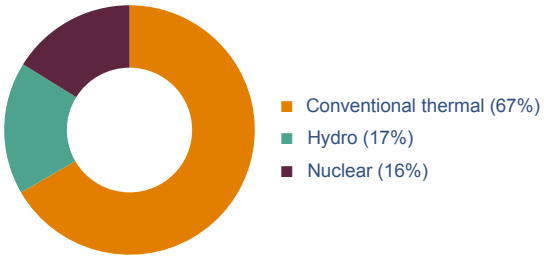
ENERGY SUSTAINABILITY BALANCE



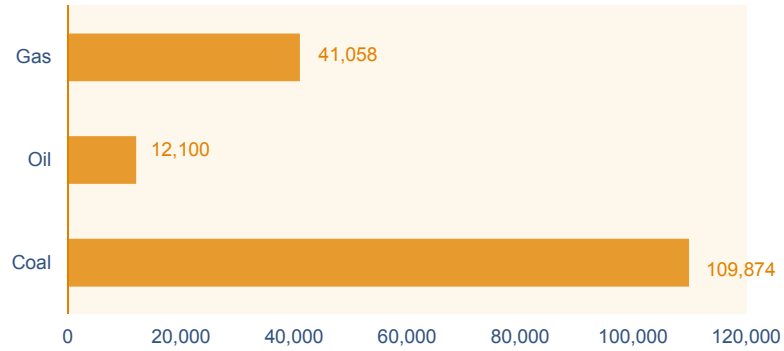
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	53	48	46	↑	
Energy security	1	1	2	↓	**A**
Energy equity	65	57	61	↓	**B**
Environmental sustainability	102	102	99	↑	**D**
Contextual performance	86	86	80	↑	
Political strength	101	102	97	↑	
Societal strength	81	92	92	→	
Economic strength	83	61	47	↑	
Overall rank and balance score	**60**	**58**	**54**	↑	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	36.0	GDP per capita (PPP, USD); GDP Group	16,768 (II)
TPEP / TPEC (net energy exporter)	1.82	Energy intensity (koe per USD)	0.34
Emission intensity (kCO_2 per USD)	0.75	CO_2 emissions (tCO_2) per capita	11.13
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

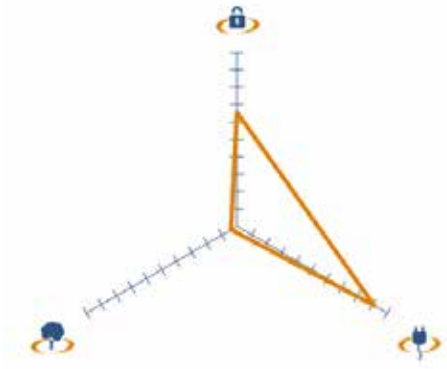
Russia improves its overall Index ranking by four places. One of the 'Highly-industrialised' countries, Russia's balance of the energy trilemma consists of an exceptional level of energy security, an average performance on energy equity, and a poor environmental sustainability ranking. The increase in the country's energy consumption outpaces its economic growth by a very small margin this year. Strategic oil stocks and the diversity of the electricity fuel mix both fall slightly, although they remain, respectively, large and quite diverse, resulting in Russia's energy security rank slipping from first to second in the world. Gasoline prices become more expensive and the perceived quality of electricity services falls, causing Russia's average energy equity to dip. The environmental sustainability dimension, by far the country's weakest, sees some improvements as energy and emission intensity drop incrementally, and as CO_2 emissions from electricity generation are reduced. Contextually, Russia sees its largest improvement come in its economic strength, with macroeconomic stability and the availability of domestic credit to the private sector both increasing.

INDEX RANK
51

SAUDI ARABIA

BALANCE SCORE
ABD

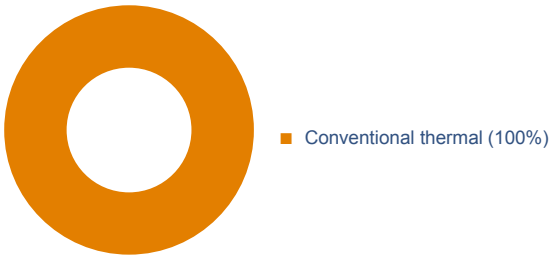
ENERGY SUSTAINABILITY BALANCE



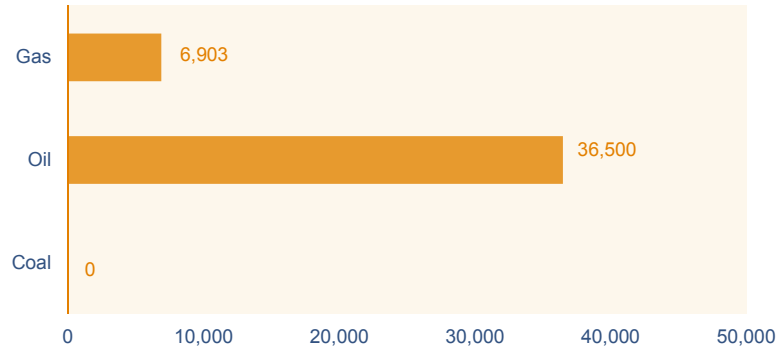
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	57	57	57	→	
Energy security	32	38	45	↓	B
Energy equity	18	14	12	↑	A
Environmental sustainability	124	124	124	→	D
Contextual performance	42	42	47	↓	
Political strength	73	70	79	↓	
Societal strength	52	55	55	→	
Economic strength	16	15	14	↑	
Overall rank and balance score	**48**	**49**	**51**	↓	**ABD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	66.9	GDP per capita (PPP, USD); GDP Group	29,401 (II)
TPEP / TPEC (net energy exporter)	3.15	Energy intensity (koe per USD)	0.31
Emission intensity (kCO_2 per USD)	0.79	CO_2 emissions (tCO_2) per capita	16.86
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1

INDEX COMMENTARY

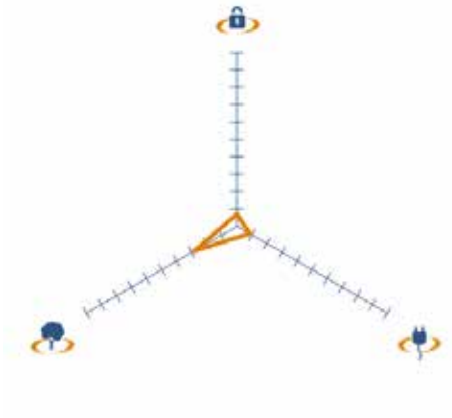
Saudi Arabia's ranking drops two places in this year's Index. As one of the 'Fossil-Fuelled' countries, Saudi Arabia's energy trilemma is balanced with high levels of energy security and energy equity, and poor mitigation of its impact on the environment. Its performance on the energy security drops by several ranks. While the country's plentiful oil resources make it the world's largest oil producer, it relies exclusively on fossil fuels for electricity (although it is looking to diversify into solar power) and energy exports make up a large part of the kingdom's GDP. Energy consumption also continues to increase, although the rate of growth has slowed down in recent years. Performance on energy equity remains high, helped largely by cheap gasoline and plentiful, high-quality electricity, and its global rank on this dimension continues to improve. Environmental sustainability still lags severely since Saudi Arabia's energy mix relies entirely on fossil fuels. Contextual political, social, and economic conditions are similar to last year, with slight decreases in political stability, effectiveness of government, and control of corruption counterbalanced by improvements in health, education, and macroeconomic stability.

BALANCE SCORE
CDD

SENEGAL

INDEX RANK
126

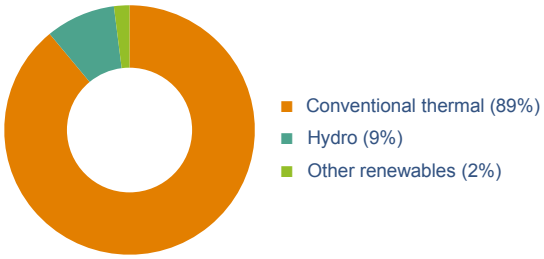
ENERGY SUSTAINABILITY BALANCE



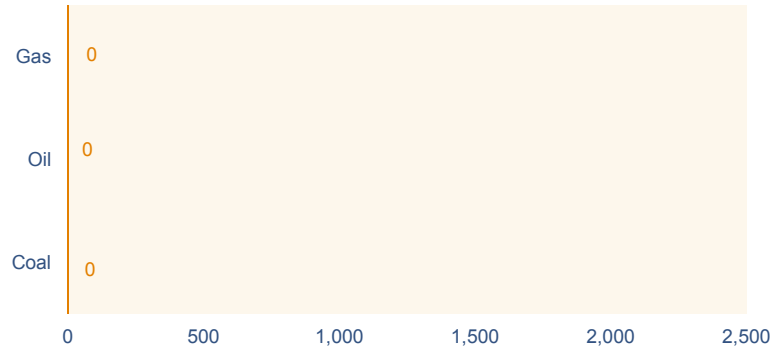
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	126	126	127	↓	
Energy security	124	120	120	→	D
Energy equity	112	117	118	↓	D
Environmental sustainability	89	91	93	↓	C
Contextual performance	92	99	96	↑	
Political strength	83	89	88	↑	
Societal strength	94	105	105	→	
Economic strength	96	92	94	↓	
Overall rank and balance score	**124**	**125**	**126**	↓	**CDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	22.7	GDP per capita (PPP, USD); GDP Group	1,975 (IV)
TPEP / TPEC (net energy importer)	0.04	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.26	CO_2 emissions (tCO_2) per capita	0.45
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	56.5

INDEX COMMENTARY

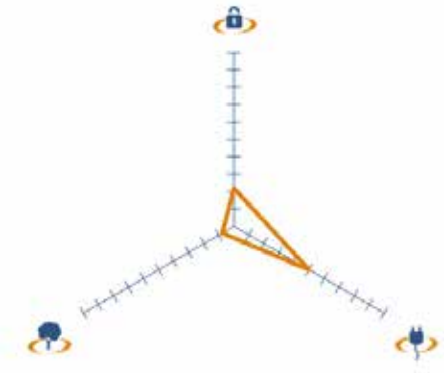
Senegal remains near the bottom of the Index, with its overall position dropping one place to rank 126. One of the 'Back of the Pack' countries, Senegal's rankings on all three dimensions of the energy trilemma are low. However, the fact that Senegal's environmental sustainability performance is currently its best is a promising sign and a good base on which the country can build as it continues to develop. Energy security lags behind the most, with low marks being driven by an extremely low ratio of total energy production to consumption and a high percentage of electricity being lost in transmission and distribution. High, and rising, gasoline prices and a low level of access to electricity contribute to a below-par performance on the energy equity dimension as well. Senegal's environmental sustainability ranking, while its strongest, is still rather poor. Burning fossil fuels to generate electricity results in high CO_2 emissions, and air and water pollution remains a serious problem. The country's energy mix does contain a small amount (9%) of hydropower, which represents a potentially promising start for the contribution of renewables. Contextual performance remains low, but constant, with political indicators improving slightly.

INDEX RANK
106

SERBIA

BALANCE SCORE
CDD

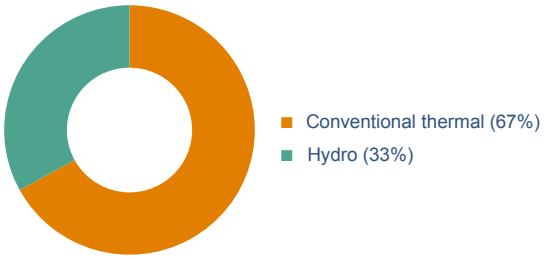
ENERGY SUSTAINABILITY BALANCE



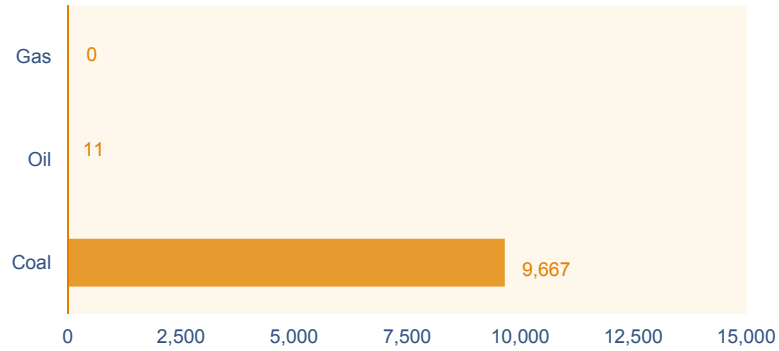
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	107	100	110	↓	
Energy security	93	81	101	↓	D
Energy equity	67	68	65	↑	C
Environmental sustainability	119	120	118	↑	D
Contextual performance	84	81	85	↓	
Political strength	81	74	74	→	
Societal strength	61	59	59	→	
Economic strength	118	107	118	↓	
Overall rank and balance score	**106**	**100**	**106**	↓	**CDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	18.6	GDP per capita (PPP, USD); GDP Group	10,405 (III)
TPEP / TPEC (net energy importer)	0.72	Energy intensity (koe per USD)	0.23
Emission intensity (kCO_2 per USD)	0.71	CO_2 emissions (tCO_2) per capita	6.92
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Serbia falls seven places in the Index, down to rank 106, largely due to a drop in energy security. As Serbia, has developed economically, its efforts to maximise energy equity and provide its people with affordable, quality energy has come at the cost of environmental sustainability, resulting in an imbalance between the various sides of the energy trilemma. Apart from slightly reduced oil reserves, Serbia's absolute performance on the indicators of energy security remains largely unchanged, and low across-the-board. This indicats that Serbia's lower energy security ranking is probably due to outperformance on this dimension by other countries. Serbia's performance on the energy equity dimension improves slightly, and continues to be the country's strongest. Despite an energy mix that is one-third hydropower, Serbia's large environmental footprint remains a serious challenge. It has extremely high, although gradually improving, levels of CO_2 emissions from electricity generation, and continuing problems with air and water pollution. Regarding its contextual performance, Serbia's political and societal indicators improve, while economic strength weakens due to decreasing macroeconomic stability.

TRENDS AND OUTLOOK

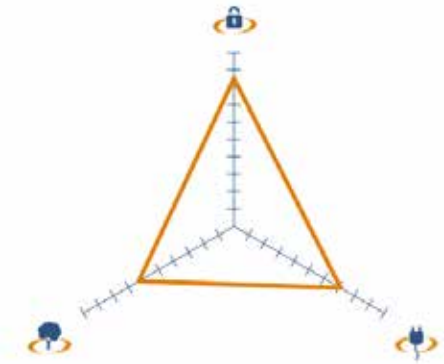
- In the last few years considerable investments have been made in the energy sector, transportation system, and waste management. For example, in electrostatic precipitators, and new slug and ash removal systems.
- The recent energy policy developments include: 1) implementation of new energy policy, which further opens the energy market and meets the requirements of the South Eastern Europe Energy Treaty; 2) new standards for energy efficiency, including the building sector, are in force meeting EU regulation; and 3) implementation of a feed-in-tariff scheme two years ago. These developments are expected to have a positive impact especially on the energy security and environmental sustainability dimension.
- Key issues policymakers need to focus on are: 1) adopt the new energy sector development strategy until 2030 with a clear vision for how the sector and the energy mix should develop until 2050; 2) meet the obligation from the South Eastern Europe Energy Treaty to open the energy market fully by 2015; 3) implement flue gas desulphurisation in all power plants by 2017; 4) meet EU biofuel targets for the transportation sector; and 5) establish a fund under the new law on rational use of energy, which will support energy efficiency and renewable energy projects, complementing the existing fund under the environmental policy.

BALANCE SCORE **ABB**

SLOVAKIA

INDEX RANK **22**

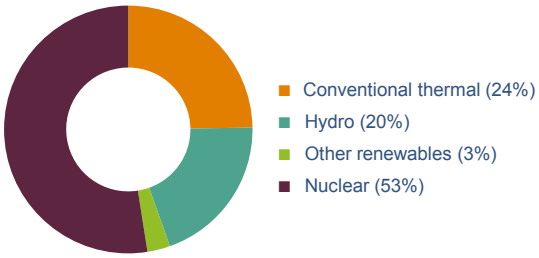
ENERGY SUSTAINABILITY BALANCE



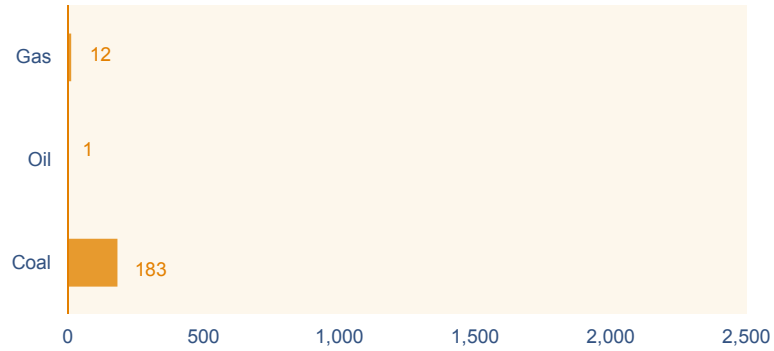
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	16	17	19	↓	
Energy security	24	20	20	→	A
Energy equity	42	40	38	↑	B
Environmental sustainability	43	46	48	↓	B
Contextual performance	48	51	55	↓	
Political strength	28	23	29	↓	
Societal strength	45	38	38	→	
Economic strength	80	95	95	→	
Overall rank and balance score	**23**	**22**	**22**	→	**ABB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	36.4	GDP per capita (PPP, USD); GDP Group	23,366 (II)
TPEP / TPEC (net energy importer)	0.33	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.33	CO_2 emissions (tCO_2) per capita	6.83
Energy affordability (USD per kWh)	0.23	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Slovakia retains the same Index ranking this year, with performance on both energy and contextual indicators remaining relatively constant. Slovakia does an excellent job at balancing the various competing demands of the energy trilemma, with good rankings on all three energy dimensions. Although Slovakia imports the majority of its energy, it still performs well on energy security due to its quickly declining energy consumption growth rate, the diversity of energy sources of the electricity it does produce, and low rates of electricity distribution losses. Despite the rising price of gasoline, Slovakia also performs well on the energy equity dimension with its citizens having widespread access to quality electricity. It also ranks well on the environmental sustainability dimension, particularly due to its successful reduction of CO_2 emissions in recent years and its previously mentioned diverse electricity generation portfolio, which is 75% from low-carbon or renewable sources and only 25% fossil-fuel based. Contextually, Slovakia continues to perform well on political and societal indicators, although political stability has slipped a little this year, but macroeconomic stability continues to lag behind.

TRENDS AND OUTLOOK

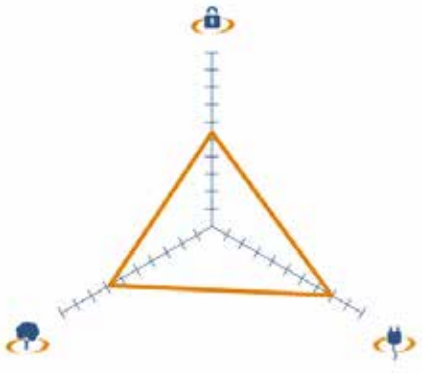
- Improvements made to the Slovak energy sector over the past years are driven by energy saving efforts in all sectors of the economy, by using more efficient and clear heat and power technologies. The dependence on energy imports remains high and not diversified, however, the use of domestic renewable energy sources and processing of waste is increasing.
- Recent policy developments are mainly driven by EU energy and climate targets and implementation of EU policy and regulation continues including market liberalisation and promotion of environmentally friendly energy technologies. The removal of cross subsidies is challenging as it conflicts with the support of the availability of cheap energy for low-income households and for the manufacturing sector.
- Policymakers need to focus on dealing with the challenge for the distribution system as a result of decentralised production and electric mobility. Increasing energy efficiency in all sectors of the economy remains a challenge and requires structural changes in the economy to diverge from heavy industry to a sophisticated production, but also measures to reduce energy consumption of buildings. The role of nuclear energy needs to be discussed because the technology allows an increase of electricity generation without increasing carbon emissions. Furthermore, policymakers need to focus on decreasing the dependence on natural gas and oil imports.

INDEX RANK **25**

SLOVENIA

BALANCE SCORE **BBB**

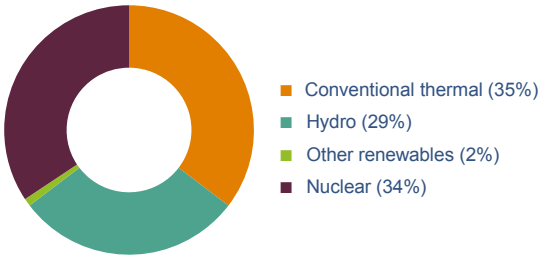
ENERGY SUSTAINABILITY BALANCE



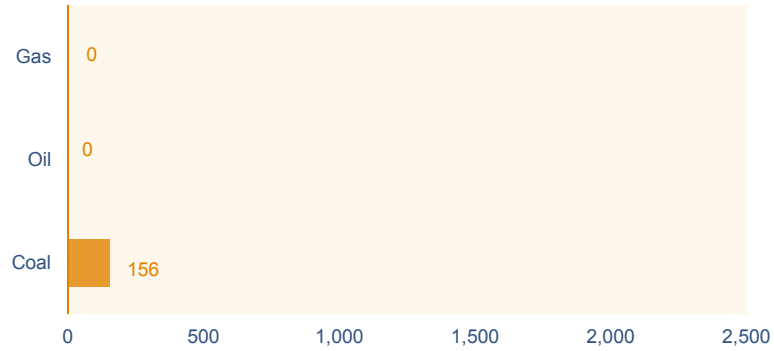
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	23	31	28	↑	
Energy security	56	57	60	↓	B
Energy equity	25	36	27	↑	B
Environmental sustainability	38	37	42	↓	B
Contextual performance	32	31	35	↓	
Political strength	29	32	34	↓	
Societal strength	26	25	25	→	
Economic strength	42	42	48	↓	
Overall rank and balance score	**20**	**23**	**25**	↓	**BBB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.6	GDP per capita (PPP, USD); GDP Group	28,436 (II)
TPEP / TPEC (net energy importer)	0.49	Energy intensity (koe per USD)	0.14
Emission intensity (kCO_2 per USD)	0.29	CO_2 emissions (tCO_2) per capita	7.30
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Slovenia's Index ranking improves by two places in 2013. Slovenia exhibits strong, well-rounded performance on all three dimensions, but energy security continues to be the country's biggest challenge, as its energy consumption growth rate is not declining as fast as in some of its peer countries. However, Slovenia sees improvements on certain indicators for this dimension from year, mostly notably its substantially increased oil stocks and continued diversification of its electricity generation mix. Energy equity improves the most (to rank 27), as the country continues to offer its citizens high-quality electricity, and as the relative cost of gasoline has not risen as much as it has in the rest of Central Europe. Performance on the environmental sustainability dimension falls slightly, but this is till fair, especially as only 35% of its electricity comes from conventional thermal sources. Contextual political and societal indicators remain similar, while macroeconomic stability worsens slightly.

TRENDS AND OUTLOOK

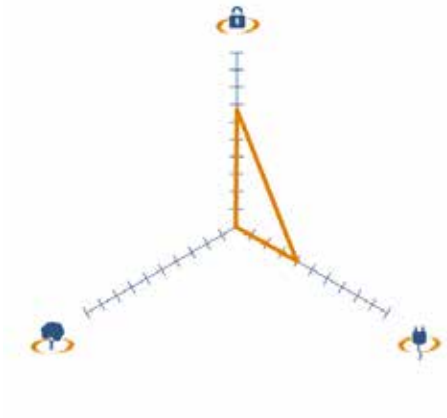
- The new Government of the Republic of Slovenia, which began its work at the end of April 2013, will adopt the new energy Act by the end of this year at the latest to implement the provisions of the European Third Energy legislative package. Changes made are expected to increase competition in the electricity and gas market, and also increase investments in use of renewable energy sources in final energy consumption. Furthermore, intense preparations are going on for the construction of a series of hydroelectric power plants on the Sava River, which will improve long-term reliability and environmental performance of electricity production.
- Due to increased competition in the market, electricity prices for both industry and households dropped significantly at the beginning of the year 2012, and similarly, in the second half of the year 2012, natural gas prices dropped by approximately 20%. This is expected to have a positive impact on Slovenia's performance in energy equity.
- South Stream, a gas pipeline that will pass through Slovenian territory and supply the southern and eastern countries of the European Union with natural gas from Russia, is expected to have a positive impact on the country's energy security. Construction is planned between 2013 and 2015.
- To improve Slovenia's environmental performance additional financial investments are needed for energy efficiency measures, particularly in the energy consumption of buildings (thermal insulation, window replacement and replacement of obsolete heating systems) and into supporting schemes for the use of renewable energy sources for energy supply of buildings.

BALANCE SCORE **BCD**

SOUTH AFRICA

INDEX RANK **79**

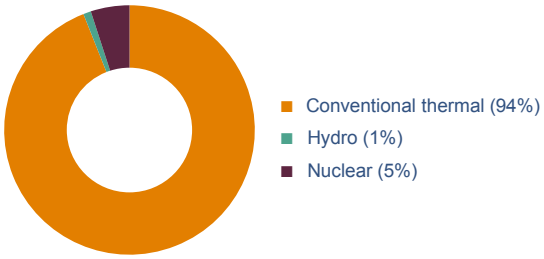
ENERGY SUSTAINABILITY BALANCE



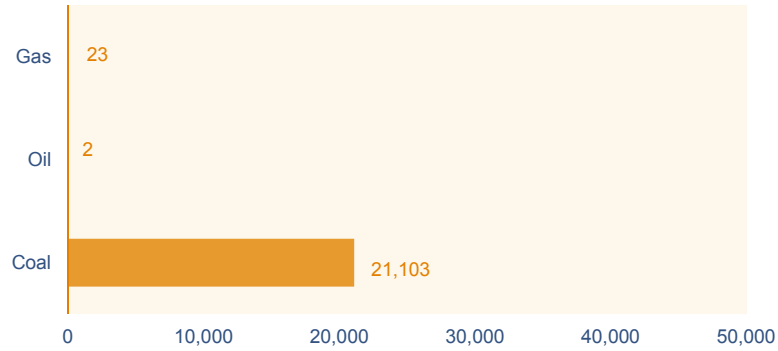
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	93	97	93	↑	
Energy security	52	55	43	↑	**B**
Energy equity	73	75	78	↓	**C**
Environmental sustainability	129	129	128	↑	**D**
Contextual performance	43	49	51	↓	
Political strength	55	55	52	↑	
Societal strength	72	84	84	→	
Economic strength	17	17	20	↓	
Overall rank and balance score	**80**	**84**	**79**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	32.1	GDP per capita (PPP, USD); GDP Group	11,029 (III)
TPEP / TPEC (net energy exporter)	1.10	Energy intensity (koe per USD)	0.29
Emission intensity (kCO_2 per USD)	0.74	CO_2 emissions (tCO_2) per capita	7.10
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	82.7

INDEX COMMENTARY

South Africa, one of the 'Highly-industrialised' countries, improves five places to 79 in the overall Index rankings. Typical of the 'Highly-industrialised' group, South Africa's stronger energy security and energy equity rankings have come at the high price of its poor performance on the environmental sustainability dimension, resulting in an imbalance between the three sides of the energy trilemma. In energy security, South Africa's strongest dimension, performance remains average as a result of a homogenous electricity mix that relies heavily on coal. However, South Africa's ranking improves slightly this year due to the net exporter's slowing energy consumption growth rate and its increasing oil reserves. Energy equity remains low in South Africa, as gasoline and electricity prices become more expensive. South Africa ranks second-to-last globally on environmental sustainability and struggles with every indicator in this dimension. This is due to the country's almost sole reliance on coal for electricity generation, extremely high per-capita emissions rates, and a slow development of renewable energy sources, despite bountiful natural endowments of sun and wind potential. Overall contextual performance for South Africa remains relatively constant, with decent macroeconomic stability and a high-availability of domestic credit cementing its economic strength, while indicators of societal strength like health and education fail to improve.

TRENDS AND OUTLOOK

- South Africa's energy security dimension and Index ranking does not yet reflect the positive developments since 2008 which include no incidents of electricity load shedding or liquid fuel rationing.
- Most recently, independent power producers (IPPs) are being allowed into the electricity sector using renewable technologies. Once these are operational, the energy security and environmental performance dimensions will show an improvement.
- Issues policymakers should focus on are: 1) there is still much to be done on the energy equity dimension, especially in terms of providing energy to rural communities; and 2) South Africa has abundant coal reserves but no natural gas or oil. The choice of technology for replacement and new electricity generation plant will be a very difficult one, especially since the issues of access and affordability are so critical to the social and economic development of the country.

INDEX RANK

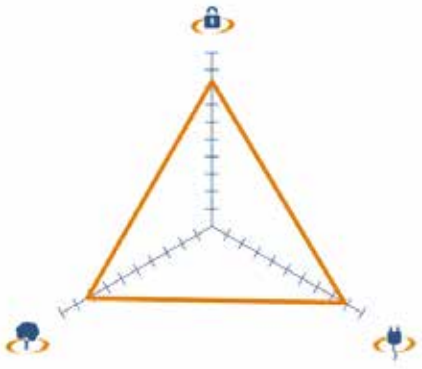
9

SPAIN

BALANCE SCORE

AAA

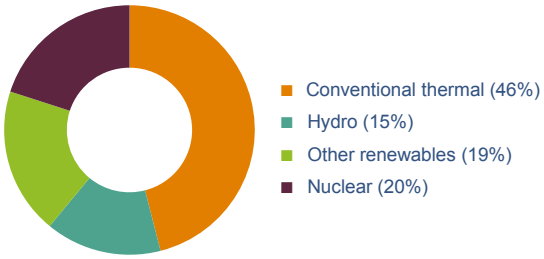
ENERGY SUSTAINABILITY BALANCE



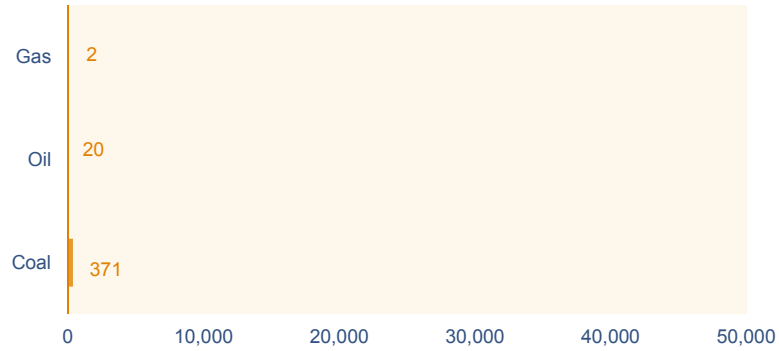
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	12	12	7	↑	
Energy security	37	31	22	↑	A
Energy equity	20	24	16	↑	A
Environmental sustainability	23	23	23	→	A
Contextual performance	30	27	24	↑	
Political strength	46	46	40	↑	
Societal strength	31	24	24	→	
Economic strength	18	20	25	↓	
Overall rank and balance score	**12**	**12**	**9**	↑	**AAA**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.2	GDP per capita (PPP, USD); GDP Group	30,478 (II)
TPEP / TPEC (net energy importer)	0.28	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	5.83
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

This year, Spain improves its already excellent performance by breaking into the top 10 in the overall Index rankings. Spain balances the competing dimensions of the energy trilemma well, with equally strong performance on all three. Although Spain is one of the world's larger energy importers, it still performs fairly well on the energy security dimension by maintaining a diversified electricity mix, low distribution losses of electricity, and moderate oil reserves. Spain improves its energy equity ranking this year by continuing to offer high-quality electricity to all of its citizens at reasonable prices. Like many of its fellow EU members, Spain performs well on the environmental sustainability dimension, with 20% of its energy coming from nuclear power, 15% from hydropower, and 19% from other renewables such as wind. Spain's contextual indicators remain relatively constant, apart from a small drop in economic strength due to the adverse macroeconomic conditions.

TRENDS AND OUTLOOK

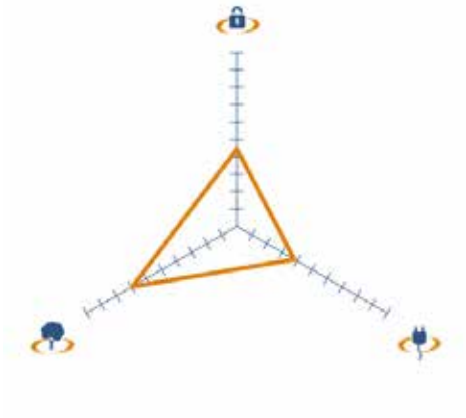
- The Spanish administration keeps its commitment to renewable and low-carbon energy. In doing so, the country pursues a more efficient way of reducing CO_2 emissions, becoming a more environmental-friendly producer and consumer of energy.
- As for the energy equity aspects, the country has been dragging on a tariff deficit since 1997. In order to put an end to this situation, the Spanish government approved several regulatory measures during the last years that concluded in July 2013 with the approval of an energy reform in order to reach tariff adequacy during this year and to guarantee budgetary stability in the future.
- Additionally, the Spanish administration's indicative energy plan for 2011-2020 has maintained its commitment with the triple goal of improving the security of supply, increasing competitiveness and guaranteeing the environmental sustainability. Spain is a net oil and gas importer with an energy mix mainly based on hydrocarbons. It produces little energy of its own, and must minimise the risks associated with this. Therefore, Spain is decreasing its energy dependence rate with a policy of energy savings, efficiency, and renewable energy sources. The exploration and production of indigenous hydrocarbons should also be strengthened. All these factors will reduce dependence on imported energy sources and improve the balance of payment.
- Policymakers need to continue focusing on several challenges such as the need for a higher electricity interconnection power grid capacity with other European member states, its ageing nuclear system, and the upcoming rises in the cost of electricity related to Spain's tariff deficit reduction objective.

BALANCE SCORE
BCC

SRI LANKA

INDEX RANK
69

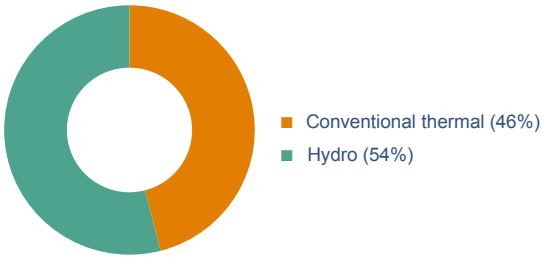
ENERGY SUSTAINABILITY BALANCE



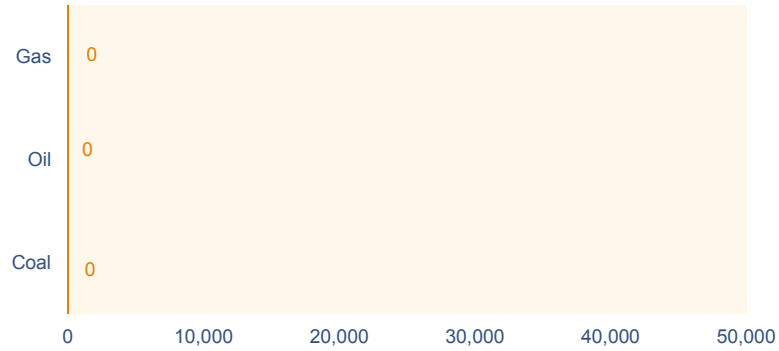
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	68	65	64	↑	
Energy security	72	72	72	→	C
Energy equity	90	82	80	↑	C
Environmental sustainability	41	45	40	↑	B
Contextual performance	80	74	71	↑	
Political strength	100	87	76	↑	
Societal strength	54	54	54	→	
Economic strength	91	79	85	↓	
Overall rank and balance score	**73**	**69**	**69**	→	**BCC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.1	GDP per capita (PPP, USD); GDP Group	5,676 (IV)
TPEP / TPEC (net energy importer)	0.24	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.14	CO_2 emissions (tCO_2) per capita	0.67
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	85.1

INDEX COMMENTARY

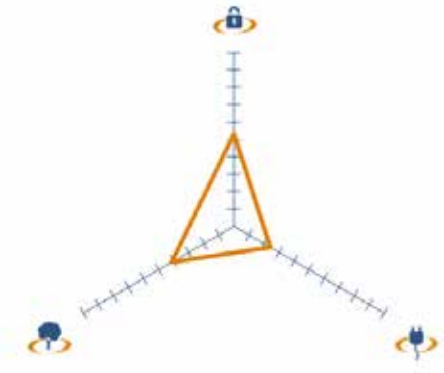
Sri Lanka's overall Index ranking stays the same this year. A member of the 'Hydro-powered' group of countries, Sri Lanka has a high degree of environmental sustainability that is offset by average performances on the energy security and equity dimensions. Its rank on the energy security dimension remains constant at 72. Sri Lanka's low ratio of energy production to supply and lack of oil reserves are balanced out by its continuous reduction in its energy consumption growth rate and a diversified electricity generation portfolio that is split almost evenly between thermal and hydropower. Energy equity improves slightly, but remains the country's weakest dimension. While Sri Lanka's economy is not particularly energy or emissions-intensive, air and water pollution are still problematic. Contextually, all of Sri Lanka's political strength indicators improve considerably, while indicators of societal strength remain relatively flat and macroeconomic stability is weakened.

INDEX RANK
92

SWAZILAND

BALANCE SCORE
BCD

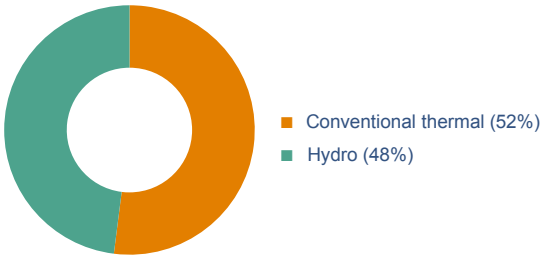
ENERGY SUSTAINABILITY BALANCE



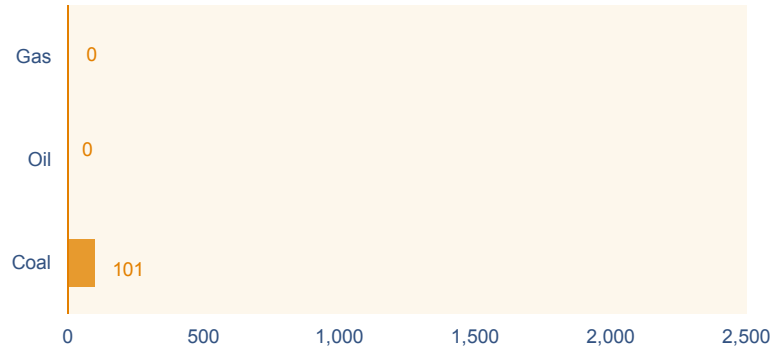
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	103	104	83	↑	
Energy security	105	104	61	↑	**B**
Energy equity	95	92	98	↓	**D**
Environmental sustainability	72	78	76	↑	**C**
Contextual performance	91	98	101	↓	
Political strength	95	94	105	↓	
Societal strength	108	98	98	→	
Economic strength	70	94	92	↑	
Overall rank and balance score	**105**	**107**	**92**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	47.0	GDP per capita (PPP, USD); GDP Group	5,835 (IV)
TPEP / TPEC (net energy importer)	0.85	Energy intensity (koe per USD)	0.16
Emission intensity (kCO_2 per USD)	0.16	CO_2 emissions (tCO_2) per capita	n.a.
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)[1]	35.2

INDEX COMMENTARY

Swaziland moves its overall Index ranking up 15 places, largely on the strength of its improvements on the energy security dimension, which is not its strongest. Currently a net energy importer, Swaziland's primary energy production to consumption ratio has been brought down to almost zero over the last few years, the result of growing domestic production and a slowing rate of growth of consumption. On the energy equity dimension, Swaziland continues to lag behind, largely because only 35% of the country's population has access to electricity and gasoline prices keep rising. Although it does not have a high emissions intensity, the country struggles with mitigating its impact on the environment, due to disproportionate levels of air and water pollution. Contextual indicators remain low, but relatively constant, with the largest drops seen in political stability and effectiveness of government.

TRENDS AND OUTLOOK

- A trend towards an increased share of renewable energy is both power (off and on-grid) and fuel (biofuels) sector is apparent and the development of a renewable energy strategy, independent power producer policy, and feed-in-tariffs are underway.
- Coal will continue to play an important role in the energy mix of Swaziland. The country has vast coal reserves and is considering building a 300MW coal fired thermal power station using clean coal technologies, which is expected to supply the country and allow export to the Southern African Power Pool. However, companies are investing in cogeneration to replace coal.
- These efforts are expected to improve the country's energy independence by reducing the heavy reliance on imported energy from South Africa, as well as increasing access to energy access for all citizens while ensuring a good quality of supply. In addition, the country is looking to increase its strategic fuel reserves, enhance bulk purchasing (better prices), explore the possibility of setting up a petroleum products refinery, and tap into the natural gas market in Mozambique.
- The recently conducted GHG inventory, submitted to the UNFCCC in March 2012, shows that Swaziland is a net source for GHGs. The energy-related activities account for only 6.7% of total GHG emissions. There is, however, room for pollution reduction. That is why Swaziland has approved waste and air pollution regulations to enforce pollution control.
- Policymakers need to: 1) support the adoption of renewable energy technologies and the development of incentives to enable market penetration; and 2) increase the budget for the energy sector to allow economic development and poverty reduction, for example, increased rural electrification and energy access, research and development, development of skills, and capacity building.

[1] Swaziland's electricity access rate is estimated to be a minimum of 55%, according to national data sources.

BALANCE SCORE

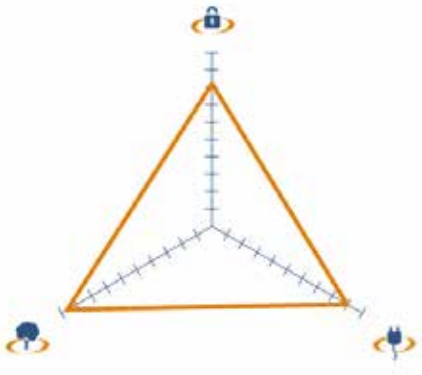
AAA

SWEDEN

INDEX RANK

3

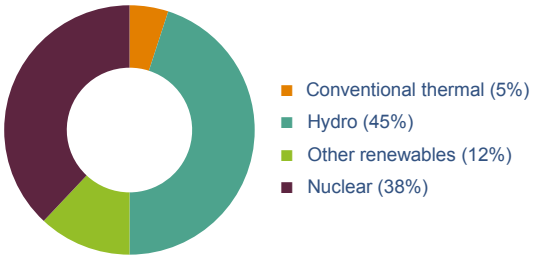
ENERGY SUSTAINABILITY BALANCE



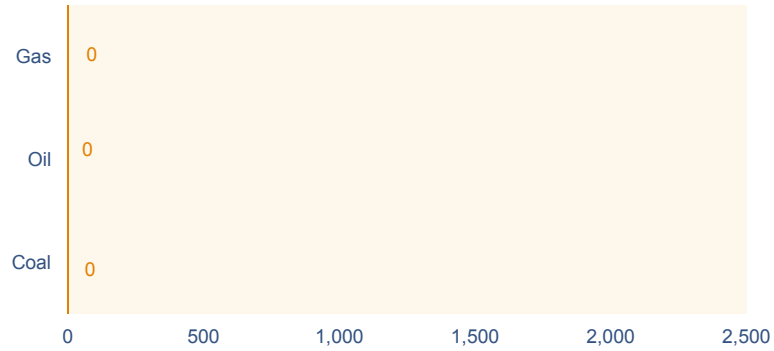
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	3	4	4	→	
Energy security	13	18	24	↓	**A**
Energy equity	26	21	14	↑	**A**
Environmental sustainability	6	8	6	↑	**A**
Contextual performance	9	6	5	↑	
Political strength	6	5	4	↑	
Societal strength	3	2	2	→	
Economic strength	30	29	26	↑	
Overall rank and balance score	**3**	**3**	**3**	→	**AAA**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.3	GDP per capita (PPP, USD); GDP Group	40,229 (I)
TPEP / TPEC (net energy importer)	0.61	Energy intensity (koe per USD)	0.15
Emission intensity (kCO_2 per USD)	0.13	CO_2 emissions (tCO_2) per capita	4.44
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Sweden continues its exceptional performance in the Index and retains its ranking. As a 'Pack Leader', Sweden exhibits strong, well-balanced performance on all three energy dimensions. Energy security slipped in recent years and continues to be Sweden's least-strong dimension as the further diversification of the electricity mix is offset by increasing energy consumption. Performance on the energy equity dimension improves, as Sweden maintains high-quality and affordable energy services. The country's mitigation of its impact on the environment continues to rank among the best in the world, with comparatively low emissions intensity and air and water pollution levels. Part of Sweden's success on the environmental sustainability dimension is undoubtedly due to its diverse low and no-carbon energy mix, with 45% of its electricity generation coming from hydropower, 38% from nuclear, and 12% from other renewable sources. Only 5% of electricity is generated using fossil fuels, and almost all oil plants have been either shut down or relegated to reserve use. Sweden performs extremely well on indicators of political and societal strength, with economic strength trailing slightly behind due solely to the country's high cost of living.

TRENDS AND OUTLOOK

- In order to maintain a high Index ranking, a key issue for Sweden is to make the transportation sector sustainable. Currently, the transportation sector (except trains, metro and trams) relies on fossil fuels. Special policies and financial support to incentivize the purchase of electric cars are in place, but results are not yet fulfilling expectations. Improvements have been made in terms of increasing the share of biofuels. The EU target to increase the share of biofuels used in transport to 10% by 2020 will be achieved several years in advance, and is close to 10% already. This is mostly due to blending of ethanol and other biofuels in gasoline and diesel, and an increased number of cars running on biogas.
- Sweden has had a successful market-based green certificate system for promoting renewable energy sources (RES) in place since 2003 and since 2012 this is a joint system with Norway. The joint system is a major step forward but it is important to review and improve targets and policies for the transportation sector.
- Policymakers need to focus on finding a solution to replace the existing 10 nuclear reactors that will be taken out of operation gradually to meet the future electricity demand. The first reactors are expected to claose in around 2025. Permit application for building new reactors to replace existing ones have been filed, in line with the government decision to allow the replacement of existing reactors at existing sites.
- In addition to finding measures to meet the EU CO_2 reduction and RES targets, energy efficiency needs to be a top priority as targets will be difficult to achieve.

INDEX RANK

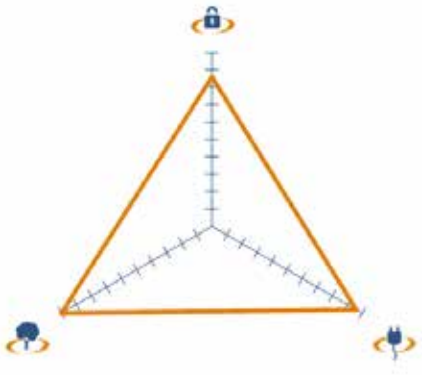
1

SWITZERLAND

BALANCE SCORE

AAA

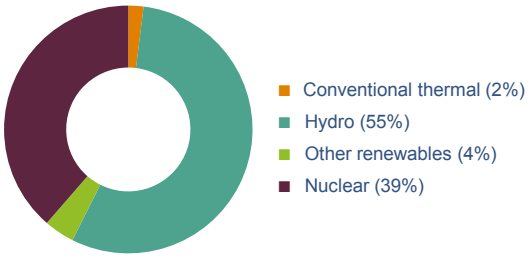
ENERGY SUSTAINABILITY BALANCE



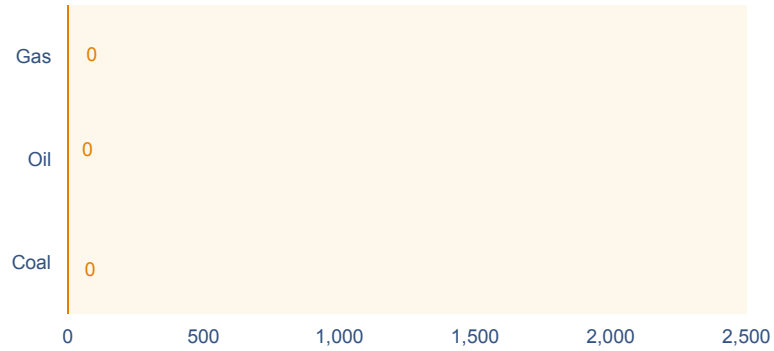
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	1	2	1	↑	
Energy security	26	26	19	↑	A
Energy equity	4	4	6	↓	A
Environmental sustainability	1	1	1	→	A
Contextual performance	2	2	3	↓	
Political strength	5	6	7	↓	
Societal strength	8	2	6	↓	
Economic strength	6	8	6	↑	
Overall rank and balance score	**1**	**1**	**1**	→	**AAA**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.7	GDP per capita (PPP, USD); GDP Group	44,452 (I)
TPEP / TPEC (net energy importer)	0.50	Energy intensity (koe per USD)	0.08
Emission intensity (kCO_2 per USD)	0.12	CO_2 emissions (tCO_2) per capita	4.66
Energy affordability (USD per kWh)	0.20	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Switzerland maintains the top spot in the Index for yet another year and exhibits strong, balanced performances on all three dimensions. Energy security is Switzerland's least-strong dimension because the country imports around half of the energy it uses. Energy equity is high and Switzerland continues to be the best in the world at limiting its impact on the environment with low levels of pollution and ultra-low emission energy infrastructure that uses fossil-fuelled power plants for only 2% of electricity generation. Contextual performance remains among the best in the world, but the high cost of living is the country's weakest contextual indicator.

TRENDS AND OUTLOOK

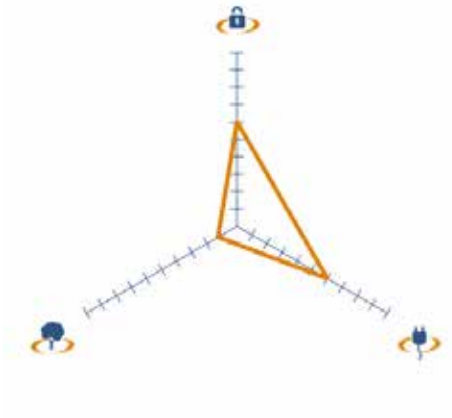
- Switzerland's leading position in the Index reflects the country's past energy and energy-related policy decisions. However, the recent developments and expected changes are expected to have a strong impact on the country's energy sustainability balance.
- Most recent energy policy developments include the decision to refrain from building new nuclear power plants which will be included in the new energy strategy that is under development and expected to be implemented fully by 2050. The necessary measures and next steps to phase-out nuclear are not yet known and will be matter of political discussions in the next few months (a public referendum is probable). To achieve the transition to a low-carbon energy system in the long term, in the short term Switzerland is likely to become more dependent on gas-fired electricity generation.
- Policymakers need to focus on: 1) construction of new electricity grids; 2) completing the liberalisation of the electricity market; and 3) come to a bilateral agreement with the European Union regarding electricity and renewable energy. Furthermore, there is the need to be ambitious and increase the renovation rate of buildings as part of the transition to a low-carbon energy system.

BALANCE SCORE
BBD

SYRIA

INDEX RANK
87

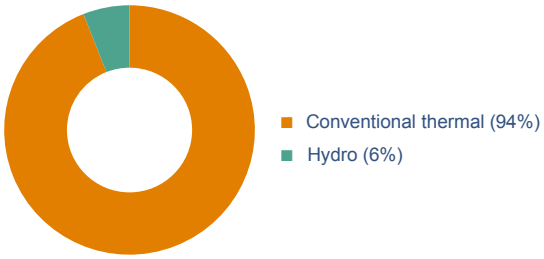
ENERGY SUSTAINABILITY BALANCE



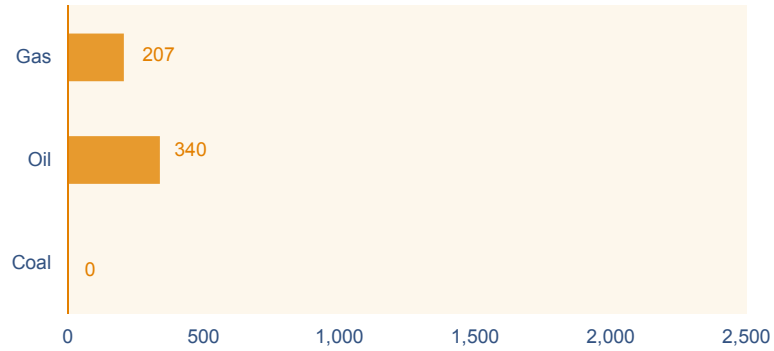
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	86	84	75	↑	
Energy security	30	33	52	↓	**B**
Energy equity	92	87	52	↑	**B**
Environmental sustainability	117	116	113	↑	**D**
Contextual performance	108	110	117	↓	
Political strength	109	109	114	↓	
Societal strength	98	113	113	→	
Economic strength	94	82	93	↓	
Overall rank and balance score	**97**	**94**	**87**	↑	**BBD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	5,041 (IV)
TPEP / TPEC (net energy exporter)	1.10	Energy intensity (koe per USD)	n.a.
Emission intensity (kCO_2 per USD)	n.a.	CO_2 emissions (tCO_2) per capita	2.67
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	92.7

INDEX COMMENTARY

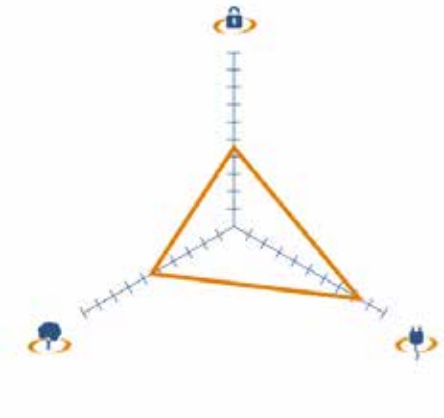
Overall, Syria improves seven places in this year's Index. Syria's energy trilemma balance is weighted with equal, average performances on the energy security and equity dimensions being negated by a poor environmental sustainability ranking. Syria is an oil exporter and has reserve oil stocks to last it a year, but its performance on the energy security dimension suffers as energy consumption outpaces GDP growth. Energy equity improves this year as Syria offers more of its people cheaper and higher-quality electricity. Meanwhile, the country's performance on environmental sustainability lags far behind, with an emissions and energy-intensive economy, high levels of pollution, and an electricity generation mix that is 94% conventional thermal. Indicators of political, societal, and economic strength are all low. The Index does not yet fully factor in the effects of Syria's civil war as many indicators use 2011 or 2010 data, the most recent years available.

INDEX RANK
27

TAIWAN, CHINA

BALANCE SCORE
ABC

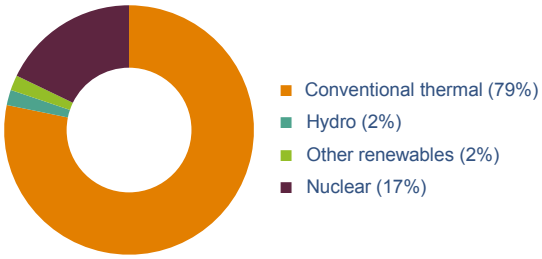
ENERGY SUSTAINABILITY BALANCE



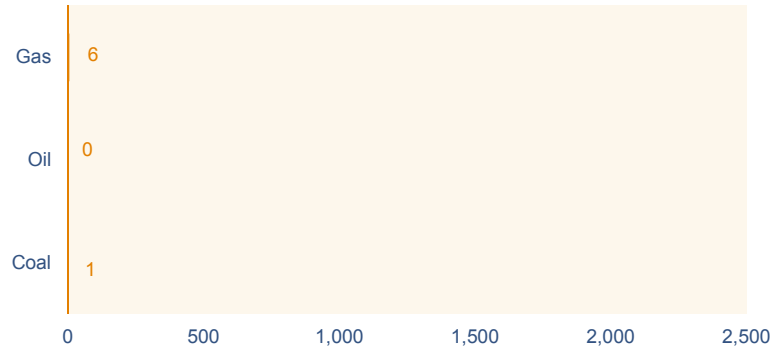
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	40	40	41	↓	
Energy security	64	67	71	↓	C
Energy equity	17	17	22	↓	A
Environmental sustainability	65	63	59	↑	B
Contextual performance	14	11	11	→	
Political strength	33	25	23	↑	
Societal strength	22	22	22	→	
Economic strength	4	5	5	→	
Overall rank and balance score	**24**	**24**	**27**	↓	**ABC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	37,743 (I)
TPEP / TPEC (net energy importer)	0.10	Energy intensity (koe per USD)	0.14
Emission intensity (kCO_2 per USD)	0.60	CO_2 emissions (tCO_2) per capita	11.71
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.0

INDEX COMMENTARY

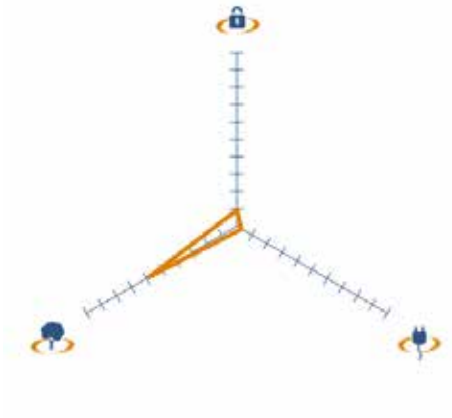
Taiwan drops three places in the overall Index rankings. Average performances on the energy security and environmental sustainability dimensions are balanced out by a high degree of energy equity. Taiwan's energy security ranking suffers mostly due to its heavy reliance on energy imports. The island's small size and lack of natural energy resources means that it only produces 10% of the energy it consumes, although Taiwan is trying to change this by increasing the amount of nuclear and wind power in its electricity generation portfolio. Despite CO_2 emission-heavy industries, Taiwan manages to mitigate its impact on the environment fairly well, with air and water pollution levels that are much lower than other countries with similar energy intensity. Taiwan continues to consistently perform well on all contextual indicators with political stability and regulatory quality improving the most during the past year.

BALANCE SCORE
BDD

TANZANIA

INDEX RANK
116

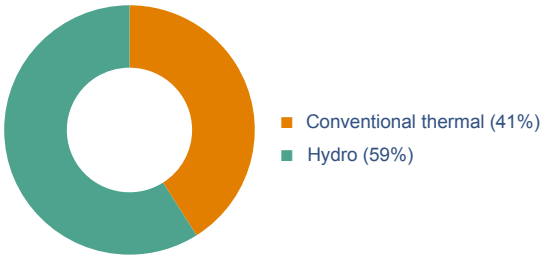
ENERGY SUSTAINABILITY BALANCE



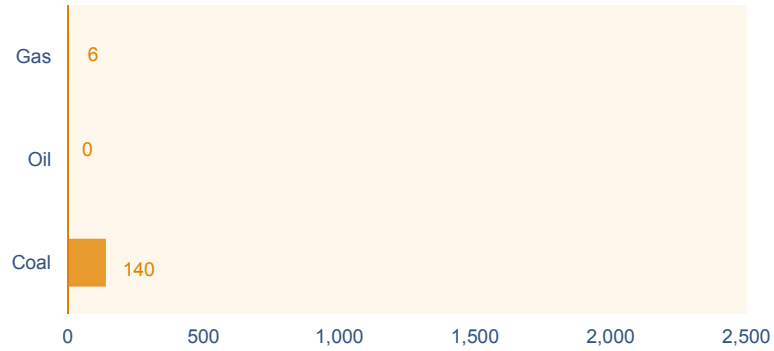
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	115	117	117	→	
Energy security	117	117	117	→	**D**
Energy equity	121	123	125	↓	**D**
Environmental sustainability	52	57	53	↑	**B**
Contextual performance	93	92	91	↑	
Political strength	84	86	89	↓	
Societal strength	101	93	93	→	
Economic strength	89	91	83	↑	
Overall rank and balance score	**109**	**114**	**116**	↓	**BDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.1	GDP per capita (PPP, USD); GDP Group	1,469 (IV)
TPEP / TPEC (net energy importer)	0.46	Energy intensity (koe per USD)	0.34
Emission intensity (kCO_2 per USD)	0.11	CO_2 emissions (tCO_2) per capita	0.14
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	14.8

INDEX COMMENTARY

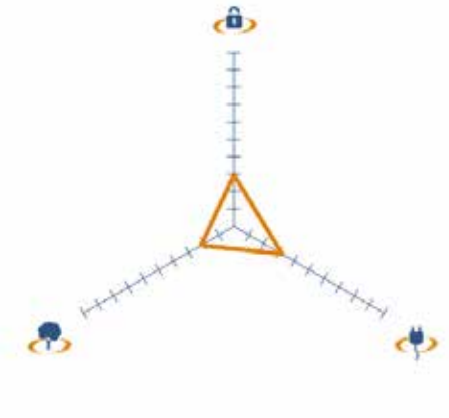
Tanzania drops two places in this year's Index to rank 116 overall. The country performs poorly on the energy security dimension, challenged by a high reliance on energy imports, a domestic electricity generation portfolio that is largely hydropowered and vulnerable to droughts, and a high percentage of transmission and distribution losses. Tanzania ranks very low on the energy equity dimension with gasoline that is not affordable, and less than 15% of its population has access to electricity. Once the country develops economically and is able to provide modern energy services to a larger share of its population, it will face the challenge of continuing to meet growing demand while maintaining its currently small environmental footprint. Contextually, performance across most indicators tends to remain low, apart from notable improvements in health, education, and macroeconomic stability.

INDEX RANK
89

THAILAND

BALANCE SCORE
CCD

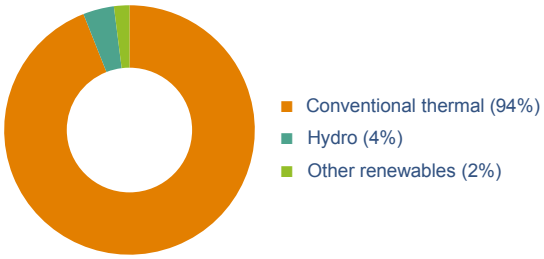
ENERGY SUSTAINABILITY BALANCE



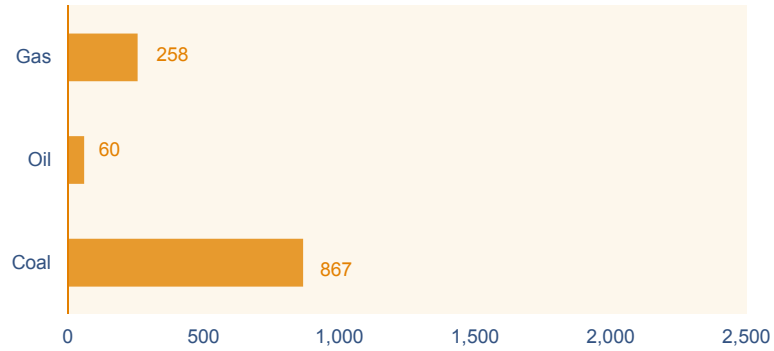
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	98	101	107	↓	
Energy security	79	82	91	↓	C
Energy equity	81	85	88	↓	C
Environmental sustainability	103	103	101	↑	D
Contextual performance	45	48	46	↑	
Political strength	74	80	75	↑	
Societal strength	63	70	70	→	
Economic strength	10	4	2	↑	
Overall rank and balance score	**84**	**89**	**89**	→	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	39.0	GDP per capita (PPP, USD); GDP Group	9,390 (III)
TPEP / TPEC (net energy importer)	0.54	Energy intensity (koe per USD)	0.23
Emission intensity (kCO_2 per USD)	0.44	CO_2 emissions (tCO_2) per capita	3.38
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	99.7

INDEX COMMENTARY

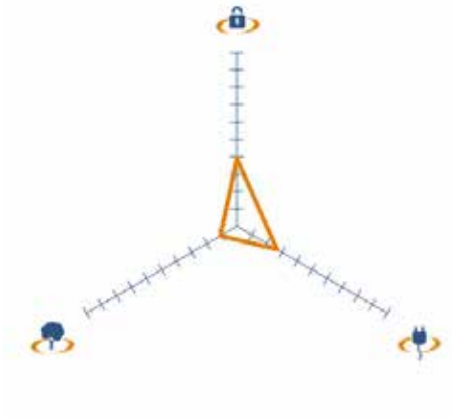
Thailand's overall ranking in this year's Index remains the same. While performance on all three dimensions is fairly low, Thailand has to date balanced performance on all three sides of the energy trilemma, and has the potential to expand on this well-rounded foundation as its economy continues its rapid pace of growth. Thailand's energy security ranking slips the most, as the rate of energy consumption growth increases, strategic oil stocks shrink, and the diversity of the electricity mix that is almost entirely based on fossil fuels declines. Energy equity performance also suffers slightly due to the rising price of energy. Thailand continues to struggle on the environmental sustainability dimension, as both energy and emissions intensities remain high and air and water quality stay low. Contextually, political stability and regulatory quality improve, and economic indicators remain extremely strong, with a stable, growing economy, very low cost of living, and a wide domestic availability of credit.

BALANCE SCORE
CCD

TRINIDAD AND TOBAGO

INDEX RANK
98

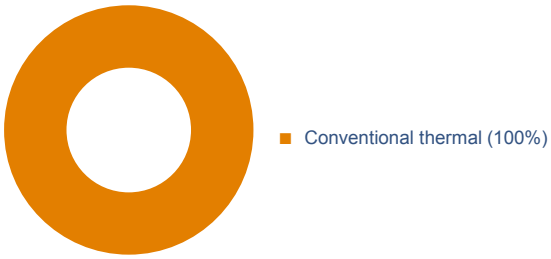
ENERGY SUSTAINABILITY BALANCE



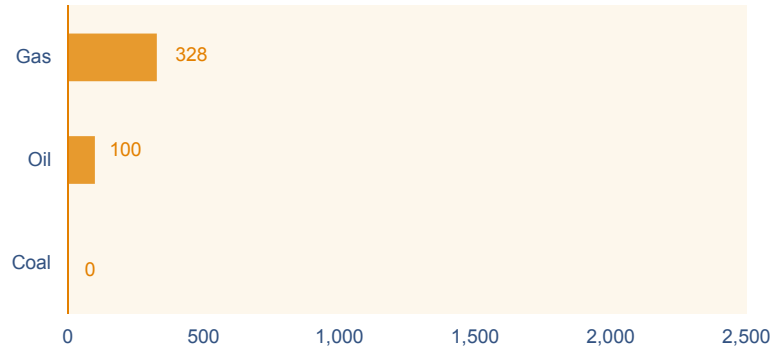
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	82	86	113	↓	
Energy security	66	74	79	↓	C
Energy equity	50	49	95	↓	C
Environmental sustainability	116	116	115	↑	D
Contextual performance	65	64	53	↑	
Political strength	52	54	53	↑	
Societal strength	59	64	64	→	
Economic strength	84	72	43	↑	
Overall rank and balance score	**78**	**80**	**98**	↓	**CCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	19,738 (II)
TPEP / TPEC (net energy exporter)	1.98	Energy intensity (koe per USD)	0.71
Emission intensity (kCO_2 per USD)	1.43	CO_2 emissions (tCO_2) per capita	32.32
Energy affordability (USD per kWh)	0.04	Population with access to electricity (%)	99.0

INDEX COMMENTARY

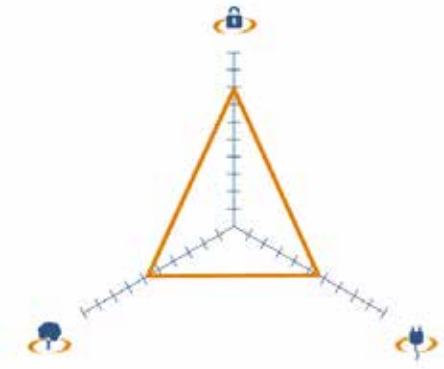
Trinidad and Tobago slips 18 places in this year's Index, due to significant declines in energy equity. Energy security for the oil and petroleum products exporter declines slightly as energy consumption continues to outpace economic growth, and the energy production to consumption ratio suffers. Energy equity falls sharply by 46 places in the global rankings for that dimension because of deterioration in the perceived quality of electricity provided. Regarding the island nation's environmental footprint, pollution indicators remain flat and average, but greenhouse gas emissions continue to be among the worst in the world. This is not helped by the fact that Trinidad and Tobago's electricity generation comes entirely from burning fossil fuels. Contextual indicators generally have remained flat or improved this past year, with notable gains made in political stability, quality of education, and especially macroeconomic stability.

INDEX RANK
36

TUNISIA

BALANCE SCORE
BBB

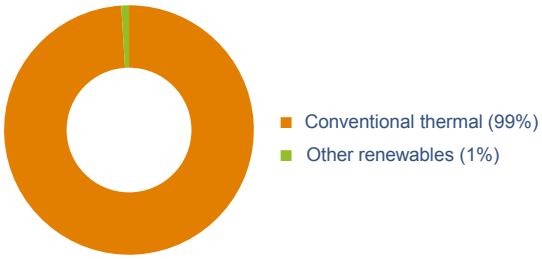
ENERGY SUSTAINABILITY BALANCE



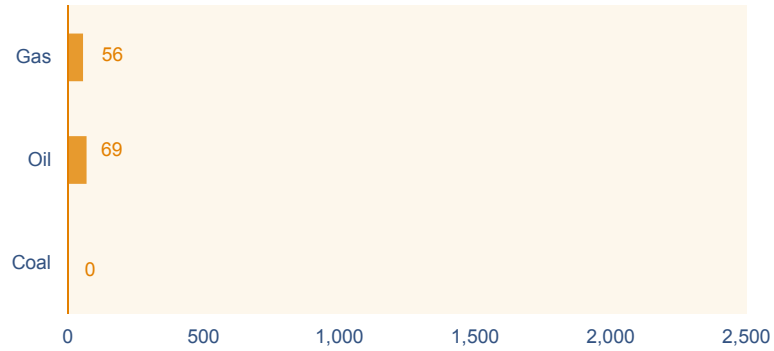
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	27	29	35	↓	
Energy security	15	15	28	↓	B
Energy equity	58	55	57	↓	B
Environmental sustainability	55	59	56	↑	B
Contextual performance	62	56	59	↓	
Political strength	58	59	70	↓	
Societal strength	51	60	60	→	
Economic strength	77	53	39	↑	
Overall rank and balance score	**35**	**34**	**36**	↓	**BBB**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	29.6	GDP per capita (PPP, USD); GDP Group	9,359 (III)
TPEP / TPEC (net energy importer)	0.84	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	1.86
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.5

INDEX COMMENTARY

Tunisia drops two places, mostly due to a substantial decrease in performance on the energy security dimension. Falling energy production and rising consumption in the energy-importing country leads to a worsening of its production to consumption ratio. Oil stocks also are reduced. Performance on the energy equity dimension slips slightly as cheap gasoline prices are counterbalanced by a dip in the perceived quality of electricity. With regards to Tunisia's environmental sustainability, energy intensity remains low and emissions remain in control, despite the country's use of virtually only fossil fuels for electricity generation. Both air and water qualities remain very poor. Contextually, all political and the control of corruption and rule of law indicators worsen. This is probably due to the conditions that ultimately led to the 2011 Arab Spring. Economically, Tunisia performs better, with both macroeconomic stability and the availability of credit to the private sector improving.

TRENDS AND OUTLOOK

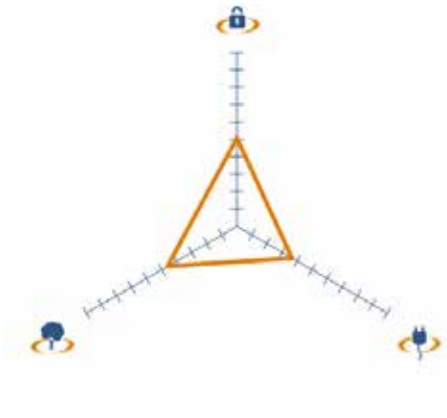
- Over the past few years, Tunisia has made continued efforts to sustain its economic development and improve the energy sustainability balance. To achieve the latter, policies have been implemented to manage the exploration and production of hydrocarbons that will allow Tunisia to accelerate its economic development and to establish its position on the world market. Furthermore, programmes for the promotion of energy efficiency, renewable energy and energy substitution have been instigated.
- Key issues policymakers need to focus on are: 1) increasing the share of renewable energy in electricity generation (including wind, solar and a new CSP scheme) and households (solar water heat, micro generation); and 2) extending the natural gas network in the south and central part of the country.

BALANCE SCORE
BCC

TURKEY

INDEX RANK
75

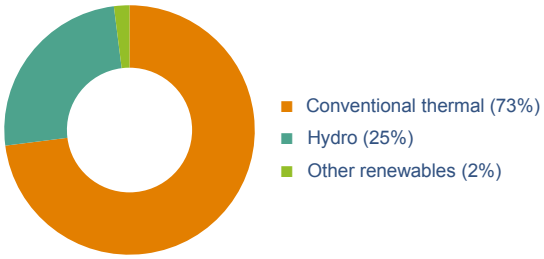
ENERGY SUSTAINABILITY BALANCE



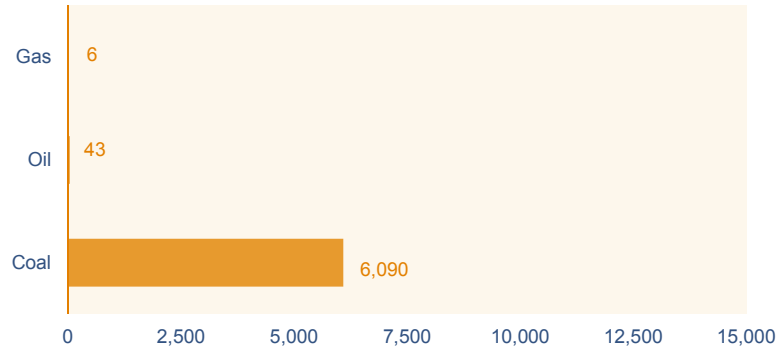
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	81	90	74	↑	
Energy security	94	91	64	↑	**B**
Energy equity	60	81	82	↓	**C**
Environmental sustainability	76	72	70	↑	**C**
Contextual performance	78	74	68	↑	
Political strength	70	67	65	↑	
Societal strength	58	51	51	→	
Economic strength	109	102	91	↑	
Overall rank and balance score	**82**	**87**	**75**	↑	**BCC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	28.1	GDP per capita (PPP, USD); GDP Group	14,543 (II)
TPEP / TPEC (net energy importer)	0.30	Energy intensity (koe per USD)	0.12
Emission intensity (kCO_2 per USD)	0.31	CO_2 emissions (tCO_2) per capita	4.12
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Turkey's strong improvements on the energy security indicators facilitate the country's upward movement in this year's Index. Turkey balances the three competing sides of the energy trilemma well, despite low to below average rankings on all three dimensions. With regards to energy security, the country's energy consumption growth rate continues to decline, while energy imports fall and the diversity of the electricity fuel mix increases. Performance on the energy equity dimension is largely flat, with a dip in the quality of electricity almost being balanced out by gasoline becoming slightly more affordable, although it is still very expensive. Turkey continues to struggle with mitigating its impact on the environment, with high levels of air and water pollution for a country with average levels of energy intensity. Efforts to curb greenhouse gas emissions see some progress. Contextually, Turkey's performance remains largely unchanged, with small gains made across the board most notably in health, education, and the availability of credit to the private sector.

TRENDS AND OUTLOOK

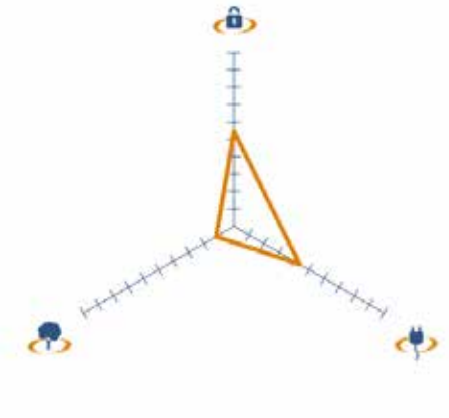
- Turkey has to accommodate a fast growing demand for energy and enormous investment volumes are required to meet this growth. Furthermore, only 23% of energy consumption is met by domestic resources, thus energy dependence is of great concern.
- Policymakers should consider increased support for the development of domestic resources, such as hydropower and lignite to meet the increasing energy demand.

INDEX RANK
97

UKRAINE

BALANCE SCORE
BCD

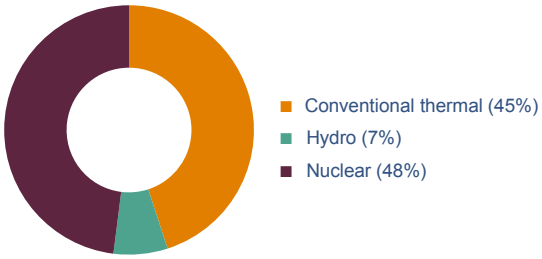
ENERGY SUSTAINABILITY BALANCE



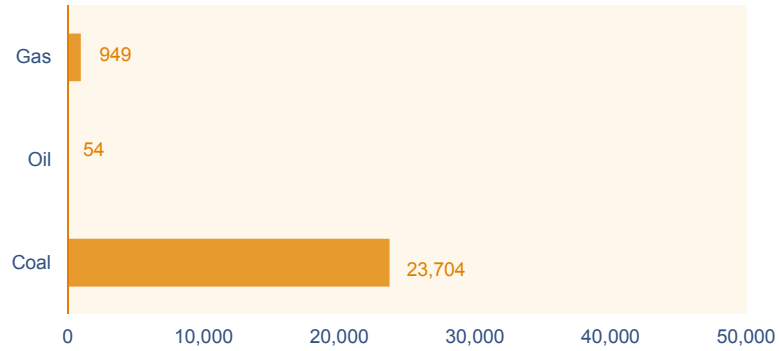
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	85	92	92	→	
Energy security	54	60	59	↑	B
Energy equity	70	73	73	→	C
Environmental sustainability	114	114	114	→	D
Contextual performance	106	104	97	↑	
Political strength	106	100	99	↑	
Societal strength	77	88	88	→	
Economic strength	110	109	101	↑	
Overall rank and balance score	**95**	**99**	**97**	↑	**BCD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	32.8	GDP per capita (PPP, USD); GDP Group	7,210 (III)
TPEP / TPEC (net energy importer)	0.61	Energy intensity (koe per USD)	0.47
Emission intensity (kCO_2 per USD)	0.96	CO_2 emissions (tCO_2) per capita	6.08
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.8

INDEX COMMENTARY

Ukraine improves two positions in this year's Index with overall relative energy performance virtually unchanged. Only energy security improves by a single rank. On the energy equity dimension, the perceived quality of electricity services improves. From an environmental sustainability point of view, energy and emissions intensity remain among the highest in the world. Considering that Ukraine gets less than half of its electricity from burning fossil fuels (with the majority coming from nuclear power and a small amount from hydropower), emissions from electricity generation remain fairly high. Contextual performance is essentially flat, although maintaining the same absolute performance on indicators of economic strength in a climate of continued weak global macroeconomic conditions helps boost Ukraine's relative ranking on that dimension.

TRENDS AND OUTLOOK

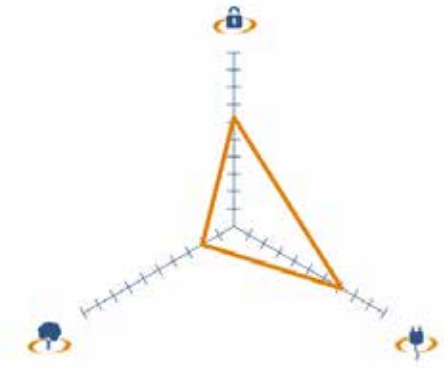
- Ukraine's energy sector faces great challenges, from a high dependence on expensive fossil-fuel imports such as oil and gas, to inefficient infrastructure and markets. Recent energy policy developments to address those challenges include the decision to replace Russian gas by Ukrainian coal, increase oil and gas production, for example, from the Black Sea shelf, and develop the nuclear power capacity.
- Furthermore, there is a need to strengthen energy-efficiency policies, make full use of the country's renewable energy potential such as biogas and municipal waste for heat and power generation, and lower gas consumption in the district heating sector to ensure heat supply and lower energy bills.

BALANCE SCORE
BBD

UNITED ARAB EMIRATES

INDEX RANK
44

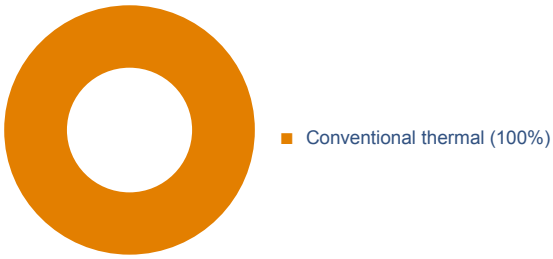
ENERGY SUSTAINABILITY BALANCE



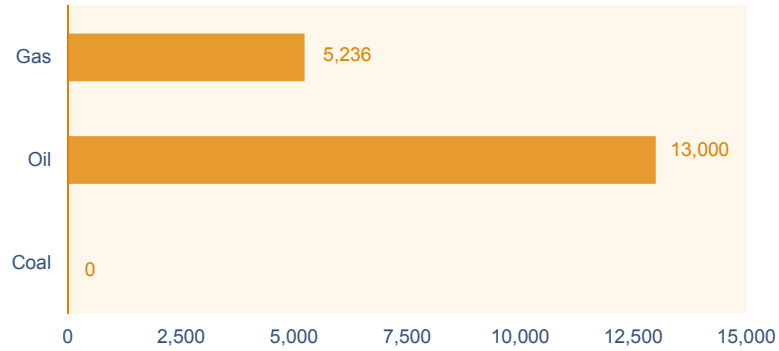
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	66	67	62	↑	
Energy security	58	56	49	↑	**B**
Energy equity	36	39	37	↑	**B**
Environmental sustainability	106	106	102	↑	**D**
Contextual performance	26	24	22	↑	
Political strength	36	38	39	↓	
Societal strength	37	33	33	→	
Economic strength	11	13	11	↑	
Overall rank and balance score	**52**	**53**	**44**	↑	**BBD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	56.1	GDP per capita (PPP, USD); GDP Group	47,729 (I)
TPEP / TPEC (net energy exporter)	2.16	Energy intensity (koe per USD)	0.20
Emission intensity (kCO_2 per USD)	0.48	CO_2 emissions (tCO_2) per capita	19.30
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	94.1

INDEX COMMENTARY

The United Arab Emirates' improved performance on all three dimensions lifts it nine places to an overall Index position of rank 44. Like the other countries in the 'Fossil-Fuelled' category, the UAE performs fairly well on the energy security and equity dimensions, but continues to fall behind when it comes to minimising its environmental footprint. Well-endowed with plentiful deposits of oil and natural gas, the UAE maintains a favourable energy production to consumption ratio, despite the rising growth rate of consumption. Energy equity remains good, as fuel prices continue to be quite affordable. Environmentally, emissions intensity and emissions from electricity generation improve slightly, but remain fairly low given that the UAE's electricity mix is still 100% fossil fuel-based. The Emirates' first nuclear power plant that becomes operational in 2017 and increased efforts to raise awareness around energy efficiency are likely to improve the UAE's energy security and environmental sustainability performances in the coming years. Contextually, the UAE has a strong government and robust economy and continues to perform well.

TRENDS AND OUTLOOK

- The UAE is making major investments across the energy spectrum to improve environmental sustainability, despite the economic downturn. Of particular note among specific actions are: 1) construction of 5.4 GW of nuclear power, managed under one of the most internationally transparent programmes to date, which is on schedule to deliver the first reactor in 2017 and the last in 2020; 2) enactment in 2010 of Estidama, the first mandatory building and landscaping sustainability regulations (energy/water performance) in the Middle East, which cuts consumption by over one third from the baseline; 3) establishment of renewable energy targets, including 7% generation capacity in Abu Dhabi by 2020 and 5% consumption in Dubai by 2030 that will be met with solar, wind, and waste-to-energy; 4) establishment of 30% demand reduction target by 2030 in the Emirate of Dubai, achieved through a mix of pricing reform, performance codes, and efficiency investments; 5) development of commercial-scale carbon capture and sequestration project by Masdar and ADNOC, using steel production emissions; 6) completion of the region's first carbon inventory in 2013 for Abu Dhabi and Dubai, to be extended to Northern Emirates; and 7) development of the MENA region's first green growth plan, which will be released later in 2013 in partnership with GGGI and include policy steps for all major economic sectors to minimise the environmental impact.
- The UAE also has an extensive overseas clean energy investment and aid portfolio, which includes the establishment of a US$350 million concessional loan facility for renewable energy projects in developing countries in partnership with IRENA, a US$50 million grant for renewable energy projects in Pacific island countries, and other significant grant renewable energy projects, in 2013 including Mauritania, Seychelles, and Afghanistan.

INDEX RANK

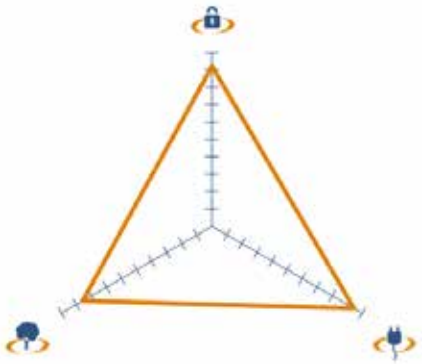
5

UNITED KINGDOM

BALANCE SCORE

AAA

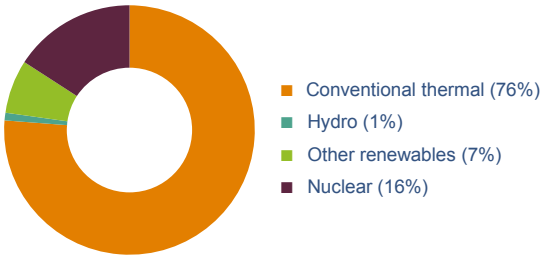
ENERGY SUSTAINABILITY BALANCE



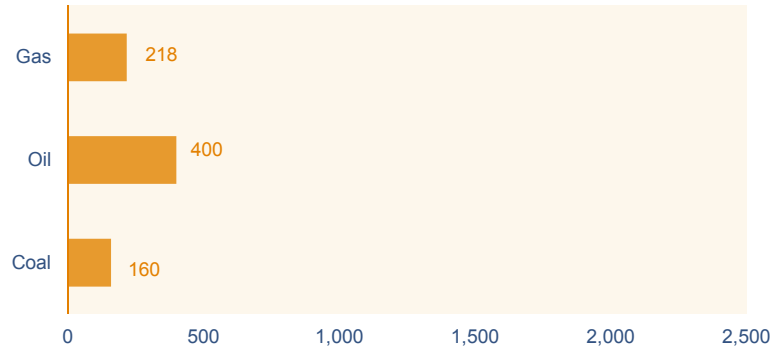
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	2	1	2	↓	
Energy security	6	3	11	↓	A
Energy equity	10	5	8	↓	A
Environmental sustainability	21	20	19	↑	A
Contextual performance	18	19	27	↓	
Political strength	26	19	21	↓	
Societal strength	16	17	17	→	
Economic strength	27	39	55	↓	
Overall rank and balance score	**4**	**2**	**5**	↓	**AAA**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	21.1	GDP per capita (PPP, USD); GDP Group	36,525 (I)
TPEP / TPEC (net energy importer)	0.69	Energy intensity (koe per USD)	0.09
Emission intensity (kCO_2 per USD)	0.22	CO_2 emissions (tCO_2) per capita	7.12
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

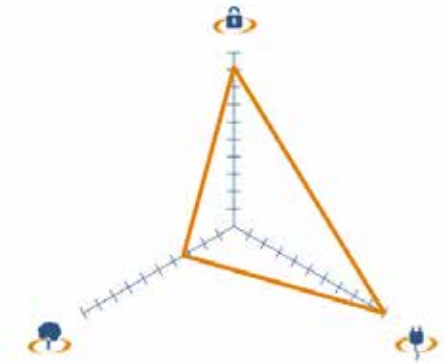
The United Kingdom falls three places to rank 5 in this year's Index, largely due to small declines in energy security and equity, as well as in economic strength. However, the UK remains a 'Pack Leader' and continues to balance the energy trilemma very well, with excellent performance on all three energy dimensions. The slowing decline of the energy consumption growth rate, falling energy production, and a small reduction in strategic oil reserves results in a lower energy security ranking. Performance in energy equity also suffers slightly, largely due to the rising prices of both gasoline and electricity. The environmental sustainability dimension, the country's least-strong, sees improvement in absolute performance on CO_2 emissions from electricity generation as, unlike most other 'Pack Leaders', the UK still relies on fossil fuels for 77% of its electricity fuel mix. Contextually, indicators of political and societal strength stay robust, while macroeconomic stability continues to slide which is likely to be due to the wider continued economic weakness in Europe.

BALANCE SCORE
AAC

UNITED STATES

INDEX RANK
15

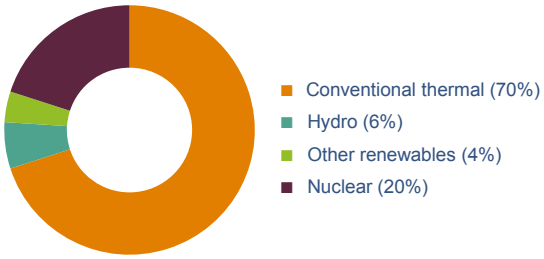
ENERGY SUSTAINABILITY BALANCE



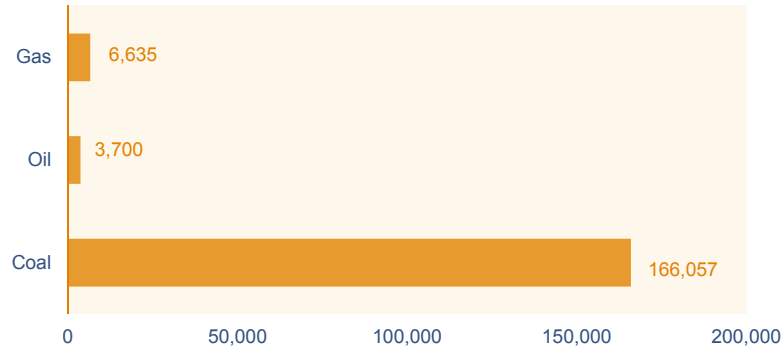
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	17	16	15	↑	
Energy security	19	17	12	↑	**A**
Energy equity	1	1	1	→	**A**
Environmental sustainability	90	88	86	↑	**C**
Contextual performance	19	22	20	↑	
Political strength	30	30	24	↑	
Societal strength	21	27	27	→	
Economic strength	23	23	29	↓	
Overall rank and balance score	**16**	**16**	**15**	↑	**AAC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	19.1	GDP per capita (PPP, USD); GDP Group	48,328 (I)
TPEP / TPEC (net energy importer)	0.76	Energy intensity (koe per USD)	0.17
Emission intensity (kCO_2 per USD)	0.39	CO_2 emissions (tCO_2) per capita	16.77
Energy affordability (USD per kWh)	0.12	Population with access to electricity (%)	100.0

INDEX COMMENTARY

The United States moves up one place in this year's Index to rank 15 overall. The United States continues to balance the three dimensions of the energy trilemma in a fashion that is typical for a 'Fossil-Fuelled' country. Strong performances on energy security and energy equity are partially offset by the country's large environmental footprint. The energy consumption growth rate continues to decline and the diversity of the electricity generation portfolio increases, leading to an improved energy security ranking. Furthermore, the recent development of sources of shale gas will likely help the United States become a net energy exporter in the near future. The country maintains its global first-place ranking on the energy equity dimension, as it continues to offer some of the most (relatively) affordable energy in the world. Performance on the environmental sustainability dimension continues to lag behind, due to particularly high levels of energy and emissions intensities, and a CO_2 emissions-heavy, predominantly conventional, thermal energy mix. Contextually, the Unites States' performance remains constant, with the weakest indicator continuing to be macroeconomic stability as the country continues to struggle to recover from the recession.

TRENDS AND OUTLOOK

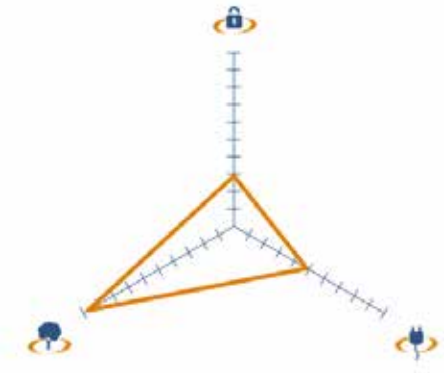
- Due to advances in horizontal drilling and in hydraulic fracturing, shale gas production has become economically viable in recent years. The Energy Information Administration (EIA) estimates that the country has more than 1,744 trn cubic feet of technically recoverable natural gas, including 211 tcf of proved reserves (the discovered, economically recoverable fraction of the original gas-in-place. Production of shale gas is expected to increase from a 2007 US total of 1.4 tcf to 4.8 tcf in 2020. The significant increases in domestic oil and gas production will greatly reduce oil imports over the next 10 years, and lead to increased exports of refined products and possibly natural gas.
- Important energy policy developments in the United States that will impact on the country's balance in the three dimensions of energy sustainability include: 1) the Environmental Protection Agency (EPA) regulations on coal leading to the projected closure of more than 200 coal plants in the next few years accounting for more than 10% of the USA's current energy production; 2) possible regulations on unconventional gas production; and 3) the extension (or not) of the wind production tax credit, which can cut the cost of developing a wind project by nearly a third.

INDEX RANK
46

URUGUAY

BALANCE SCORE
ACC

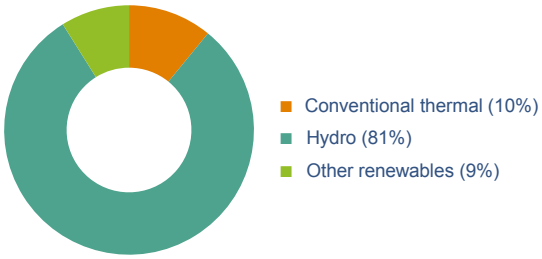
ENERGY SUSTAINABILITY BALANCE



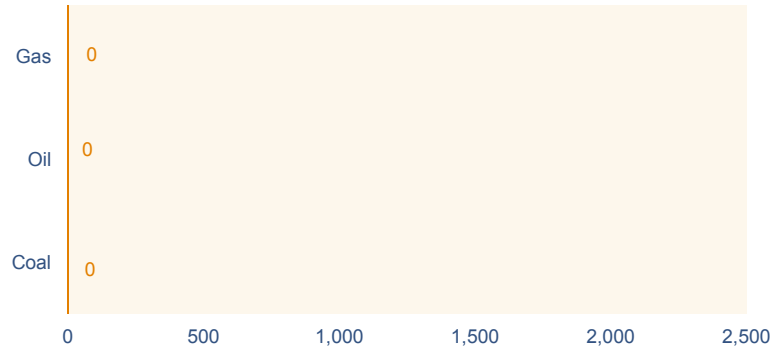
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	31	35	47	↓	
Energy security	63	68	92	↓	C
Energy equity	66	66	67	↓	C
Environmental sustainability	8	5	5	→	A
Contextual performance	60	53	56	↓	
Political strength	40	39	42	↓	
Societal strength	36	35	35	→	
Economic strength	106	85	86	↓	
Overall rank and balance score	**39**	**39**	**46**	↓	**ACC**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	21.5	GDP per capita (PPP, USD); GDP Group	15,112 (II)
TPEP / TPEC (net energy importer)	0.44	Energy intensity (koe per USD)	0.10
Emission intensity (kCO_2 per USD)	0.16	CO_2 emissions (tCO_2) per capita	2.23
Energy affordability (USD per kWh)	0.16	Population with access to electricity (%)	99.1

INDEX COMMENTARY

A member of the 'Hydro-powered' country grouping, environmentally-friendly Uruguay drops seven spots in this year's Index rankings. This is largely due to a relatively low energy security ranking as measured by the Energy Sustainability Index, something that is frequently observed among countries that rely heavily on hydropower. Uruguay's energy consumption outpaces economic growth putting intense pressure on domestic energy production to meet the growing demand. Of particular concern is the country's reliance on imported power from its neighbours, especially during times of peak demand. Performance on the energy equity dimension remains stable, despite rising gasoline prices. Due to its low-carbon electricity generation profile, Uruguay continues to rank among the best in the world at mitigating its impact on the environment, with low energy and emissions intensities and CO_2 emissions from electricity generation falling even further this year. Contextually, Uruguay performs similarly to last year, with absolute performance improving the most on the education indicator.

TRENDS AND OUTLOOK

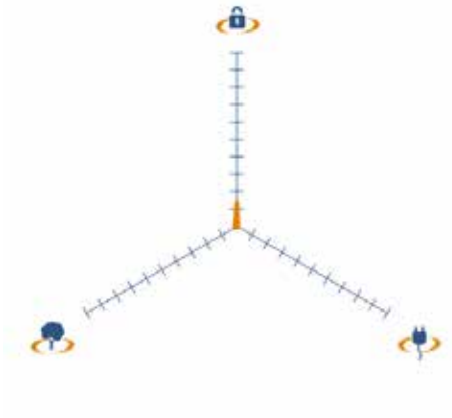
- Uruguay has defined a long term (2030) National Energy Policy, approved by all political parties. The country has no proven oil, natural gas or coal reservoirs but a high availability of renewable energy sources. By carefully choosing renewable energy sources and technologies such as hydropower, wind energy, biomass cogeneration, and biofuels it was possible, without subsidies, to reach a 46% share of renewable energy in the 2011 energy mix (up from 30% in 2005). This has enhanced the energy sovereignty, sustainability and security.
- Under the National Energy Policy, an additional 1,000 MW of wind energy and 200 MW of biomass power plants are to be installed by 2015 to meet growing demand. The average national power demand is currently 1,100 MW. By 2015, the share of renewable energy is to reach 50% of the energy mix and energy costs are expected to decrease. Furthermore, a re-gasification LNG plant is in the bidding process and 70% of the Uruguayan off-shore area is being explored for natural gas and oil. Between 2010 and 2015 US$7 billion is being invested in the energy sector (15% of the annual GDP).

BALANCE SCORE
DDD

ZIMBABWE

INDEX RANK
129

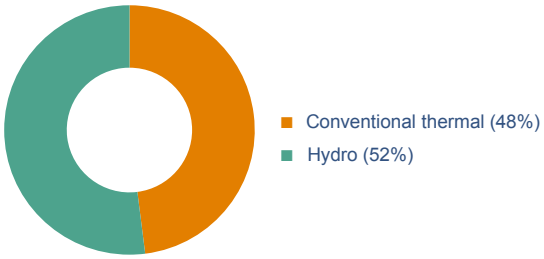
ENERGY SUSTAINABILITY BALANCE



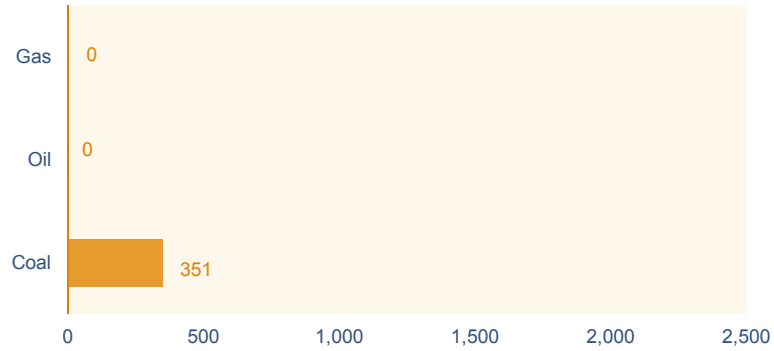
ENERGY SUSTAINABILITY INDEX RANKINGS AND BALANCE SCORE

	2011	2012	2013	Trend	Score
Energy performance	129	129	129	→	
Energy security	113	113	112	↑	D
Energy equity	127	125	128	↓	D
Environmental sustainability	126	127	127	→	D
Contextual performance	129	127	124	↑	
Political strength	127	127	127	→	
Societal strength	126	123	123	→	
Economic strength	120	116	110	↑	
Overall rank and balance score	**129**	**129**	**129**	→	**DDD**

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESERVES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	25.1	GDP per capita (PPP, USD); GDP Group	530 (IV)
TPEP / TPEC (net energy importer)	0.75	Energy intensity (koe per USD)	1.79
Emission intensity (kCO_2 per USD)	1.69	CO_2 emissions (tCO_2) per capita	n.a.
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	36.9

INDEX COMMENTARY

Zimbabwe remains in last place in the overall Index rankings, and performs poorly on all three energy dimensions. With virtually no fossil fuel resources of its own, Zimbabwe faces problems with meeting the growing energy demand from economic and social development. Currently, a little more than half of the electricity generated in Zimbabwe comes from one hydropower station. Because of the high cost of renewable energy infrastructure and technologies, the development of additional electricity generation capacity harnessing the country's abundant renewable resources remains stalled. Energy equity continues to be very low, as only one-third of Zimbabweans have access to electricity, and gasoline and electricity prices remain unaffordable to the majority of the population. Due to the heavy use of coal and firewood, which leads to deforestation, Zimbabwe is one of the most emissions-heavy, least efficient countries in the world. Zimbabwe still performs poorly on all contextual indicators of political, societal, and economic strength, but small improvements have been made across the board since last year.

TRENDS AND OUTLOOK

- Over the past few years Zimbabwe has made continued efforts to improve its energy security, energy access and environmental footprint. Policy developments include: 1) establishment of an independent energy regulator to regulate and supervise the entire energy sector; 2) amendment of the Electricity Act to promote energy efficiency in the public utility; 3) adoption of biofuels and incentives to promote uptake with a minimum target of 20% by 2015; 4) promotion of public private partnerships to spur development in the petroleum and power sector; 5) adoption of a long-term, government-driven renewable energy technologies programme, which encourages independent power producers and public private partnerships to develop renewable energy technologies in Zimbabwe; 6) establishment of a comprehensive household energy plan addressing issues related to shortages, inefficient use of biomass and affordability of modern energy services; and 7) establishment and adoption of energy efficiency programmes.
- Key issues policymakers need to focus on are: 1) increase the use of renewable energy, including, biofuels and the use of solar power, by developing appropriate incentives; 2) improve energy efficiency and decrease the high electricity losses, which are currently more than 30% because of inefficiency and obsolete equipment); and 4) develop mechanisms to increase power generation capacity.

Appendix A: Index methodology and balance score system

The Energy Sustainability Index (the Index) ranks WEC member countries in terms of their likely ability to provide a stable, affordable, and environmentally-sensitive energy system. The rankings are based on a range of country level data and databases that capture both energy performance and the contextual framework. Energy performance considers supply and demand, the affordability and access of energy, and the environmental impact of the country's energy use. The contextual indicators consider the broader circumstances of energy performance including societal, political and economic strength and stability.

This year, each country is also given a 'balance score' identifying those that address the three dimensions of energy sustainability – energy security, energy equity, and environmental sustainability – equally well by giving them a score for high performance (AAA). Other letter scores (for example, BBC, CCD) show where countries need to improve to balance the energy trilemma. The goal of the score system is to help energy leaders identify areas to focus on to develop a balanced energy profile, necessary for minimising uncertainties and risks.

The findings of the Index analysis are complemented with the individual country profiles – of WEC member countries only – captured in this report.

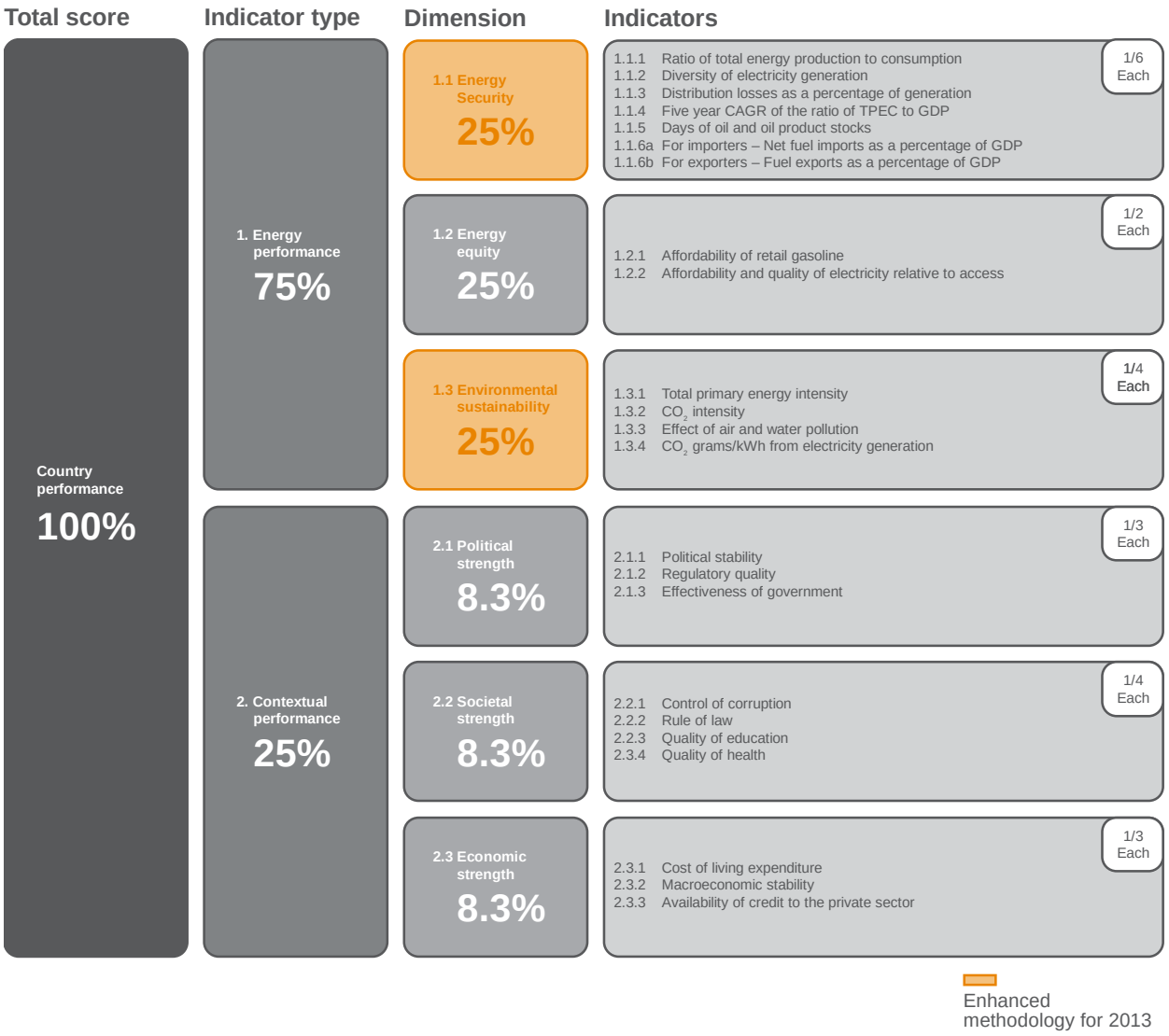
Indicators were selected based on the high degree of relevance to the research goals, exhibited low correlation, and could be derived from reputable sources to cover a high proportion of WEC member countries. For the first time the Index also includes 37 non-WEC member countries and now measures the performance of 129 countries. Data sources used include the International Energy Agency, the US Energy Information Administration, the World Bank, the International Monetary Fund, the World Economic Forum, Enerdata, the WEC and others.

The structure of the Index and the coverage of its 23 indicators are set out in Figure A-1. More than 60 data sets are used to develop 23 indicators. The Index is weighted in favour of the energy performance axis by a factor of 3:1, with the scores for each dimension carrying equal weight within their axis.

Overall, the Index displays the aggregate effect of energy policies applied over time in the context of each country and provides a snapshot of current energy sustainability performance. It is very difficult to compare the effectiveness of particular policies across countries, since each policy interacts with a unique set of policies specific to that country. But it is possible to broadly measure the aggregate outcome of policies – for example, how countries with similar levels of energy intensity per capita perform in mitigating their environmental impact or the overall use of electricity per capita.

Where possible, data has been updated. However, due to constraints on the collection, processing, and dissemination of data the current Index generally reflects data from 2010–-2012. Recent world events that could affect the Index's outcomes are not completely captured. This includes, for example, turbulence in global nuclear power industry due to Fukushima nuclear accident, or the

Figure A-1
Index structure



political unrest in the Middle East. Further, policies generally take two to three years to become fully implemented and it may take longer for their effects to become evident.

Full details of country scores in the three dimensions, further key metrics and analytical commentaries for each country can be found in the country profiles online at www.worldenergy.org.

Index results by GDP group

To understand how each dimension of the Energy Sustainability Index is affected by wealth, countries were also organised in four economic groups:

- Group I: GDP (PPP) per capita greater than US$33,500
- Group II: GDP (PPP) per capita between US$14,300 and US$33,500
- Group III: GDP (PPP) per capita between US$6,000 and US$14,300
- Group IV: GDP (PPP) per capita lower than US$6,000.

Figures A-2 through A-5 present the rankings of each country in these GDP groups.

Figure A-2
Country ranking for GDP Group I

GDP group rank	Country	Importer/ Exporter	Energy security	Energy equity	Environmental sustainability	2013 Index
1	Switzerland	I	19	6	1	1
2	Denmark	E	3	25	10	2
3	Sweden	I	24	14	6	3
4	Austria	I	33	7	7	4
5	United Kingdom	I	11	8	19	5
6	Canada	E	1	2	60	6
7	Norway	E	51	10	8	7
8	France	I	44	5	9	10
9	Germany	I	31	11	30	11
10	Netherlands	I	42	23	35	12
11	Finland	I	37	21	45	13
12	Australia	E	10	3	97	14
13	United States	I	12	1	86	15
14	Japan	I	48	17	33	16
15	Belgium	I	63	13	34	17
16	Qatar	E	8	9	95	18
17	Luxembourg	I	107	4	29	19
18	Ireland	I	82	30	15	20
19	Taiwan, China	I	71	22	59	27
20	Iceland	I	96	15	41	33
21	Hong Kong, China	I	99	24	58	40
22	United Arab Emirates	E	49	37	102	44
23	Singapore	I	124	43	51	47
24	Kuwait	E	73	28	122	66

Figure A-3
Country ranking for GDP Group II

GDP group rank	Country	Importer/ Exporter	Energy security	Energy equity	Environmental sustainability	2013 Index
1	New Zealand	I	15	26	37	8
2	Spain	I	22	16	23	9
3	Slovakia	I	20	38	48	22
4	Portugal	I	55	53	20	23
5	Slovenia	I	60	27	42	25
6	Argentina	I	14	33	38	26
7	Italy	I	69	34	24	28
8	Croatia	I	66	31	21	30
9	Hungary	I	46	42	44	31
10	Czech Republic	I	16	32	90	32
11	Malaysia	E	34	40	92	37
12	Bahrain	I	23	19	125	38
13	Greece	I	54	18	81	39
14	Mexico	E	29	47	75	41
15	Lithuania	I	93	46	26	42
16	Latvia	I	98	54	14	43
17	Uruguay	I	92	67	5	46
18	Poland	I	38	39	94	48
19	Barbados	I	118	41	25	50
20	Saudi Arabia	E	45	12	124	51
21	Mauritius	I	109	60	16	53
22	Russia	E	2	61	99	54
23	Gabon	E	35	92	12	56
24	Chile	I	90	56	72	57
25	Oman	E	78	20	120	62
26	Cyprus	I	104	36	80	63
27	Korea (Rep.)	I	103	49	85	64
28	Israel	I	102	29	83	67
29	Estonia	I	65	51	117	68
30	Malta	I	128	48	65	71
31	Turkey	I	64	82	70	75
32	Trinidad and Tobago	E	79	95	115	98
33	Botswana	I	126	97	62	99
34	Lebanon	I	127	87	89	109

Figure A-4
Country ranking for GDP Group III

GDP group rank	Country	Importer/ Exporter	Energy security	Energy equity	Environmental sustainability	2013 Index
1	Costa Rica	I	57	45	2	21
2	Colombia	E	5	85	4	24
3	Panama	I	53	58	18	29
4	Brazil	I	27	86	17	34
5	Ecuador	E	25	62	28	35
6	Tunisia	I	28	57	56	36
7	Peru	I	21	96	43	45
8	El Salvador	I	68	64	11	49
9	Romania	I	9	70	88	52
10	Kazakhstan	E	6	35	116	58
11	Albania	I	87	76	3	60
12	Bulgaria	I	26	77	108	70
13	Paraguay	E	84	99	13	74
14	Egypt	E	47	59	84	76
15	Venezuela	E	41	55	82	77
16	China	I	18	101	126	78
17	South Africa	E	43	78	128	79
18	Azerbaijan	E	32	74	98	81
19	Montenegro	I	115	71	57	83
20	Macedonia	I	89	50	106	86
21	Algeria	E	86	68	74	88
22	Thailand	I	91	88	101	89
23	Namibia	I	123	94	49	90
24	Iran	E	75	44	119	91
25	Ukraine	I	59	73	114	97
26	Serbia	I	101	65	118	106
27	Dominican Republic	I	114	106	55	110
28	Jamaica	I	116	81	110	121

2013 Index profile groups

To support decision makers, the 2013 Energy Sustainability Index analysis highlights five distinct profiles:

- Pack Leaders
- Fossil-fuelled
- Highly-industrialised
- Hydro-powered
- Back of the Pack.

Countries in each group share common energy trilemma characteristics and challenges.

While only 45 of the 93 WEC member countries are included in the five illustrative groups, other countries may be closely associated with one group from a regional, economic, or structure-of-the-energy-sector point of view. About 20 countries cannot be readily classified into a single profile as they may align to two profiles.

Readers are encouraged to review the detailed country profiles presented in this report to consider which energy profile serves as a guide for a particular country.

The following list indicates which profile group WEC member countries not included in the five profile groups may be closely associated with:

- **Pack Leaders:** Argentina, Belgium, Croatia, Finland, Ireland, Italy, and Japan
- **Fossil-fuelled:** Bahrain, Iran, Syria, and Ukraine
- **Highly-industrialised:** Gabon, Korea (Rep.), and Nigeria
- **Hydro-powered:** Albania, Angola, Congo (Dem. Rep.), and Ghana
- **Back of the Pack:** Botswana, Kenya, Namibia, Niger, Serbia, and Tanzania

Figure A-5
Country ranking for GDP Group IV

GDP group rank	Country	Importer/ Exporter	Energy security	Energy equity	Environmental sustainability	2013 Index
1	Bolivia	E	4	84	71	55
2	Angola	E	7	104	31	59
3	Guatemala	I	40	75	36	61
4	Philippines	I	39	93	54	65
5	Sri Lanka	I	72	80	40	69
6	Georgia	I	106	66	22	72
7	Indonesia	E	17	83	104	73
8	Congo (Dem. Rep.)	E	30	121	27	80
9	Cameroon	E	62	107	39	82
10	Nigeria	E	13	111	79	84
11	Armenia	I	95	69	73	85
12	Syria	E	52	52	113	87
13	Swaziland	I	61	98	76	92
14	Côte d'Ivoire	E	36	108	68	93
15	Malawi	I	74	129	32	94
16	Mongolia	E	50	100	129	95
17	Jordan	I	119	63	107	96
18	Honduras	I	111	90	52	100
19	Vietnam	E	77	102	105	101
20	Ghana	I	85	105	77	102
21	Mozambique	E	67	124	66	103
22	Chad	E	83	123	50	104
23	Morocco	I	110	79	96	105
24	Tajikistan	I	81	109	61	107
25	Kenya	I	88	114	63	108
26	Nepal	I	125	122	46	111
27	Ethiopia	I	97	119	47	112
28	Nicaragua	I	100	91	87	113
29	Pakistan	I	56	103	100	114
30	India	I	76	110	121	115
31	Tanzania	I	117	125	53	116
32	Libya	E	70	72	123	117
33	Cambodia	I	121	113	67	118
34	Mauritania	I	58	117	112	119
35	Zambia	I	108	120	64	120
36	Niger	I	80	127	91	122
37	Bangladesh	I	113	115	78	123
38	Madagascar	I	105	126	69	124
39	Moldova	I	122	89	109	125
40	Senegal	I	120	118	93	126
41	Yemen	E	94	112	111	127
42	Benin	I	129	116	103	128
43	Zimbabwe	I	112	128	127	129

2013 Methodology enhancements

The Index methodology was enhanced in 2013 to better assess countries' ability to mitigate their environmental impact and to provide energy security and energy equity. To enable year-on-year comparison, the previous three years are recalculated to reflect Index methodology changes. The 2011 and 2012 Index rankings included in this year's report have been updated in order to enable comparisons between years (see Figures A-8 and A-9).

The structure of the Index and the selection of indicators have been governed by a suite of intellectual and pragmatic principles:

1) Relevance: Indicators are chosen or developed to provide insight into country situations in the context of the project goals.

2) Distinctiveness: Each indicator focuses on a different aspect of the issue being explored, unless reinforcement is required.

3) Balance: Indicators within each dimension (and dimensions across the Index) exhibit a coverage of different issues.

4) Contextual sensitivity: Indicators capture different country situations (for example, wealth, size) and where appropriate indicators are normalised by GDP (PPP) and per capita.

5) Coverage: Individual indicators are required to provide data for 85% of WEC member countries. Only countries with data available for at least 75% of all indicators were included in the Index calculation.

6) Robustness: Indicators to be taken from reputable sources with the most current information.

7) Comparability: Data to calculate an indicator is derived from a single common unique source to ensure comparability between countries.

Changes to energy security dimension

A number of improvements were made to the indicators in this dimension. The overall goal was to reduce the volatility of the dimension results, capture the link between economic growth and energy consumption, ensure a common treatment of energy exporters and importers, and add an indicator that addresses the quality and reliability of the electricity infrastructure.

Improvements made to address the challenges mentioned include:

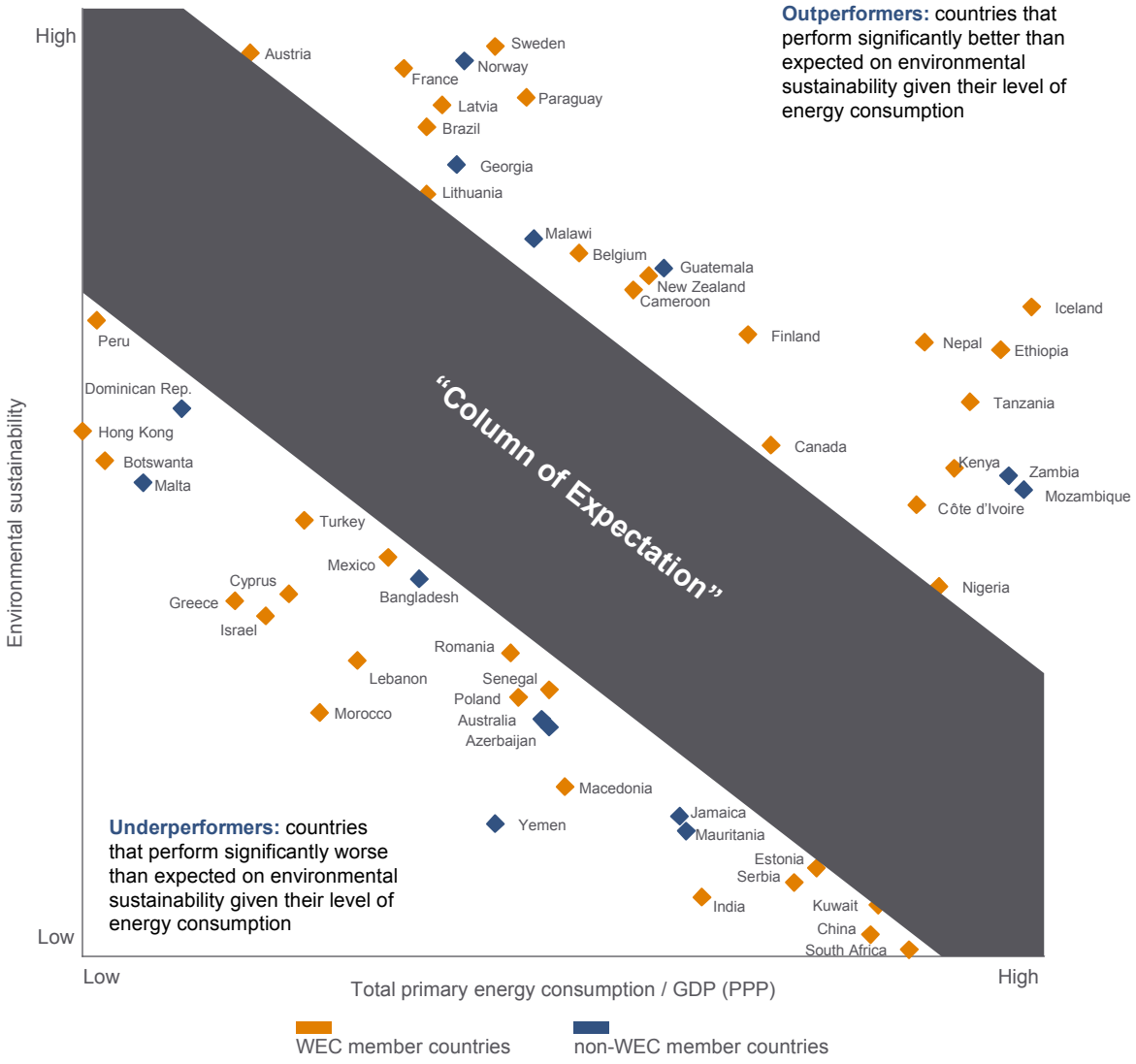
- Modifying the former five-year compound annual growth rate (CAGR) energy consumption by linking it to a country's GDP growth over the same time period.
- Adding an indicator that captures distribution losses as percentage of generation and the reliability of the power system to reflect the quality of power infrastructure and efficiency of energy systems.
- Adjusting the indicator previously used to measure oil stocks of energy importing with a common indicator for both importers and exporters that examines products stocks, crude production and crude stocks.
- Adjusting the indicator previously used to measure a country's dependence on energy exports by adding a similar indicator for energy importing countries looking at a country's dependence on energy imports (fuel imports / exports as % of GDP).

The indicators measuring the ratio of energy production to consumption and diversity of electricity generation remained untouched (see Figure A-1).

Changes to energy equity dimension

The data source for the indicator for electricity access was updated to the recently published data from the UN's Sustainable Energy for All Global Tracking Framework. The May 2013 report is a comprehensive snapshot of more than 170 countries. The WEC was part of the Sustainable Energy for All steering group, which was responsible for the development of the report. In the report, 2010 is established as the baseline year against which progress will be measured. The Energy Sustainability Index uses the established baseline data for all three Index years calculated.

Figure A-6
Environmental sustainability results identify underperformers and outperformers
Source: EIA, 2011; IMF, 2011; Oliver Wyman analysis



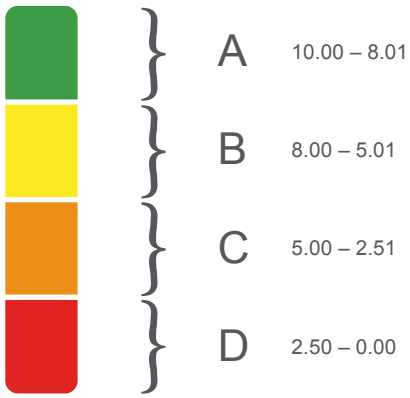
Changes to environmental impact dimension

The 2012 methodology used to calculate the environmental impact of a country's energy system was replaced. The changes are geared to acknowledge the high priority of CO_2 emission reduction and energy efficiency policies better. The assessment of a country's environmental sustainability is based on the following four indicators:

- Total primary energy intensity: measures the total amount of energy necessary to generate one unit of GDP.
- CO_2 (emission) intensity: measures CO_2 emissions from fuel combustion by GDP.
- CO_2 emissions per kilowatt hour of electricity generated.
- Effects on air and water.

With this methodology, industrialised countries sometimes score lower than non-industrialised countries, reflecting the reality policymakers are facing as a higher environmental impact is driven by a country's economic (industrial) policy (see Figure A-6).

Figure A-7
Balance score system



Score system methodology

The Index ranking measures both energy and contextual performance of a country. Although the weighting of the dimensions is tilted towards the energy dimensions, the contextual dimensions often give an advantage to developed countries while penalising developing countries. Furthermore, the Index ranking does not indicate how well a country is meeting the energy trilemma challenge balance across the three dimensions).

To overcome this challenge a balance score system that highlights how well a country manages the trade-offs between the three competing dimensions was introduced. The score looks at the energy performance only – energy security, energy equity and environmental impact. This leaves performance in the three contextual dimensions – political, societal and economic strength – aside.

The score enables the WEC to identify and show countries that perform very well in the energy dimensions and balance the energy trilemma, by giving them an easy-to-understand score for high performance. High performers receive a score of 'AAA', while countries that do not yet perform well receive a 'DDD' score.

The scores are calculated by splitting the normalised 0–10 results on the energy performance dimensions into four groups. Countries were then provided with a three-letter score. Note, the sequence of the letters in the score does not correspond to a specific energy dimension, but presents the letter scores in descending alphabetical order.

The best score 'A' was given for results higher than 8. Countries with normalised results higher than 5 were given score 'B'. Average results of between 2.51 and 5 were given a 'C'. Lastly, the score 'D' was given for underperformance.

Figure A-8
2012 Energy Sustainability Index ranking

Index	Country	Energy security	Energy equity	Environmental sustainability
1	Switzerland	26	4	1
2	United Kingdom	3	5	20
3	Sweden	18	21	8
4	Austria	30	7	7
5	Denmark	5	34	19
6	Norway	44	10	6
7	New Zealand	19	18	36
8	Germany	24	13	31
9	France	41	8	9
10	Canada	2	2	66
11	Finland	25	20	49
12	Spain	31	24	23
13	Netherlands	48	22	39
14	Japan	49	9	29
15	Australia	14	3	99
16	United States	17	1	88
17	Qatar	7	11	94
18	Luxembourg	96	6	28
19	Argentina	11	23	38
20	Belgium	69	15	41
21	Ireland	85	28	15
22	Slovakia	20	40	46
23	Slovenia	57	36	37
24	Taiwan, China	67	17	63
25	Portugal	58	48	26
26	Colombia	6	86	4
27	Italy	76	29	22
28	Hungary	39	41	44
29	Panama	54	60	14
30	Croatia	59	38	21
31	Barbados	70	45	25
32	Iceland	98	12	40
33	Malaysia	22	42	85
34	Tunisia	15	55	59
35	Czech Republic	16	37	90
36	Lithuania	80	46	16
37	Costa Rica	77	47	2
38	Hong Kong, China	84	25	60
39	Uruguay	68	66	5
40	Ecuador	23	65	27
41	Peru	9	91	34
42	Latvia	78	54	18
43	Chile	61	50	64
44	Brazil	43	89	12
45	Singapore	123	43	48
46	Mexico	35	52	73
47	Albania	63	71	3
48	Bahrain	40	19	126
49	Saudi Arabia	38	14	124
50	Poland	34	44	93
51	El Salvador	71	67	11
52	Romania	4	59	92
53	United Arab Emirates	56	39	106
54	Korea (Rep.)	89	32	86
55	Greece	88	26	76
56	Mauritius	107	61	17
57	Kazakhstan	8	35	119
58	Russia	1	57	102
59	Cyprus	109	27	84
60	Bolivia	21	80	65
61	Kuwait	62	33	122
62	Gabon	46	97	10
63	Israel	100	30	83
64	Guatemala	51	72	35
65	Estonia	64	51	117

Index	Country	Energy security	Energy equity	Environmental sustainability
66	Bulgaria	28	74	107
67	Oman	97	16	121
68	Malta	126	58	62
69	Sri Lanka	72	82	45
70	Venezuela	29	53	79
71	Philippines	42	99	55
72	Angola	10	121	32
73	Egypt	52	56	81
74	Georgia	103	69	30
75	Cameroon	32	108	42
76	China	12	100	125
77	Iran	50	31	118
78	Vietnam	45	98	100
79	Azerbaijan	27	78	97
80	Trinidad and Tobago	74	49	116
81	Paraguay	95	96	13
82	Montenegro	114	77	43
83	Armenia	83	70	68
84	South Africa	55	75	129
85	Algeria	80	63	77
85	Indonesia	37	94	109
87	Turkey	91	81	72
88	Congo (Dem. Rep.)	47	124	24
89	Thailand	82	85	103
90	Nigeria	13	109	82
91	Côte d'Ivoire	36	111	61
92	Namibia	125	93	50
93	Jordan	108	62	110
94	Syria	33	87	116
95	Macedonia	99	64	105
96	Mozambique	66	120	56
97	Honduras	116	83	53
98	Botswana	121	96	69
99	Ukraine	60	73	114
100	Serbia	81	68	120
101	Malawi	92	129	33
102	Morocco	112	79	95
103	Mongolia	65	102	128
104	Ghana	90	106	75
105	Lebanon	122	84	87
106	Tajikistan	87	105	58
107	Swaziland	104	92	78
108	Nepal	118	122	47
109	Libya	53	90	113
110	Ethiopia	102	118	51
111	Dominican Republic	119	107	54
112	Cambodia	111	112	71
113	Kenya	93	114	74
114	Tanzania	117	123	57
115	Zambia	101	119	67
116	Jamaica	127	76	98
117	India	86	110	123
118	Nicaragua	105	101	89
119	Bangladesh	110	115	80
120	Mauritania	75	116	112
121	Pakistan	73	103	108
122	Madagascar	106	127	70
123	Yemen	94	104	101
124	Chad	124	126	52
125	Senegal	120	117	91
126	Moldova	128	88	111
127	Niger	115	128	96
128	Benin	129	113	104
129	Zimbabwe	113	125	127

Figure A-9
2011 Energy Sustainability Index ranking

Index	Country	Energy security	Energy equity	Environmental sustainability
1	Switzerland	26	4	1
2	Denmark	3	28	16
3	Sweden	13	26	6
4	United Kingdom	6	10	21
5	Austria	31	11	7
6	Norway	44	7	5
7	France	40	6	9
8	Canada	2	2	61
9	New Zealand	20	15	40
10	Germany	23	14	32
11	Finland	22	16	44
12	Spain	37	20	23
13	Japan	46	8	31
14	Netherlands	48	27	35
15	Australia	14	3	101
16	United States	19	1	90
17	Luxembourg	96	5	26
18	Belgium	70	9	34
19	Qatar	16	19	97
20	Slovenia	56	25	38
21	Argentina	7	21	46
22	Ireland	84	35	17
23	Slovakia	24	42	43
24	Taiwan, China	64	17	65
25	Portugal	59	52	29
26	Barbados	68	51	19
27	Panama	55	59	11
28	Croatia	53	37	28
29	Colombia	12	86	4
30	Costa Rica	71	46	2
31	Hong Kong, China	77	33	64
32	Czech Republic	18	32	91
33	Italy	83	32	24
34	Hungary	49	41	45
35	Tunisia	15	58	55
36	Malaysia	25	45	87
37	Latvia	76	53	14
38	Iceland	98	13	42
39	Uruguay	63	66	8
40	Chile	57	49	64
41	Lithuania	86	47	22
42	Mauritius	113	23	12
43	Brazil	36	91	13
44	El Salvador	61	63	15
45	Ecuador	27	71	25
46	Singapore	115	44	48
47	Peru	8	99	34
48	Saudi Arabia	32	18	124
49	Mexico	28	62	71
50	Poland	35	43	93
51	Romania	4	57	95
52	United Arab Emirates	58	36	106
53	Bahrain	45	29	125
54	Greece	97	12	78
55	Korea (Rep.)	92	39	81
56	Kazakhstan	5	40	122
57	Guatemala	47	69	30
58	Bolivia	21	82	49
59	Albania	82	84	3
60	Russia	1	65	102
61	Cyprus	109	30	88
62	Israel	99	24	86
63	Oman	88	22	118
64	Philippines	38	96	53
65	Gabon	50	97	10

Index	Country	Energy security	Energy equity	Environmental sustainability
66	Estonia	74	48	115
67	Angola	11	116	20
68	Egypt	42	56	83
69	Bulgaria	33	75	104
70	Venezuela	29	54	74
71	Malta	121	64	59
72	Cameroon	34	107	37
73	Sri Lanka	72	90	41
74	China	10	102	127
75	Azerbaijan	17	83	100
76	Paraguay	67	100	18
77	Kuwait	95	38	120
78	Trinidad and Tobago	66	50	116
79	Georgia	103	74	39
80	South Africa	52	73	129
81	Algeria	65	61	75
82	Turkey	94	60	76
83	Indonesia	39	93	108
84	Thailand	79	81	103
85	Montenegro	111	79	67
86	Libya	41	72	111
87	Vietnam	60	98	98
88	Nigeria	9	115	79
89	Jordan	107	55	112
90	Iran	73	34	121
91	Namibia	122	89	60
92	Armenia	81	77	80
93	Congo (Dem. Rep.)	51	125	27
94	Mozambique	62	123	54
95	Ukraine	54	70	114
96	Côte d'Ivoire	43	108	68
97	Syria	30	92	117
98	Botswana	123	94	69
99	Macedonia	101	68	109
100	Honduras	116	86	57
101	Lebanon	125	76	84
102	Ghana	86	106	77
103	Malawi	89	129	36
104	Morocco	118	80	94
105	Swaziland	105	95	72
106	Serbia	93	67	119
107	Kenya	90	113	62
108	Tajikistan	91	104	58
109	Tanzania	117	121	52
110	Nepal	119	122	47
111	Dominican Republic	120	111	56
112	Yemen	78	88	105
113	Mongolia	80	105	128
114	Cambodia	108	109	73
115	India	87	110	123
116	Zambia	100	120	66
117	Ethiopia	104	120	50
118	Jamaica	128	78	96
119	Nicaragua	102	101	85
120	Pakistan	75	103	107
121	Mauritania	69	118	113
122	Bangladesh	110	117	82
123	Madagascar	106	124	70
124	Senegal	124	112	89
125	Moldova	127	87	110
126	Chad	126	128	51
127	Niger	114	126	92
128	Benin	129	114	99
129	Zimbabwe	113	127	126

Figure A-10
2013 mapping of the balance scores using the heat map system

Index	Country	Balance score	Energy security	Energy equity	Environmental sustainability
1	Switzerland	AAA	8.59	9.60	10.00
2	Denmark	AAA	9.84	8.12	9.29
3	Sweden	AAA	8.20	8.98	9.60
4	Austria	AAB	7.50	9.53	9.53
5	United Kingdom	AAA	9.21	9.45	8.59
6	Canada	AAB	10.00	9.92	5.39
7	Norway	AAB	6.09	9.29	9.45
8	New Zealand	AAB	8.90	8.04	7.18
9	Spain	AAA	8.35	8.82	8.28
10	France	AAB	6.64	9.68	9.37
11	Germany	ABB	7.65	9.21	7.73
12	Netherlands	ABB	6.79	8.28	7.34
13	Finland	ABB	7.18	8.43	6.56
14	Australia	AAD	9.29	9.84	2.50
15	United States	AAC	9.14	10.00	3.35
16	Japan	ABB	6.32	8.75	7.50
17	Belgium	ABB	5.15	9.06	7.42
18	Qatar	AAC	9.45	9.37	2.65
19	Luxembourg	ABD	1.71	9.76	7.81
20	Ireland	ABC	3.67	7.73	8.90
21	Costa Rica	ABB	5.62	6.56	9.92
22	Slovakia	ABB	8.51	7.10	6.32
23	Portugal	ABB	5.78	5.93	8.51
24	Colombia	AAC	9.68	3.43	9.76
25	Slovenia	BBB	5.39	7.96	6.79
26	Argentina	ABB	8.98	7.50	7.10
27	Taiwan, China	ABC	4.53	8.35	5.46
28	Italy	ABC	4.68	7.42	8.20
29	Panama	ABB	5.93	5.54	8.67
30	Croatia	ABC	4.92	7.65	8.43
31	Hungary	BBB	6.48	6.79	6.64
32	Czech Republic	ABC	8.82	7.57	3.04
33	Iceland	ABC	2.57	8.90	6.87
34	Brazil	ABC	7.96	3.35	8.75
35	Ecuador	ABB	8.12	5.23	7.89
36	Tunisia	BBB	7.89	5.62	5.70
37	Malaysia	BBC	7.42	6.95	2.89
38	Bahrain	AAD	8.28	8.59	0.31
39	Greece	ABC	5.85	8.67	3.75
40	Hong Kong, China	ABD	2.34	8.20	5.54
41	Mexico	BBC	7.81	6.40	4.21
42	Lithuania	ABC	2.81	6.48	8.04
43	Latvia	ABD	2.42	5.85	8.98
44	United Arab Emirates	BBD	6.25	7.18	2.10
45	Peru	ABC	8.43	2.57	6.71
46	Uruguay	ACC	2.89	4.84	9.68
47	Singapore	BBD	0.39	6.71	6.09
48	Poland	BBC	7.10	7.03	2.73
49	El Salvador	ABC	4.76	5.07	9.21
50	Barbados	ABD	0.85	6.87	8.12
51	Saudi Arabia	ABD	6.56	9.14	0.39
52	Romania	ACC	9.37	4.60	3.20
53	Mauritius	ABD	1.56	5.39	8.82
54	Russia	ABD	9.92	5.31	2.34
55	Bolivia	ACC	9.76	3.51	4.53
56	Gabon	ABC	7.34	2.89	9.14
57	Chile	BCC	3.04	5.70	4.45
58	Kazakhstan	ABD	9.60	7.34	1.01
59	Angola	ABD	9.45	1.95	7.65
60	Albania	ACC	3.28	4.14	9.84
61	Guatemala	BBC	6.95	4.21	7.26
62	Oman	ACD	3.98	8.51	0.70
63	Cyprus	BCD	1.95	7.26	3.82
64	Korea (Rep.)	BCD	2.03	6.25	3.43
65	Philippines	BBC	7.03	2.81	5.85




Index	Country	Balance score	Energy security	Energy equity	Environmental sustainability
66	Kuwait	BCD	4.37	7.89	0.54
67	Israel	BCD	2.10	7.81	3.59
68	Estonia	BCD	5.00	6.09	0.93
69	Sri Lanka	BCC	4.45	3.82	6.95
70	Bulgaria	ACD	8.04	4.06	1.64
71	Malta	BCD	0.07	6.32	5.00
72	Georgia	ACD	1.79	4.92	8.35
73	Indonesia	ACD	8.75	3.59	1.95
74	Paraguay	ACD	3.51	2.34	9.06
75	Turkey	BCC	5.07	3.67	4.60
76	Egypt	BBC	6.40	5.46	3.51
77	Venezuela	BBC	6.87	5.78	3.67
78	China	ADD	8.67	2.18	0.23
79	South Africa	BCD	6.71	3.98	0.07
80	Congo (Dem. Rep.)	BBD	7.73	0.62	7.96
81	Azerbaijan	BCD	7.57	4.29	2.42
82	Cameroon	BBD	5.23	1.71	7.03
83	Montenegro	BCD	1.09	4.53	5.62
84	Nigeria	ACD	9.06	1.40	3.90
85	Armenia	CCC	2.65	4.68	4.37
86	Macedonia	BCD	3.12	6.17	1.79
87	Syria	BBD	6.01	6.01	1.25
88	Algeria	CCC	3.35	4.76	4.29
89	Thailand	CCD	2.96	3.20	2.18
90	Namibia	BCD	0.46	2.73	6.25
91	Iran	BCD	4.21	6.64	0.78
92	Swaziland	BCD	5.31	2.42	4.14
93	Côte d'Ivoire	BCD	7.26	1.64	4.76
94	Malawi	BCD	4.29	0.00	7.57
95	Mongolia	BDD	6.17	2.26	0.00
96	Jordan	BDD	0.78	5.15	1.71
97	Ukraine	BCD	5.46	4.37	1.17
98	Trinidad and Tobago	CCD	3.90	2.65	1.09
99	Botswana	BDD	0.23	2.50	5.23
100	Honduras	BCD	1.40	3.04	6.01
101	Vietnam	CDD	4.06	2.10	1.87
102	Ghana	CCD	3.43	1.87	4.06
103	Mozambique	CCD	4.84	0.39	4.92
104	Chad	BCD	3.59	0.46	6.17
105	Morocco	CCD	1.48	3.90	2.57
106	Serbia	CDD	2.18	5.00	0.78
107	Tajikistan	BCD	3.75	1.56	5.31
108	Kenya	BCD	3.20	1.17	5.15
109	Lebanon	CCD	0.15	3.20	3.12
110	Dominican Republic	BDD	1.17	1.79	5.78
111	Nepal	BDD	0.31	0.54	6.48
112	Ethiopia	BDD	2.50	0.78	6.40
113	Nicaragua	CCD	2.26	2.96	3.28
114	Pakistan	BDD	5.70	2.03	2.26
115	India	CDD	4.14	1.48	0.62
116	Tanzania	BDD	0.93	0.31	5.85
117	Libya	CCD	4.60	4.45	0.46
118	Cambodia	CDD	0.62	1.25	4.84
119	Mauritania	BDD	5.54	0.93	1.32
120	Zambia	BDD	1.64	0.70	5.07
121	Jamaica	CDD	1.01	3.75	1.48
122	Niger	CCD	3.82	0.15	2.96
123	Bangladesh	CDD	1.25	1.09	3.98
124	Madagascar	CDD	1.87	0.23	4.68
125	Moldova	CDD	0.54	3.12	1.56
126	Senegal	CDD	0.70	0.85	2.81
127	Yemen	CDD	2.73	1.32	1.40
128	Benin	DDD	0.00	1.01	2.03
129	Zimbabwe	DDD	1.32	0.07	0.15

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