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World Energy Trilemma 2012 Energy Sustainability Index

World Energy Council

Project Partner
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2012 Energy Sustainability Index

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Introduction

This report provides country-level details on the results of the 2012 Energy Sustainability Index prepared by the World Energy Council (WEC) in partnership with the 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.

Included in this report are:

- Executive Summary, *World Energy Trilemma: Time to get real – the case for sustainable energy policy*
- 2012 Energy Sustainability Index rankings
- Regional overviews
- Country profiles for each of the WEC member countries
- Index rationale, structure and methodology

This volume is a companion document to the report *World Energy Trilemma: Time to get real – the case for sustainable energy policy* which contains a detailed discussion of the findings of the 2012 Energy Sustainability Index. In addition, the report captures energy executives' views on what the industry needs from policies and policymakers to succeed in providing environmentally sensitive, affordable, accessible, and secure energy. The 2012 report will be followed in 2013 with the views of policymakers on what they need from industry to

be assured the policies will have the intended effects of providing sustainable energy.

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 will support an evolving dialogue aimed at furthering knowledge and understanding effective strategies and policies to deliver the necessary transformation of the energy system to support sustainable economic and social development.

Iconography

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

Energy performance dimensions:



Energy security



Social equity



Environmental impact mitigation

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 must accept that we have to make hard choices in this generation to bring about real changes for future generations and the planet. Politicians and the industry must get real.”

You can see it in the faces of the 670 million people who recently suffered through blackouts in India, or sense it from the frustrations expressed by three million Americans forced to live without power in the middle of a record heat wave. After decades of work to advance sustainable energy solutions, an energy gap is growing as energy systems around the world buckle under significant strain.

Policymakers and the energy industry urgently need to work together to correct this mismatch by making the hard decisions necessary to realise sustainable energy systems on a much broader scale. If the supply of sustainable energy continues to lag behind rapidly rising demand globally, billions of people could be forced to live without reliable electricity and economic growth could be put in jeopardy. Already, 1.3 billion people live without access to electricity. This number could rise if demand continues to jump by as much as 30% over the next two decades.¹

Goals supported at The United Nations Conference on Sustainable Development (Rio+20) in June 2012 could also remain out of reach. Unless action is taken now, it will be difficult to double the rate of energy-efficiency improvement, ensure universal access to modern energy, or to double the share of renewable energy in the global energy mix by 2030.

To assist policymakers and the energy industry with pressing forward sustainable energy systems, the World Energy Council, in collaboration with global management consulting firm Oliver Wyman,

has prepared the report *World Energy Trilemma: Time to get real – the case for sustainable energy policy*. This first of a two-part series of reports examines the drivers and risks preventing the development of sustainable energy systems. It then recommends actions to address these risks and to accelerate a global transition to a low-carbon future which will present new opportunities for economic growth.

The 2012 report describes what senior energy industry executives believe they need from policymakers to advance sustainable energy systems. It is based on interviews with more than 40 energy industry CEOs and senior executives and the 2012 Energy Sustainability Index built on an analysis of 22 indicators across 93 World Energy Council member countries. The 2013 *World Energy Trilemma* report will focus on what policymakers need from the energy industry.

Three dimensions of energy sustainability

The World Energy Council's definition of energy sustainability is based on three core dimensions – energy security, social equity, and environmental impact mitigation. The development of stable, affordable, and environmentally-sensitive energy systems defies simple solutions. These three goals constitute a 'trilemma', entailing complex interwoven links between public and private actors, governments and regulators, economic and social factors, national resources, environmental concerns, and individual behaviours.

¹ International Energy Agency (IEA), 2011: *World Energy Outlook 2011*

Energy sustainability dimensions

- ▶ *Energy security:* For both net energy importers and exporters, this refers to the effective management of primary energy supply from domestic and external sources, the reliability of energy infrastructure, and the ability of participating energy companies to meet current and future demand. For countries that are net energy exporters, this also relates to an ability to maintain revenues from external sales markets.
- ▶ *Social equity:* This concerns the accessibility and affordability of energy supply across the population.
- ▶ *Environmental impact mitigation:* This encompasses the achievement of supply and demand-side energy efficiencies and the development of energy supply from renewable and other low-carbon sources.

Energy industry recommendations

CEOs and senior executives from leading energy companies have three main recommendations for how policymakers must expedite the development of sustainable energy systems: 1) Design coherent and predictable energy policies, 2) Support market conditions that attract long-term investments, and 3) Encourage initiatives that foster research and development in all areas of energy technology.

Recommendation 1: Design coherent and predictable energy policies

Policymakers must establish coherent, long-term, accessible, predictable, and transparent policies that rise above narrow interests to respond to energy needs holistically. Contradictory and ad hoc policies developed in isolated 'silos' hinder energy investments. Sound and coherent policies that are oriented toward results rather than around the types of energy or technology used to achieve them can – and should – enable the world to achieve energy sustainability.

A master plan must be developed that connects energy policies on two fronts. First, national energy policies must complement and link together national industrial, financial, environmental, transportation, and agricultural goals and policies. Second, policies concerning energy resources, infrastructure, environmental issues, and regulations must be regionally coordinated. Sharing resources across borders enables countries to increase regional energy security, reduce power costs, and attract investments by creating greater market scale to interest investors, optimise natural resources, and develop common infrastructure.

To make sure that these policies are predictable for industry, governments must develop regulations that are consistent, clear, and simple, in spite of the complexities that they address. Equally important, policymakers should separate energy policies from short-term politics to guarantee that they reflect a well-defined, long-term view. A significant hurdle to policy longevity, as perceived by industry, is the

conflict between the long-term nature of energy investments and the comparatively short-term nature of politics.

Consumer education and awareness is also crucial. To encourage energy efficiency, for example, governments must not only establish environmentally responsible construction and manufacturing standards, but can also set a regulatory framework for progressive energy tariffs to make consumers more aware of energy efficiency as a means to reduce overall national energy costs, introduce tax reductions on energy-efficient equipment (on VAT or on import duties), or on energy-efficiency investments (reduction in VAT rate).

Recommendation 2: Support market conditions that attract long-term investments

With consistent and committed regulatory approaches, policymakers must encourage the development of attractive markets to stimulate long-term private investments in energy infrastructure and technologies. Simultaneously, they must support the development of new investment mechanisms that can reduce risks and stimulate greater private sector investment in the energy sectors. Such mechanisms can include green banks, a green bond market, and public-private partnerships. These efforts must be underpinned by a stable and predictable carbon price necessary to drive the transition to a low-carbon energy system.

Huge investments are required to improve access to energy worldwide, develop new energy

technologies, and to build new and replace ageing infrastructure. Cash-strapped governments have limited funds to support a shift to a low-carbon future. Unfortunately, capital from the private sector and from investment funds remains largely on the side lines. Less than 1% of pension investment funds worldwide, for example, are invested in infrastructure projects designed to improve the supply of electricity.²

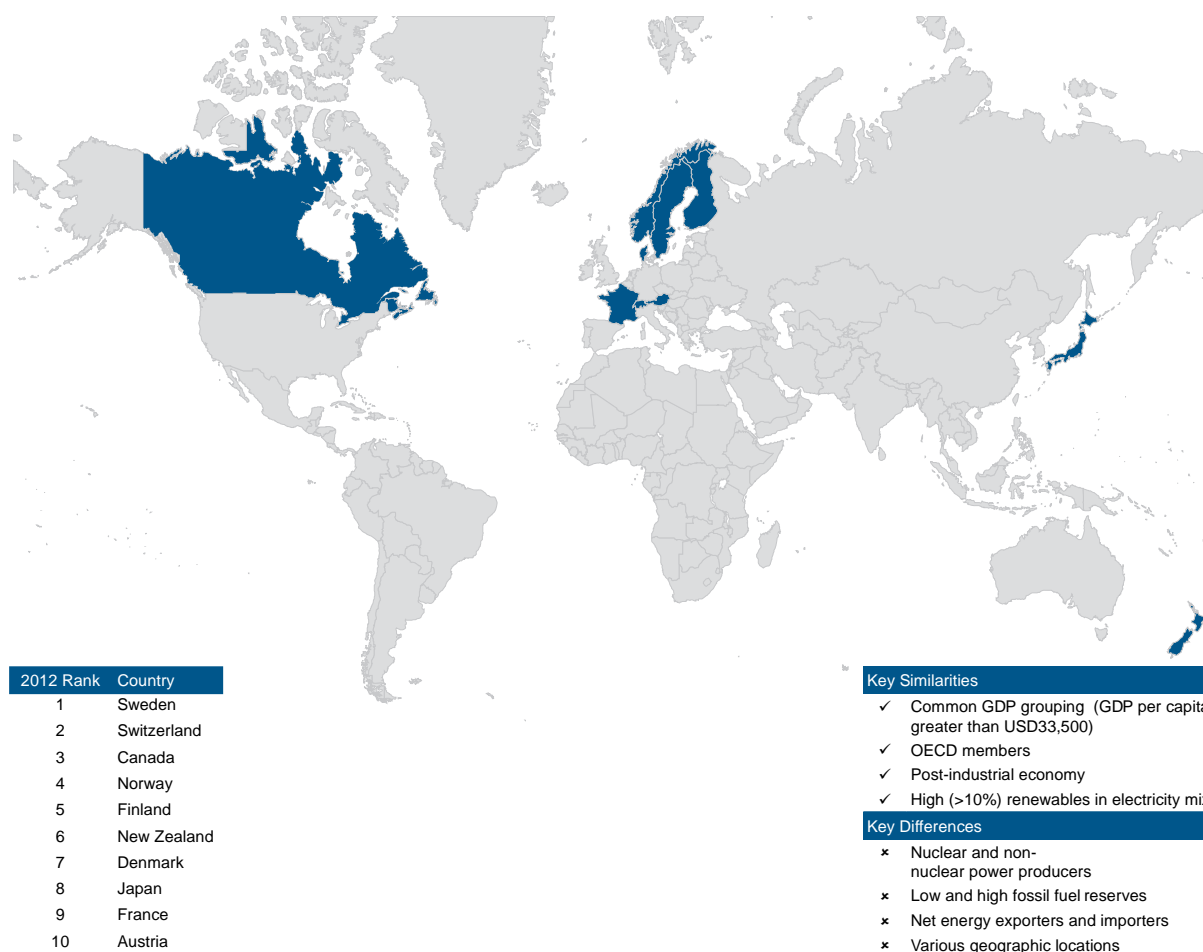
The use of subsidies should be minimised, since they increase political and regulatory uncertainty. This distorts competition and erodes investor confidence. If used, subsidies must be focused on achieving a specific outcome, and have a clear sunset built-in from the start.

Recommendation 3: Encourage initiatives to foster research and development in all areas of energy technology

To drive innovation further in all areas of energy technology, policymakers should implement goal-driven policies rather than prescriptive policies. New renewable energy and fossil fuel technologies can bring the world much closer to attaining sustainable energy systems and potentially spur economic growth. For this to happen, however, policymakers need to leave it to the market to decide which types of technology should survive so that they can remain competitive in the long term.

² Organisation for Economic Co-operation and Development (OECD), 2011: *Pension Funds Investment in infrastructure: A Survey*

Figure 1
Similarities and differences for the top 10 performing countries in 2012 Index



‘Technology-neutral’ research and innovation policies should be supported with economic incentives and appropriate accountabilities.

Intellectual property rights must also be strongly enforced for the private sector to invest in environmentally responsible and energy-efficient technologies.

Finally, governments must support the research, development, and demonstration of new technologies to boost investor confidence. Policymakers will encourage companies to invest in developing new technologies if they establish a strong research-oriented environment that promotes national and international collaborative research and funds large-scale demonstration projects that support companies' efforts to bring their technologies to market.

Energy Sustainability Index

The 2012 Energy Sustainability Index shows that developed countries such as Sweden, Switzerland, and Canada are closest to achieving sustainable energy systems. This is in large part because a higher share of their energy mix comes from low-carbon energy sources, such as hydro power and from nuclear power. These countries are leaders in terms of energy security largely because of their diversified energy mixes.

The top three performers also have a significant advantage when it comes to mitigating their energy systems' environmental impact because they have long-term programs in place. Sweden, for example, has significantly reduced its greenhouse emissions even though its GDP is rising mainly because it has set long-term sustainable energy and climate policies and goals for 2020.

Nevertheless, developing sustainable energy systems overall remains a challenge. Countries at all stages of development still have trouble balancing the trade-offs involved in providing secure, affordable, and environmentally-sensitive energy. Developing countries, for example, struggle to use cleaner forms of energy as they industrialise.

Sound policy making determines to what extent a country will be able to develop a sustainable energy system. The energy industry and policymakers should assist in helping nations to forge an alternative path of energy development. As Figure 1 shows, the top ten performers all have high GDPs per capita. They are OECD member countries with predictable and strong political, societal, and economic frameworks. However, there are also key differences between them, underscoring that there is not one single solution. France is a significant user of nuclear power. Canada is a net energy exporter. By contrast, Japan is a net importer.

Conclusion

Energy systems around the world remain at vastly different stages of development. But all countries share a common problem: They are far away from achieving sustainable energy systems.

To make affordable, secure, and environmentally-sensitive energy systems a reality, policymakers urgently need to develop interconnected, lasting, and coherent energy policies. Policymakers and energy industry executives must develop a common understanding of what energy

sustainability is, its importance for economic growth, and the steps necessary to achieve it. Only then can they work together to build on clearly defined sustainability goals that will encourage all forms of energy in every nation's energy mix by taking a technology-neutral approach.

With clearly defined, coherent, and predictable energy policies, the energy industry will be able to mobilise the natural and human resources, finances, and technologies necessary to realise sustainable energy systems. Without them, billions of people will continue to live without secure, affordable, and environmentally-sensitive energy. Global prosperity could also be threatened. There is no time to waste.

2012 Energy Sustainability Index

The Energy Sustainability Index ("Index") ranks WEC member countries in terms of their likely ability to provide a secure, affordable, and environmentally-sensitive energy system. The rankings are based on a range of data and databases that capture both energy performance and the context of that energy performance.

Energy performance indicators consider 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. Indicators were selected based on the high degree of relevance to the research goals; each is distinct, could be derived from reputable sources, and is captured for most WEC countries.

Overall, the Index displays the aggregate effect of energy policies applied over time in the context of each country. It is important to see the Index as a starting point for understanding the sustainability of countries' policy approaches. More details on the methodology can be found in Appendix A. The methodology has been improved since the 2011 report with a particular focus on the assessment of the social equity and environmental impact mitigation dimensions. Index rankings for 2010 and 2011 were calculated retrospectively with the improved methodology to allow a year-to-year comparison. The complete 2010 and 2011 Index ranking can also be found in Appendix A.

The 2012 Energy Sustainability Index confirms that developed countries are in a better position to provide secure, affordable, and environmentally

sensitive energy and to balance the 'trilemma of energy sustainability'. This is driven by their increased reliance on low- and zero-carbon emission forms of energy such as renewables, including hydro, and nuclear.

However, a deeper analysis shows that even top performing countries face challenges. Energy sustainability remains a far-off objective as trade-offs within 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.

For the deeper Index analysis countries were organised in four economic groups³:

- Group A: GDP per capita greater than USD33,500
- Group B: GDP per capita between USD14,300 and USD33,500
- Group C: GDP per capita between USD6,000 and USD14,300
- Group D: GDP per capita lower than USD6,000

Results of the 2012 Index are shown in Figures 2 and 3. For more discussion of the Index results, refer to *World Energy Trilemma: Time to get real – the case for sustainable energy policy*.

³ GDP per capita on a purchasing power parity (PPP) basis; International Monetary Fund (IMF), 2010

Figure 2
2012 Energy Sustainability Index rankings

2012 Rank	Country	Importer / Exporter	GDP Group	2011 Rank	2010 Rank
1	Sweden	I	A	4	7
2	Switzerland	I	A	3	1
3	Canada	E	A	1	2
4	Norway	E	A	5	3
5	Finland	I	A	2	4
6	New Zealand	I	B	6	5
7	Denmark	E	A	8	8
8	Japan	I	A	11	11
9	France	I	A	7	6
10	Austria	I	A	9	10
11	Germany	I	A	10	18
12	United States	I	A	12	9
13	Belgium	I	A	18	12
14	Netherlands	I	A	16	13
15	United Kingdom	I	A	28	21
16	Spain	I	B	15	26
17	Slovakia	I	B	20	17
18	Luxembourg	I	A	13	16
19	Hungary	I	B	21	25
20	Australia	E	A	24	20
21	Italy	I	B	31	33
22	Slovenia	I	B	25	14
23	Iceland	I	A	14	15
24	Croatia	I	B	17	40
25	Portugal	I	B	29	19
26	Russia	E	B	27	29
27	Korea (Republic)	I	A	37	34
28	Argentina	E	B	19	24
29	Czech Republic	I	B	26	22
30	Ireland	I	A	39	28
31	Lithuania	I	B	22	27
32	Taiwan, China	I	A	33	35
33	Colombia	E	C	32	37
34	Hong Kong, China	I	A	35	32
35	Estonia	I	B	38	23
36	Uruguay	I	C	34	30
37	Latvia	I	B	23	31
38	Bulgaria	I	C	40	51
39	Ukraine	I	C	36	45
40	Albania	I	C	41	58
41	Qatar	E	A	48	38
42	Greece	I	B	52	44
43	Kazakhstan	E	C	30	49
44	United Arab Emirates	E	A	49	50
45	Bolivia	E	D	-	-
46	Saudi Arabia	E	B	47	42
47	Poland	I	B	53	47
48	Iran (Islamic Republic)	E	C	63	39
49	Cyprus	I	B	51	48
50	Mexico	E	C	46	53
51	Trinidad & Tobago	E	B	62	55
52	Paraguay	E	D	56	59
53	Brazil	I	C	45	56
54	Kuwait	E	A	60	54
55	Egypt (Arab Republic)	E	C	50	36
56	Romania	I	C	42	41
57	South Africa	E	C	55	46
58	Peru	I	C	59	63
59	Gabon	E	B	73	-
60	Tunisia	I	C	66	52
61	Israel	I	B	61	73
62	Macedonia (Republic)	I	C	58	43
63	Thailand	I	C	67	72
64	Turkey	I	C	75	61
65	Cameroon	E	D	65	66
66	Serbia	I	C	44	82
67	Kenya	I	D	69	65
68	Jordan	I	C	70	60
69	Congo (Dem. Republic)	E	D	77	83
70	Côte d'Ivoire	E	D	74	81
71	China	I	C	71	78
72	Zimbabwe	I	D	-	-
73	Sri Lanka	I	D	68	70
74	Nepal	I	D	78	74
75	Philippines	I	D	57	64
76	Syria (Arab Republic)	E	D	64	69
77	Lebanon	I	B	72	67
78	Algeria	E	C	84	79
79	Namibia	I	C	81	68
80	Swaziland	I	D	43	57
81	Ghana	I	D	80	76
82	Tanzania	I	D	79	80
83	Indonesia	E	D	76	71
84	Nigeria	E	D	83	77
85	Mongolia	E	D	85	88
86	Chad	E	D	-	-
87	Morocco	I	D	82	85
88	Libya	E	C	86	75
89	Ethiopia	I	D	92	91
90	Niger	I	D	90	90
91	Botswana	I	B	87	86
92	Pakistan	I	D	88	87
93	India	I	D	89	84
94	Senegal	I	D	91	89

Figure 3
2012 Country rankings for energy performance dimensions

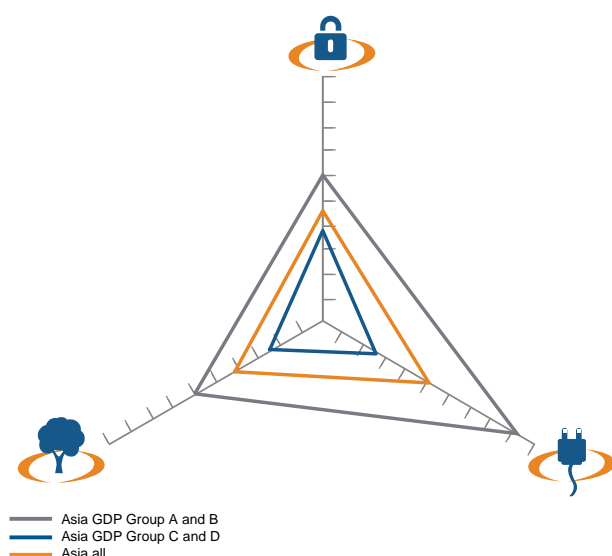
2012 Rank	Energy security (2011 rank)	Social equity (2011 rank)	Environmental impact mitigation (2011 rank)
1	Canada (1)	United States (1)	Paraguay (8)
2	Sweden (9)	Canada (2)	Sweden (1)
3	Denmark (5)	Australia (3)	Iceland (2)
4	Zimbabwe (-)	Switzerland (4)	France (3)
5	Colombia (6)	Luxembourg (5)	Norway (4)
6	Slovakia (28)	United Kingdom (8)	Finland (6)
7	Japan (16)	Austria (7)	Albania (15)
8	Russia (2)	France (10)	New Zealand (7)
9	Norway (21)	Japan (6)	Lithuania (5)
10	Hungary (20)	Norway (11)	Switzerland (14)
11	Germany (13)	Germany (12)	Austria (18)
12	Switzerland (15)	Belgium (9)	Canada (12)
13	Finland (7)	New Zealand (13)	Latvia (9)
14	Croatia (11)	Finland (14)	Slovakia (17)
15	Czech Republic (38)	Qatar (15)	Belgium (24)
16	New Zealand (33)	Sweden (33)	Russia (11)
17	Spain (27)	Argentina (20)	Slovenia (20)
18	Ukraine (8)	Saudi Arabia (18)	Luxembourg (13)
19	Italy (49)	Spain (17)	Hungary (22)
20	Kenya (23)	Netherlands (22)	Netherlands (31)
21	Gabon (10)	Iceland (19)	Brazil (16)
22	Bolivia (-)	Taiwan, China (21)	Uruguay (19)
23	Portugal (39)	Greece (16)	Ukraine (23)
24	Nigeria (18)	Ireland (24)	Japan (37)
25	Australia (42)	Korea (Republic) (25)	Denmark (28)
26	Congo (Dem. Republic) (30)	Italy (23)	Croatia (26)
27	United States (32)	Kuwait (31)	Taiwan, China (47)
28	Slovenia (41)	Denmark (26)	Bulgaria (43)
29	France (29)	Cyprus (28)	Nepal (25)
30	Côte d'Ivoire (3)	Hong Kong, China (29)	Argentina (27)
31	Belgium (61)	Iran (Islamic Republic) (30)	United States (39)
32	Cameroon (17)	Czech Republic (27)	Korea (Republic) (35)
33	Egypt (Arab Republic) (14)	Croatia (32)	Italy (48)
34	Netherlands (53)	Mexico (34)	Colombia (33)
35	Argentina (12)	Slovakia (35)	United Kingdom (53)
36	Romania (46)	Hungary (39)	Trinidad & Tobago (34)
37	United Kingdom (58)	Portugal (36)	Ethiopia (66)
38	Kazakhstan (34)	Poland (38)	Portugal (40)
39	Austria (37)	United Arab Emirates (40)	Ghana (38)
40	Bulgaria (25)	Kazakhstan (37)	Spain (46)
41	Turkey (68)	Slovenia (41)	Germany (44)
42	Estonia (69)	Romania (43)	Ireland (41)
43	Greece (63)	Israel (42)	Tanzania (49)
44	Albania (26)	Uruguay (44)	Kazakhstan (21)
45	Mexico (51)	Lithuania (45)	Bolivia (-)
46	Peru (48)	Estonia (46)	United Arab Emirates (55)
47	Iran (Islamic Republic) (71)	Russia (48)	Congo (Dem. Republic) (51)
48	Chad (-)	Trinidad & Tobago (49)	Niger (81)
49	Sri Lanka (40)	Egypt (Arab Republic) (47)	Hong Kong, China (60)
50	Poland (57)	Latvia (50)	Estonia (29)
51	Tunisia (60)	Tunisia (51)	Iran (Islamic Republic) (50)
52	Philippines (31)	South Africa (52)	Gabon (79)
53	Lithuania (36)	Turkey (53)	South Africa (57)
54	Syria (Arab Republic) (19)	Macedonia (Republic) (58)	Cameroon (62)
55	Libya (70)	Jordan (54)	Swaziland (42)
56	Macedonia (Republic) (43)	Colombia (59)	Côte d'Ivoire (77)
57	Ireland (88)	Serbia (57)	Namibia (73)
58	Thailand (67)	Ukraine (56)	Chad (-)
59	China (45)	Bulgaria (60)	Saudi Arabia (56)
60	Indonesia (47)	Algeria (55)	Peru (45)
61	Korea (Republic) (83)	Albania (67)	Czech Republic (32)
62	Paraguay (54)	Thailand (63)	Serbia (30)
63	Uruguay (50)	Lebanon (62)	Cyprus (59)
64	Latvia (22)	Bolivia (-)	Qatar (75)
65	Lebanon (44)	Brazil (65)	Poland (63)
66	Israel (52)	Morocco (66)	Egypt (Arab Republic) (74)
67	Serbia (35)	Peru (68)	Jordan (67)
68	Tanzania (56)	Syria (Arab Republic) (71)	Macedonia (Republic) (58)
69	Trinidad & Tobago (86)	China (72)	Kenya (54)
70	Swaziland (4)	Paraguay (69)	Algeria (84)
71	Iceland (55)	Sri Lanka (74)	Zimbabwe (-)
72	Luxembourg (81)	Indonesia (61)	Syria (Arab Republic) (70)
73	Pakistan (64)	Libya (64)	Australia (72)
74	Mongolia (72)	Botswana (73)	Kuwait (68)
75	Algeria (65)	Swaziland (70)	Mongolia (78)
76	Hong Kong, China (66)	Namibia (75)	Greece (83)
77	Brazil (62)	Philippines (76)	Pakistan (71)
78	South Africa (59)	Gabon (77)	Philippines (52)
79	United Arab Emirates (80)	Mongolia (78)	Thailand (65)
80	Morocco (77)	Pakistan (79)	Romania (36)
81	Qatar (91)	Ghana (80)	Nigeria (88)
82	Nepal (76)	India (84)	Sri Lanka (61)
83	Taiwan, China (73)	Cameroon (81)	Mexico (64)
84	Kuwait (92)	Nigeria (82)	Turkey (69)
85	Saudi Arabia (85)	Côte d'Ivoire (85)	Lebanon (82)
86	Senegal (78)	Kenya (86)	Senegal (85)
87	India (84)	Niger (88)	Morocco (76)
88	Ghana (79)	Chad (-)	Libya (92)
89	Botswana (87)	Senegal (87)	Tunisia (80)
90	Namibia (75)	Ethiopia (92)	Indonesia (90)
91	Cyprus (90)	Congo (Dem. Republic) (89)	China (87)
92	Niger (74)	Nepal (90)	Israel (89)
93	Jordan (82)	Tanzania (91)	India (86)
94	Ethiopia (89)	Zimbabwe (-)	Botswana (91)

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 impacts 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 policy*. Energy executives emphasised the need to examine opportunities to adopt regionally coordinated approaches to energy resources, infrastructure and regulation.

This section shows the average scores for countries in each geographic region represented in the 2012 Index, as well as an overview of regional challenges

Figure 4
Energy sustainability balance Asia



Asia

Asia is the world's largest and most populous continent, with a population of 3.9 billion that includes some of the world's least developed countries, two major emerging economies (China and India) as well as highly developed nations. Economic growth in the region is high, averaging from around 6% in South Asia to around 8% in East Asia and the Pacific.

In the 2012 Index, the group of Asian countries with higher GDP per capita levels performs better in all dimensions, particularly in social equity. Performance in energy security is supported by well-diversified electricity generation. However, due to mostly low energy resource endowments, these countries struggle with a low ratio of production to total energy supply. Countries face a high energy consumption growth, which is necessary to expand energy services and to increase the countries' economic and social development. Environmental impact performance is only mediocre due to high energy and emissions intensity per capita and high CO₂ emissions from electricity and heat generation.

The countries with lowest GDP per capita struggle across all dimensions of the energy trilemma. Social equity overall is low due to incomplete electricity access, and reliability of electricity supply remains a huge challenge. Low average energy

and emissions intensity per GDP per capita lead to a low environmental impact; however, emissions from electricity and heat generation as well as pollution of air and water are high. With continuous economic and social development it will become increasingly important to respond to rising energy demands with 'clean' electricity generation to be able to sustain or improve environmental sensitivity.

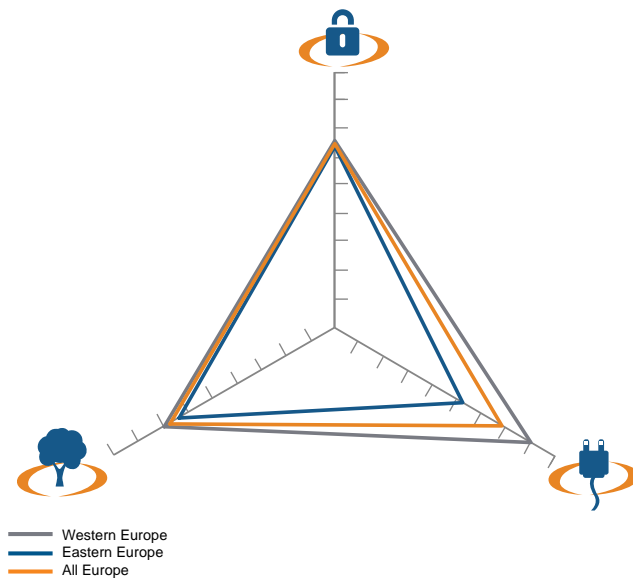
List of countries in GDP Group C and D (see Figure 4):

- China, India, Indonesia, Kazakhstan, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand

List of countries in GDP Group A and B (see Figure 4):

- Australia, Hong Kong (China), Japan, Korea (Republic), New Zealand, Taiwan (China)

Figure 5
Energy sustainability balance Europe



Europe

Europe has a population of around 740 million, while the European Union has around 500 million with an average GDP per capita of approximately USD35,000. Most economies are mature: the IMF predicts that GDP in the European Union will remain constant, while it expects that GDP in Central and Eastern Europe will grow by 1.9% in 2012.

European WEC member countries perform well and are rather balanced in the 2012 Index. Energy security is driven by well-diversified electricity production, with high shares of renewable energy, including hydro, and moderate consumption growth on average. As natural resources are scarce in some countries, the low ratio of production to total energy supply will remain a challenge as economies and energy-intensive lifestyles need to be fuelled. This furthermore leads to high energy and emissions intensity per capita and thus increases Europe's environmental footprint. However, due to relatively 'clean' electricity and heat generation, and measures to reduce pollution of air and water, Western Europe scores well in environmental impact mitigation for the most part.

Like most developed regions, European countries are able to provide affordable and high quality electricity access, but need to set incentives for

reductions in energy consumption. However, significant differences between regions exist. Nordic countries, for example, outperform other EU 27 countries in all dimensions of the energy trilemma. Further comparisons show that Western Europe performs better in all dimensions than Eastern Europe, most significantly in social equity.

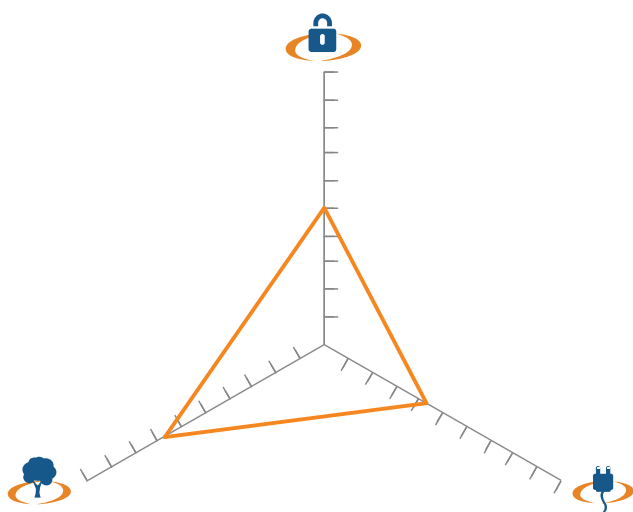
List of countries Eastern Europe (see Figure 5):

- Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia (Republic), Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Ukraine

List of countries Western Europe (see Figure 5):

- Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom

Figure 6
Energy sustainability balance Latin America and the Caribbean



Latin America and the Caribbean

Latin America and the Caribbean (LAC) have a population of around 590 million with an average GDP per capita of approximately USD9,600 in 2011. Most countries are experiencing high economic growth, resulting in an expected average economic growth rate of around 3.7% in 2012.

Latin America is a fossil fuel rich region with strong oil and gas endowments and great potential for the exploitation of renewable energy sources; however it may be difficult to sustain oil and gas production due to the current political climate of nationalisation and populist policies that may deter private investments. With economies expanding, energy consumption growth rates are also high, creating energy security challenges for countries in the region. Electricity production and exports are fairly well diversified, with an average share of about 30% of renewable energy, including hydro, in the electricity generation mix.

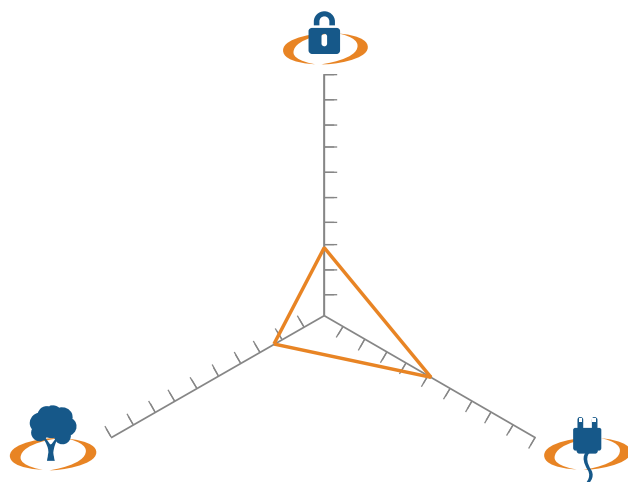
This has an additional positive impact on LAC's environmental footprint, which remains relatively low compared to other high growth regions. Active mitigation policies will be needed to sustain this during future social and economic development. Performance in social equity is only mediocre, as the quality of electricity supply has to be improved and full electricity access is not yet achieved. This

is further challenged by very strong social inequality, which emphasises the need for social spending and policies that should be clearly targeted to benefit the poorest part of the population.

List of countries (see Figure 6):

- Argentina, Bolivia, Brazil, Colombia, Paraguay, Peru, Trinidad & Tobago, Uruguay

Figure 7
Energy sustainability balance Middle East and North Africa



Middle East and North Africa

The Middle East and North Africa (MENA) region has a population of around 355 million, with 84% living in middle-income countries and 8% each in high- and low-income countries. The region is experiencing sustained economic growth and social development, as demonstrated by a steady rise in average life expectancy to 70 years and a reduction of poverty. Predicted GDP growth is 4.2% for 2012.

The MENA region has vast reserves of petroleum and natural gas and includes most of the OPEC nations. It is estimated that it has about 57% of the world's proven oil reserves and 41% of the world's natural gas reserves. With high economic and population growth, the region faces increasing challenges in energy security and environmental impact mitigation, as pointed out in the 2012 Index. Water scarcity and underinvestment in infrastructure are other chronic risks, which can only be overcome if regulatory and contextual barriers are removed and private sector participation is encouraged.

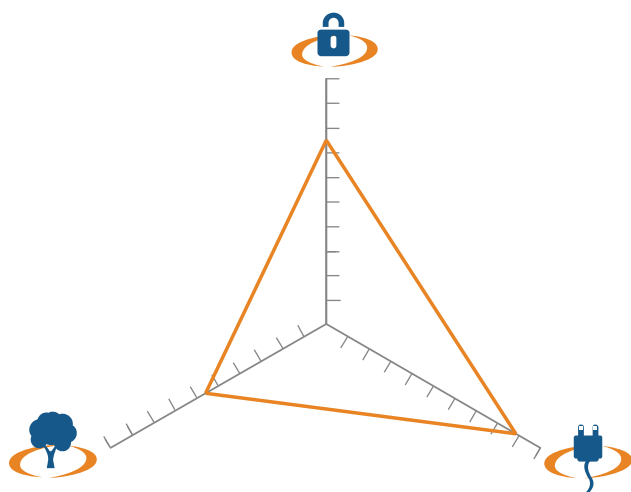
The MENA region performs rather poorly in the overall 2012 Index despite its energy richness. For example, energy security is rather low, with insufficiently diversified electricity production and a strong 5-year energy consumption growth rate. The best relative performance is achieved in social equity, which is supported by very affordable gasoline as well as relatively high quality electricity

access. With high fossil fuel resource endowments and affordability of energy, the region needs to engage more actively in mitigating its environmental impact and in setting incentives to reduce energy consumption. The MENA region has a low environmental impact mitigation score due to its high energy and emissions intensity, high CO₂ emissions from electricity and heat generation and strong pollution of air and water.

List of countries (see Figure 7):

- Algeria, Egypt, Iran (Islamic Republic), Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Qatar, Saudi Arabia, Syria (Arab Republic), Tunisia, United Arab Emirates

Figure 8
Energy sustainability balance North America



North America

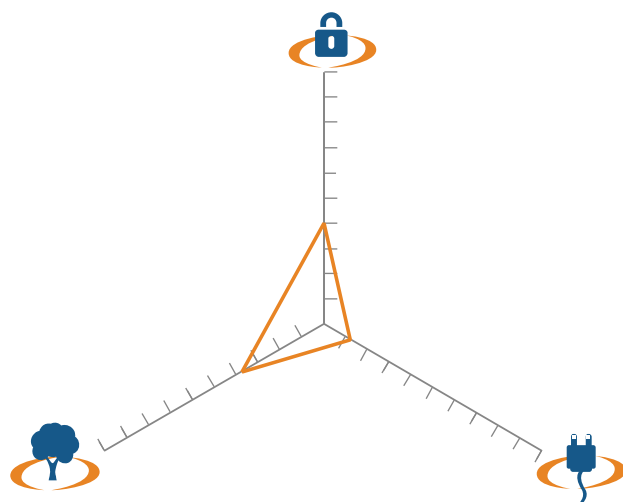
North America has a population of around 450 million and an average GDP per capita of USD38,203. All three countries have significant resource endowments including oil, natural gas, and hydro.

In the 2012 Index, North America performs very well in energy security and social equity; however, it lags behind in mitigating its environmental impact. Energy security is supported by a good ratio of production to total energy supply, well-diversified electricity generation portfolio and energy exports as well as flat energy consumption. Environmental sensitivity however is low due to strong energy and emissions intensity per capita, particularly in Canada and the USA. Average emissions from electricity and heat generation and pollution of air and water vary greatly, with Canada performing significantly better in these indicators. High affordability of gasoline and electricity support high social equity scores; however, it does not provide incentives to actively engage in energy efficiency or to reduce energy consumption.

List of countries (see Figure 8):

- Canada, Mexico, United States

Figure 9
Energy sustainability balance Sub-Saharan Africa



Sub-Saharan Africa

The population of Sub-Saharan Africa is approximately 840 million with an average GDP per capita of USD1,127. Overall the region is still developing economically, and the IMF predicts a GDP growth rate of 5.4% for 2012.

This region is well endowed both with fossil fuels such as oil, gas and coal and renewable resources including hydro-power and geothermal. However, most of this potential remains untapped as countries face institutional and infrastructural barriers to make efficient use of it. In the 2012 Index, countries in Sub-Saharan Africa score low in environmental impact mitigation, exhibiting high pollution of air and water. The region has very low energy and emissions intensity per capita, as only 31% of the population currently has access to electricity. Social equity is therefore Sub-Saharan Africa's weakest dimension. Overall, reliability of electricity supply remains a huge challenge and power outages are frequent.

The region's limited ability to improve its energy system and related services has significant repercussions on its social and economic development, including poor quality of life and low standards in health, education and economic competitiveness. While environmental and social equity performance varies across countries, it is notable that no country scores very well in either dimension. Some countries, mostly the oil

exporting ones, have strong energy security; however the average performance remains mediocre. This is primarily due to a positive 5 year energy consumption growth trend, which is necessary for expanding energy services. The region achieves a relatively good ratio of production to total energy supply; however with increasing economic and industrial development and rising demands, generation capacity and infrastructure will have to expand.

List of countries (see Figure 9):

- Botswana, Cameroon, Chad, Congo (Democratic Republic), Côte d'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Namibia, Niger, Nigeria, Senegal, South Africa, Swaziland, Tanzania, Zimbabwe

Country profiles

This section shows the scores for each country represented in the 2012 Index, provides comments around the performance and gives the reader an indication of trends and future developments.

The trilemma graph on each country profile (upper left corner) visualises the Index scores for energy security, social equity, and environmental impact mitigation highlighting the degree of balance between the three dimensions.

Furthermore the country profile displays 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.

Iconography

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

Energy performance dimensions:



Energy security



Social equity



Environmental impact mitigation

Contextual performance dimensions:



Political strength



Societal strength



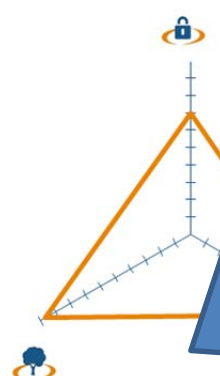
Economic strength

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

COUNTRY PROFILE GUIDE

Overall rank

ENERGY SUSTAINABILITY BALANCE



Index scores for energy security, social equity and environmental impact mitigation highlighting the degree of balance between three dimensions

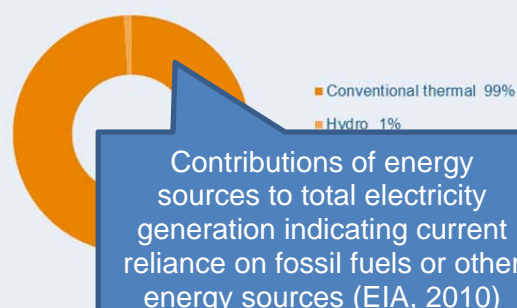
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	77	81	79	+
Energy security	75	65	56	-
Social equity				
Environmental impact mitigation				
Contextual performance				
Political strength	86	84	83	-
Societal strength	75	77	75	+
Economic strength	45	77	37	+
Overall rank	78	84	79	+

Rank for each Index component as well as overall rank

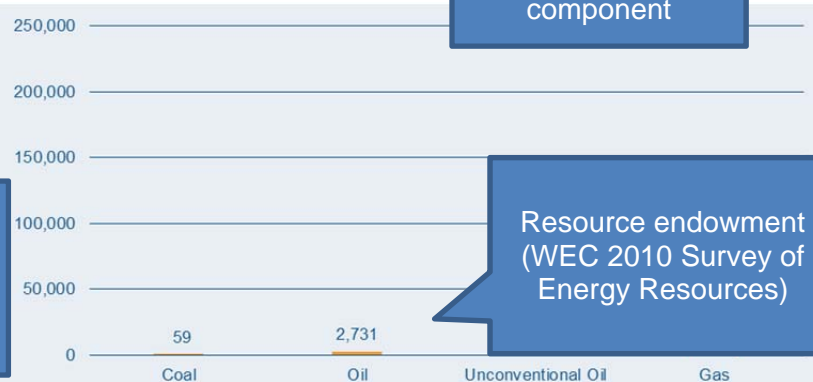
2011-2012 Trend for each Index component

DIVERSITY OF ELECTRICITY GENERATION



Contributions of energy sources to total electricity generation indicating current reliance on fossil fuels or other energy sources (EIA, 2010)

FOSSIL FUEL RESOURCES (IN MTOE)



Resource endowment (WEC 2010 Survey of Energy Resources)

KEY METRICS

Industrial sector (% of total GDP)	56.5	GDP per capita (PPP, USD); GDP Group	7,112 (C)
Percent of total GDP that is in the industrial sector (CIA World Factbook, 2012)		GDP (IMF, 2010) and GDP group assignment as defined in Volume I of this report	
TPEP / TPEC (net energy exporter)	3.84	Energy intensity (million BTU per USD)	0.02
Ratio of total primary energy production to total primary energy consumption, showing the extent to which a country imports or exports energy (EIA, 2009)		Measure of how much energy (EIA, 2009) is required to produce one dollar of industrial sector GDP (IMF, 2010)	
Emission intensity (kg of CO ₂ per USD)	1.15	CO ₂ emissions (metric tons) per capita	3.24
Measure of emissions (EIA) created by the production of one dollar of industrial sector GDP (IMF, 2010)		Emissions (EIA, 2009) per person (IMF, 2010)	
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.3
Average cost of electricity (IEA, 2011)		Access to electricity (IEA, 2009)	

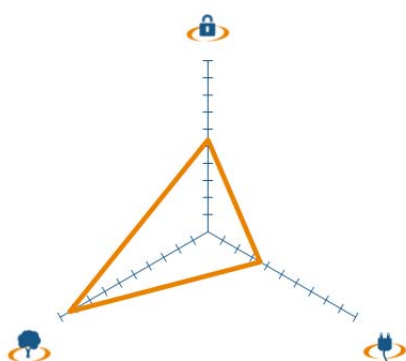
INDEX COMMENTARY

Overview of current Index ranking and country's energy trilemma, highlighting indicator changes from 2011 to 2012

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

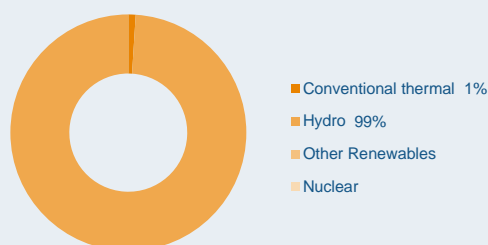
ENERGY SUSTAINABILITY BALANCE



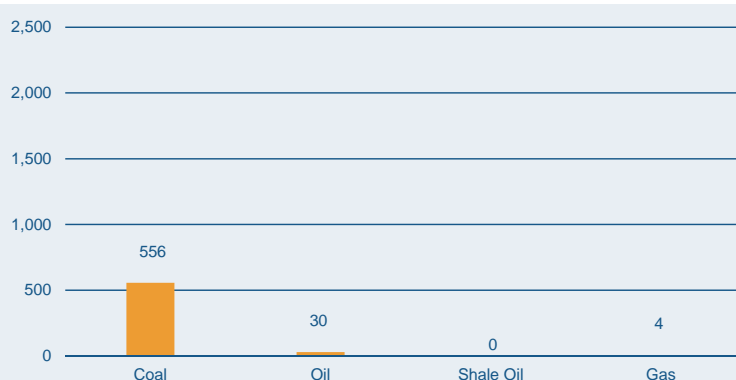
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	47	30	32	-
Energy security	54	26	44	-
Social equity	76	67	61	+
Environmental impact mitigation	16	15	7	+
Contextual performance	77	70	70	
Political strength	56	58	57	+
Societal strength	65	55	55	
Economic strength	88	85	86	-
Overall rank	58	41	40	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

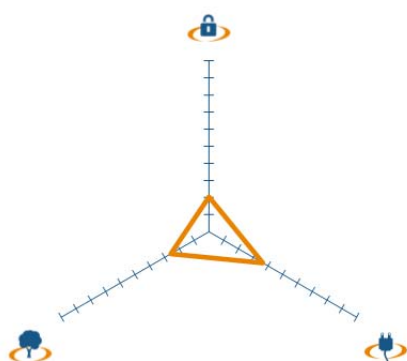
Industrial sector (% of total GDP)	19.7	GDP per capita (PPP, USD); GDP Group	7,468 (C)
TPEP / TPEC (net energy importer)	0.51	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	1.65	CO ₂ emissions (metric tons) per capita	1.44
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Albania increases by one place in the Index, mostly due to an increase in social equity and environmental impact mitigation. However, a decrease in energy security was driven by a large increase in the energy consumption growth rate. This negative trend could partly be offset by an increased diversity of electricity production which remains nonetheless Albania's weakest indicator. Social equity improves as Albania provided better quality and more affordable electricity to its population. Environmental performance is strong and further increases due to lower emissions intensity per GDP per capita and lower emissions from electricity and heat generation. Given its increase in energy intensity per capita, Albania outperforms peer countries with similar energy intensity levels in mitigating its environmental impact. Performance across contextual dimensions is relatively constant. The weak economic position is mostly caused by high costs of living as proportion of household consumption expenditure, while credit availability and macroeconomic stability receive slightly better scores.

ALGERIA

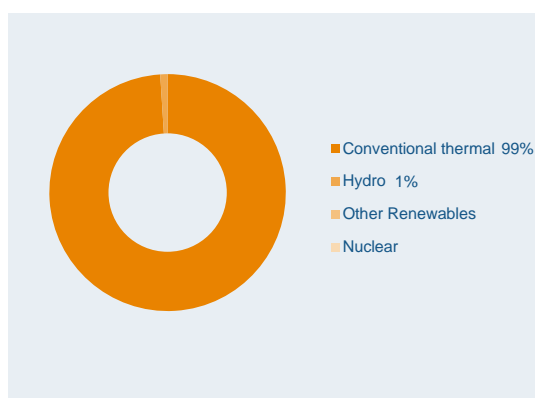
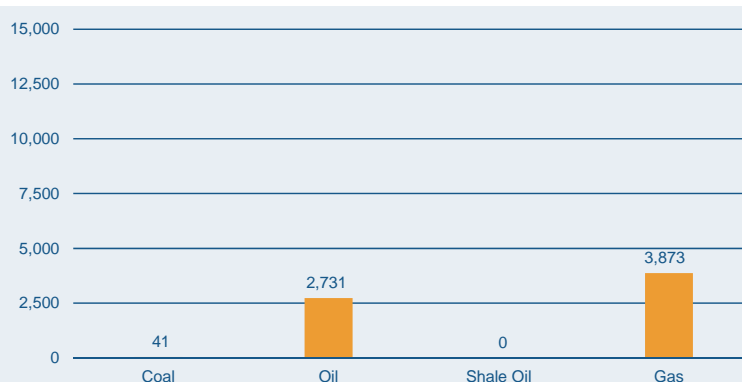
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	79	81	77	+
Energy security	56	65	75	-
Social equity	62	55	60	-
Environmental impact mitigation	82	84	70	+
Contextual performance	69	84	73	+
Political strength	83	84	86	-
Societal strength	75	77	75	+
Economic strength	37	77	45	+
Overall rank	79	84	78	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	56.5	GDP per capita (PPP, USD); GDP Group	7,112 (C)
TPEP / TPEC (net energy exporter)	3.84	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.15	CO ₂ emissions (metric tons) per capita	3.24
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.3

INDEX COMMENTARY

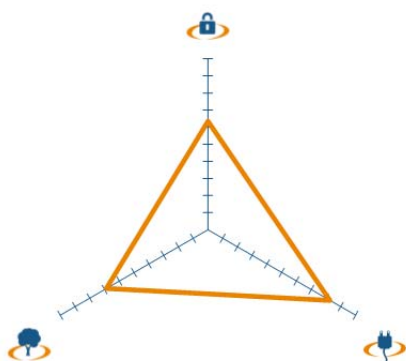
Algeria rises six places in the Index to rank 78. A drop in energy security is driven by a decrease of the weak wholesale margin on gasoline. Algeria struggles with diversity of electricity production and the 5-year energy consumption trend, while it performs very well in the ratio of production to total energy supply, and has relatively well diversified energy exports. Social equity drops slightly due to a small deterioration in providing high quality, affordable electricity access. Environmental performance improves; however CO₂ emissions from electricity and heat generation remain at a very high level and the quality of air and water is mediocre. Thus, Algeria still underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. Performance in political and societal stability remains weak, while economic strength shows progress driven by a further improvement of macroeconomic stability.

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

¹ Data for shale gas resources not available

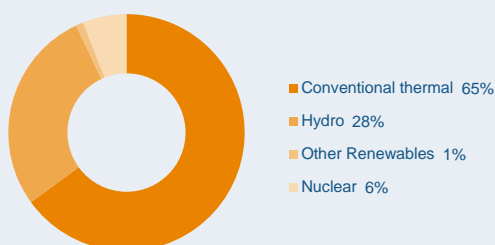
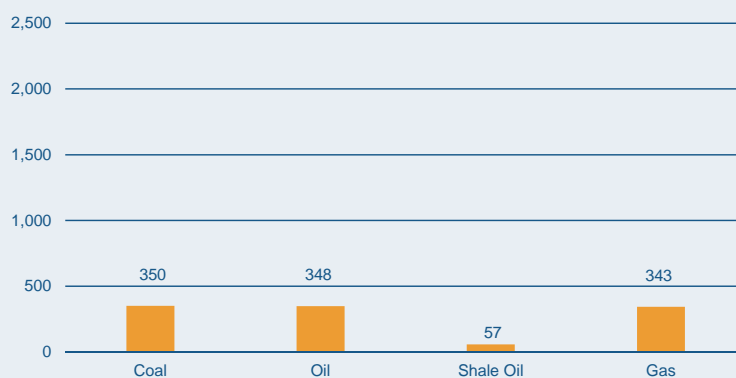
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	15	8	22	-
Energy security	22	12	35	-
Social equity	19	20	17	+
Environmental impact mitigation	27	27	30	-
Contextual performance	64	64	63	+
Political strength	69	74	66	+
Societal strength	54	54	53	+
Economic strength	58	54	60	-
Overall rank	24	19	28	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	30.7	GDP per capita (PPP, USD); GDP Group	15,901 (B)
TPEP / TPEC (net energy exporter ²)	1.06	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.43	CO ₂ emissions (metric tons) per capita	4.24
Energy affordability (USD per kWh)	0.02	Population with access to electricity (%)	97.2

INDEX COMMENTARY

Argentina overall drops by nine places to rank 28. This was triggered by a weaker energy security score driven by a substantial decrease of the wholesale margin on gasoline and a slightly weaker ratio of total primary energy production to consumption. Better performance in social equity is driven by small improvements across all indicators. Argentina experiences a small drop in environmental impact mitigation, despite reductions in energy intensity per capita. Overall, Argentina struggles most with its contextual dimensions. The 75/25 Index weighting regime however means that rather low contextual scores, both absolute and relative, have limited impact if the energy performance dimensions are stronger compared to peer countries.

TRENDS AND OUTLOOK

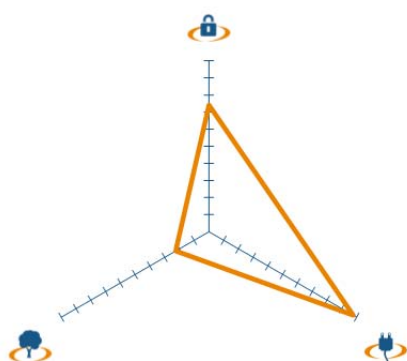
- Argentina, although positioned relatively high in the Index, still faces major challenges and is expected to further drop in the rankings.
- With the current energy policy of low prices for producers and high subsidies to consumers continues, there is little chance to revert the decline production. 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 USD6 billion, turned to be a net energy importer in 2011 with a deficit of USD3 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 Data for shale gas resources not available

² Indicator is based on 2009 data; as of 2011 Argentina is a net importer

AUSTRALIA

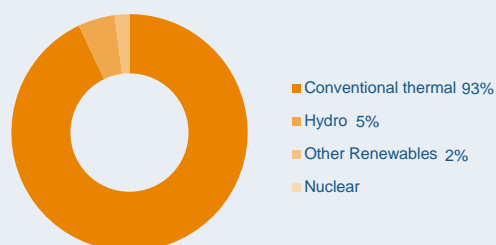
ENERGY SUSTAINABILITY BALANCE



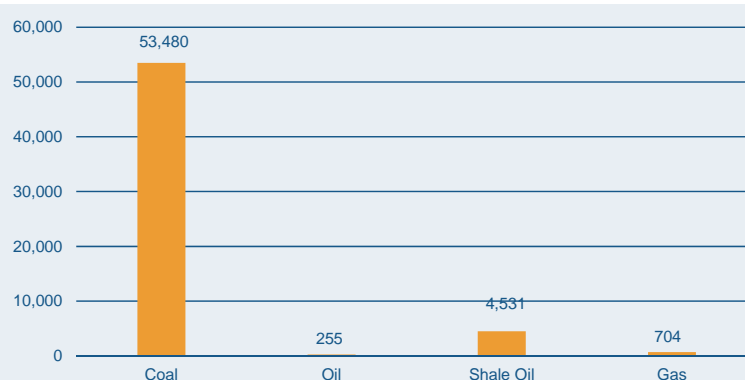
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	29	34	29	+
Energy security	36	42	25	+
Social equity	3	3	3	
Environmental impact mitigation	66	72	73	-
Contextual performance	5	9	9	
Political strength	7	12	12	
Societal strength	8	10	8	+
Economic strength	15	15	15	
Overall rank	20	24	20	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

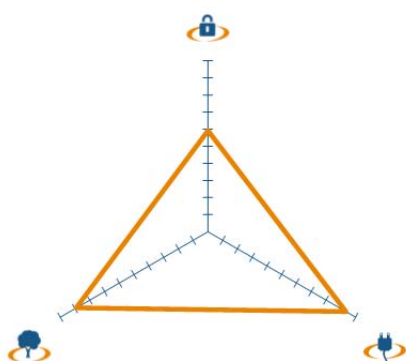
Industrial sector (% of total GDP)	24.6	GDP per capita (PPP, USD); GDP Group	39,090 (A)
TPEP / TPEC (net energy exporter)	2.19	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.35	CO ₂ emissions (metric tons) per capita	18.61
Energy affordability (USD per kWh)	0.10	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Australia moves up four places in the Index. Most significant improvements were achieved in energy security driven by an increased wholesale margin on gasoline and a reduction in the energy consumption growth rate. Highly reliant on fossil fuels, Australia's weakest performance is environmental impact mitigation (rank 73). As Australia improves slower than peer countries, a small drop is noted from last year despite small improvements across all indicators: better quality of air and water, a decrease in energy and emission intensity on a per capita basis and from electricity and heat generation. Australia keeps up a strong and stable performance in social equity (rank three) and in all contextual dimensions. Economic strength ranks a little lower than political and societal strength due to higher costs of living.

TRENDS AND OUTLOOK

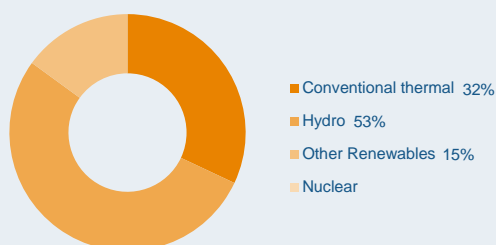
ENERGY SUSTAINABILITY BALANCE



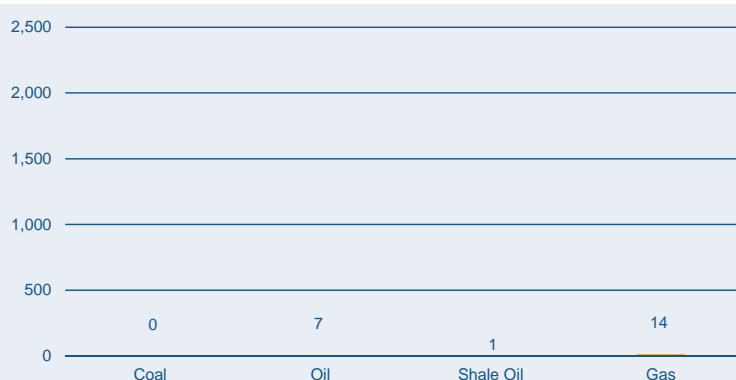
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	10	11	11	
Energy security	30	37	39	-
Social equity	9	7	7	
Environmental impact mitigation	18	18	11	+
Contextual performance	13	10	11	-
Political strength	11	9	7	+
Societal strength	11	11	15	-
Economic strength	27	22	22	
Overall rank	10	9	10	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	29.4	GDP per capita (PPP, USD); GDP Group	39,849 (A)
TPEP / TPEC (net energy importer)	0.39	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.62	CO ₂ emissions (metric tons) per capita	8.25
Energy affordability (USD per kWh)	0.26	Population with access to electricity (%)	100.0

INDEX COMMENTARY

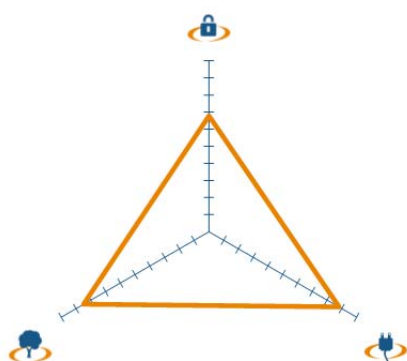
Austria exhibits little change in the vast majority of indicators, experiencing a drop of one place to rank ten in the Index. The weakest dimension remains energy security with a relatively low ratio of production to total energy supply, a low wholesale margin on gasoline and low oil reserve stocks when compared to other countries. Higher environmental scores are driven by a continued decline in CO₂ emissions from electricity and heat generation and maintenance of its good air and water quality compared to peer countries. Austria also tracked a slight drop in societal strength due to small declines in control of corruption and health.

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, with Austria more than doubling 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, to strengthen economic growth, to support sustainable goods and services, and to optimise the transport system.
- Key issues policymakers should continue developing measures to 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.

BELGIUM

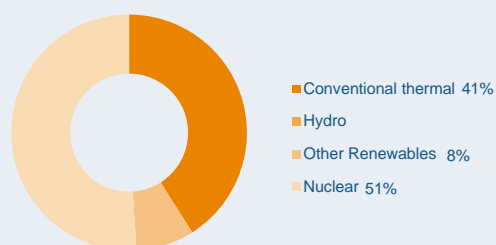
ENERGY SUSTAINABILITY BALANCE



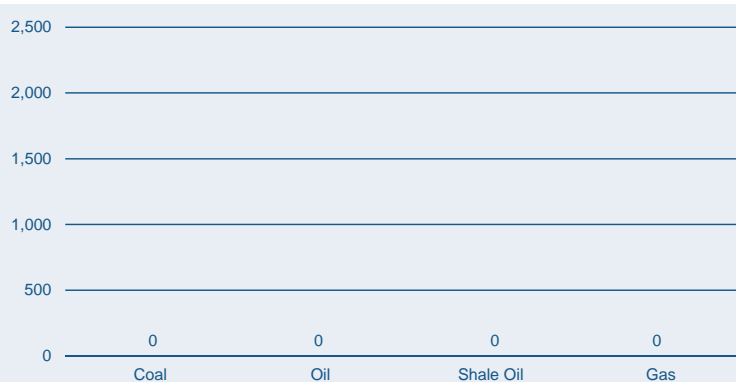
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	13	24	12	+
Energy security	25	61	31	+
Social equity	11	9	12	-
Environmental impact mitigation	26	24	15	+
Contextual performance	19	23	19	+
Political strength	19	17	16	+
Societal strength	15	15	14	+
Economic strength	32	41	38	+
Overall rank	12	18	13	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



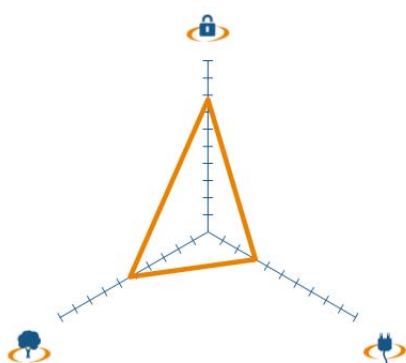
KEY METRICS

Industrial sector (% of total GDP)	21.7	GDP per capita (PPP, USD); GDP Group	36,636 (A)
TPEP / TPEC (net energy importer)	0.20	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.32	CO ₂ emissions (metric tons) per capita	12.67
Energy affordability (USD per kWh)	0.23	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Good upwards movement to rank 13 was driven by Belgium's energy performance. Substantial improvements in energy security were driven by an increased wholesale margin on gasoline and a decrease in energy consumption, reversing last year's positive growth rate. Belgium's environmental performance also increases driven by reduced emissions from electricity and heat generation and a better air and water quality. However, these positive tendencies are partly offset by a small drop in social equity driven by a deterioration in providing high quality and affordable electricity. Contextual performance remains strong with small increases in all dimensions. Economic strength remains the weakest dimension (rank 38).

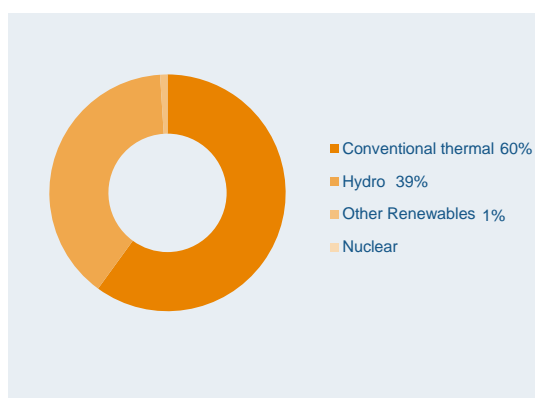
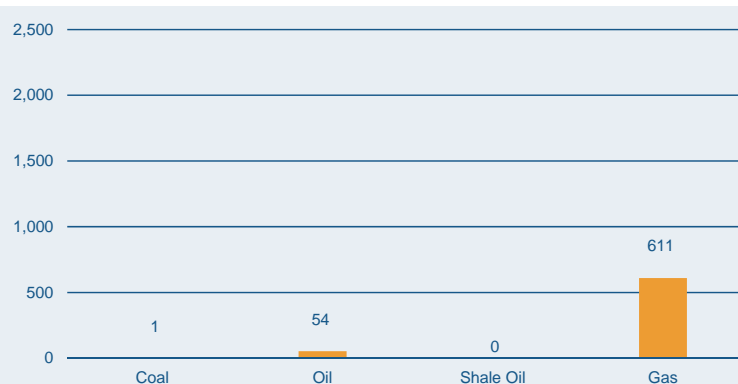
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	-	-	40	
Energy security	-	-	22	
Social equity	-	-	64	
Environmental impact mitigation	-	-	45	
Contextual performance	-	-	69	
Political strength	-	-	79	
Societal strength	-	-	81	
Economic strength	-	-	36	
Overall rank	-	-	45	

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	40.0	GDP per capita (PPP, USD); GDP Group	4,549 (D)
TPEP / TPEC (net energy exporter)	2.25	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.84	CO ₂ emissions (metric tons) per capita	1.72
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	77.5

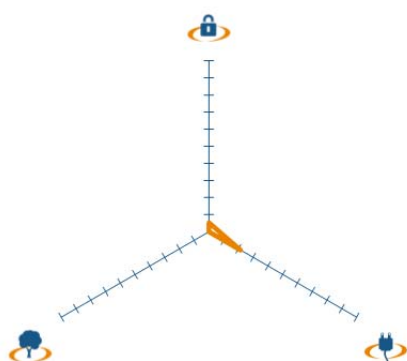
INDEX COMMENTARY

Bolivia enters the Index this year for the first time and performs well in energy security with a strong ratio of production to total energy supply, good diversification of electricity production and a high wholesale margin on gasoline. However the positive 5-year energy consumption growth rate is a weak indicator for energy security; even though it is necessary for Bolivia's social and economic development. As only 78% of the population has access to electricity and due to high gasoline prices, Bolivia performs poorly in social equity. Environmental impact mitigation achieves medium scores across all indicators. Bolivia struggles with political and societal strength, particularly with regulatory quality and rule of law. Economic strength is better due to good macroeconomic stability.

¹ Data for shale gas resources not available

BOTSWANA¹

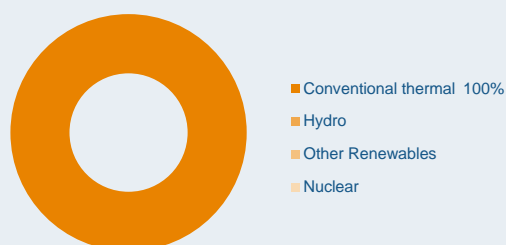
ENERGY SUSTAINABILITY BALANCE



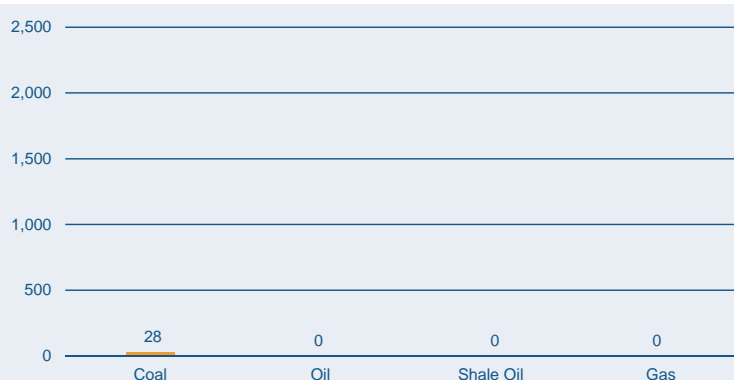
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	89	91	92	-
Energy security	90	87	89	-
Social equity	71	73	74	-
Environmental impact mitigation	89	91	94	-
Contextual performance	43	49	50	-
Political strength	31	33	35	-
Societal strength	53	52	51	+
Economic strength	48	56	64	-
Overall rank	86	87	91	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

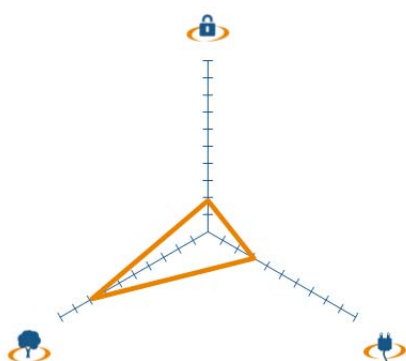
Industrial sector (% of total GDP)	45.0	GDP per capita (PPP, USD); GDP Group	15,180 (B)
TPEP / TPEC (net energy importer)	0.32	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.66	CO ₂ emissions (metric tons) per capita	5.44
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	45.4

INDEX COMMENTARY

Botswana drops by four places in the Index driven by deterioration across all dimensions measuring the energy performance. Energy security mostly struggles with a low diversity of electricity production and a low wholesale margin on gasoline. Only 45% of the population has access to electricity, which leads to weak social equity scores. Environmental performance is very weak due to very high CO₂ emissions from electricity and heat generation and a low quality of air and water. Performance further deteriorated during the last year. Botswana underperforms significantly in mitigating its environmental impact compared to countries with similar levels of energy intensity per capita and Botswana ranks last in this dimension (rank 94). Political strength is supported by a good political stability, and still relatively good but decreasing regulatory quality and effectiveness of government.

¹ As noted by the WEC member committee in Botswana available data from national sources might differ from data used to calculate the Energy Sustainability Index, e.g., access to electricity is reported to be nearly 63%

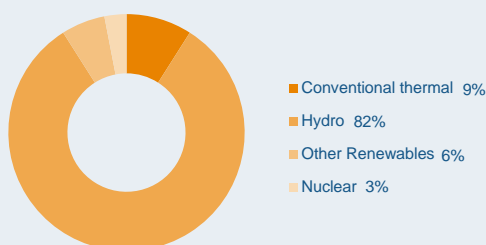
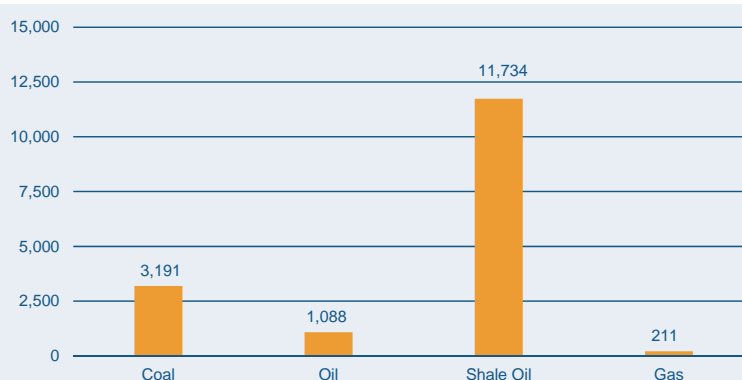
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	56	44	54	-
Energy security	79	62	77	-
Social equity	64	65	65	
Environmental impact mitigation	17	16	21	-
Contextual performance	53	52	48	+
Political strength	51	50	49	+
Societal strength	48	49	46	+
Economic strength	60	52	50	+
Overall rank	56	45	53	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	27.5	GDP per capita (PPP, USD); GDP Group	11,314 (C)
TPEP / TPEC (net energy importer)	0.87	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.74	CO ₂ emissions (metric tons) per capita	2.21
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	98.3

INDEX COMMENTARY

Brazil's decrease by eight places to rank 53 in the Index is driven by a weaker performance in energy security and environmental impact mitigation. Energy security drops due to a decrease of the wholesale margin on gasoline, which makes energy security Brazil's weakest dimension (rank 77). Generally, Brazil exhibits especially weak oil reserve stocks, a weak wholesale margin on gasoline and sustained energy consumption growth. Not reliant on fossil fuels Brazil has a strong environmental performance (rank 21) and outperforms other countries with similar energy intensity in mitigating the environmental footprint. Brazil exhibits slight improvements in all contextual dimensions. Economic strength, Brazil's weakest contextual dimension increases slightly due to improved macroeconomic stability.

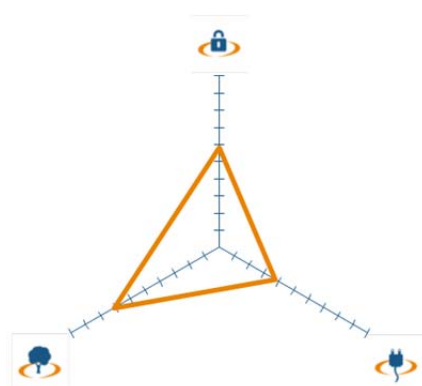
TRENDS AND OUTLOOK

- The country's most 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"); 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 the country's energy security positively 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 programs, involving thousands of processes and appliances and millions of consumers on which the success of such measures depend, should advance more quickly.

¹ Data for shale gas resources not available

BULGARIA

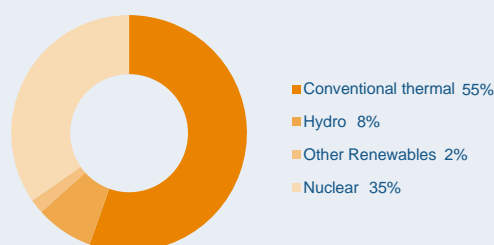
ENERGY SUSTAINABILITY BALANCE



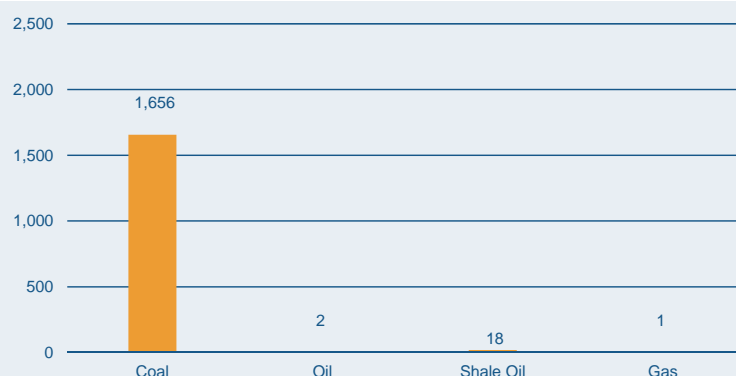
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	49	40	36	+
Energy security	53	25	40	-
Social equity	63	60	59	+
Environmental impact mitigation	37	43	28	+
Contextual performance	52	45	48	-
Political strength	44	40	42	-
Societal strength	46	46	47	-
Economic strength	63	49	56	-
Overall rank	51	40	38	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	30.6	GDP per capita (PPP, USD); GDP Group	12,965 (C)
TPEP / TPEC (net energy importer)	0.52	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	3.07	CO ₂ emissions (metric tons) per capita	5.92
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

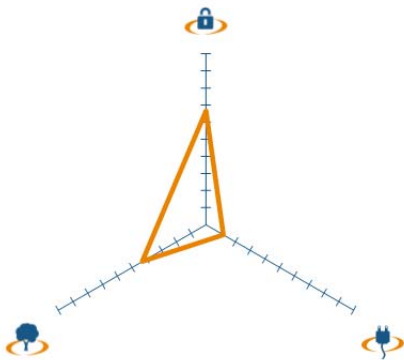
INDEX COMMENTARY

Bulgaria improves its position in the Index by two spots to rank 38. This positive development is mostly due to a stronger environmental performance driven by improvements across almost all indicators; despite an absolute decrease in quality of air and water Bulgaria still performs better than its peer countries in this indicator. Energy security overall deteriorates due to a decrease in the wholesale margin on gasoline, which could not be offset by a decrease in the countries energy consumption growth. Performance in all contextual dimensions deteriorates. Economic strength decreases mostly due to less credit availability and slower improvements in macroeconomic stability compared to peer countries.

TRENDS AND OUTLOOK

- In July 2012 the Bulgarian Parliament amended the existing Energy Act, now guaranteeing equal access to electricity and gas grids, strengthening the power of national energy regulators and improving market transparency, promoting trans-border trade and enhancing end-user rights. The new legal framework is expected to improve the sustainable use of renewable energy sources, market liberalisation and social 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.

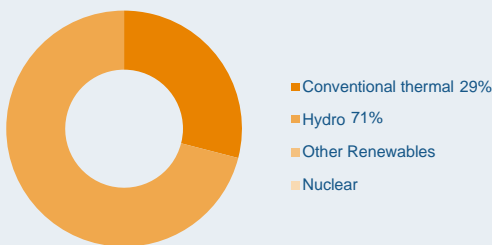
ENERGY SUSTAINABILITY BALANCE



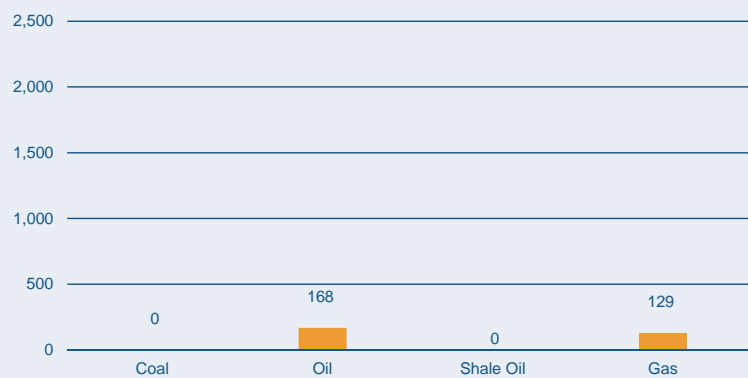
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	61	55	57	-
Energy security	9	17	32	-
Social equity	83	81	83	-
Environmental impact mitigation	78	62	54	+
Contextual performance	79	78	83	-
Political strength	80	80	82	-
Societal strength	88	89	88	+
Economic strength	46	48	63	-
Overall rank	66	65	65	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

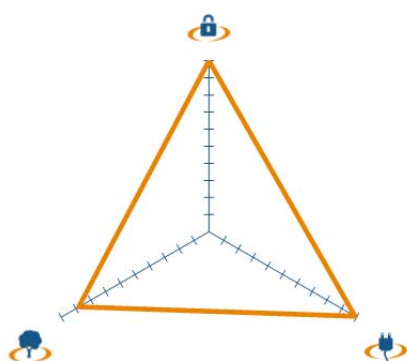
Industrial sector (% of total GDP)	31.0	GDP per capita (PPP, USD); GDP Group	2,176 (D)
TPEP / TPEC (net energy exporter)	2.14	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	1.08	CO ₂ emissions (metric tons) per capita	0.75
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	48.7

INDEX COMMENTARY

Cameroon maintains its position on rank 65 in the Index. It experiences decreases across most dimensions except societal strength and environmental impact mitigation. A drop in energy security is driven by a decrease in the wholesale margin on gasoline. A good ratio of production to total energy supply supports the performance in this dimension, while the country faces continued growths in energy consumption which is necessary for its economic and social development. Only 49% of the population has access to electricity. Cameroon therefore scores very poorly in social equity and a further increase in gasoline prices led to a small further decrease in social equity. Environmental performance slightly improves due to lower CO₂ emissions from electricity and heat generation and a slightly better quality of air and water relative to peer countries. Overall Cameroon still underperforms in mitigating its environmental footprint compared to peer countries. Performance in political and societal strength remains relatively constant but with a small downward trend and weak performance across all indicators. The economic situation decreases substantially due to a decrease in macroeconomic stability.

CANADA

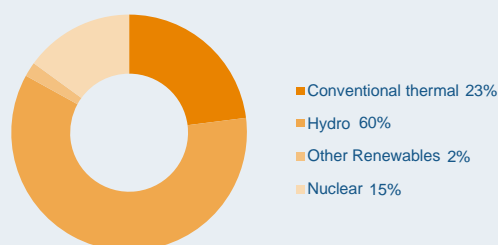
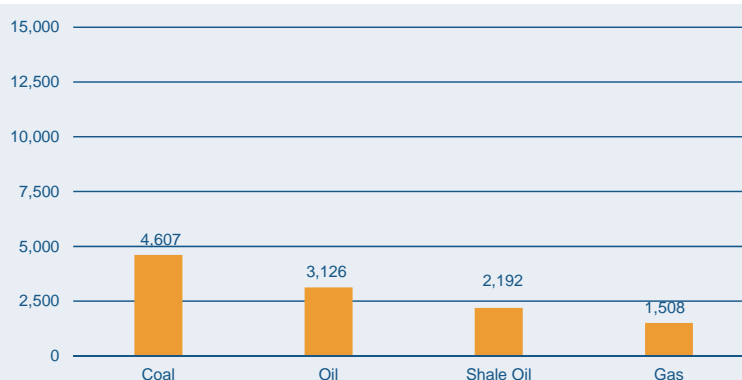
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	1	1	1	
Energy security	1	1	1	
Social equity	2	2	2	
Environmental impact mitigation	13	12	12	
Contextual performance	12	11	14	-
Political strength	12	8	10	-
Societal strength	9	7	10	-
Economic strength	24	33	40	-
Overall rank	2	1	3	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	27.1	GDP per capita (PPP, USD); GDP Group	39,154 (A)
TPEP / TPEC (net energy exporter)	1.40	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	1.72	CO ₂ emissions (metric tons) per capita	15.88
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	100.0

INDEX COMMENTARY

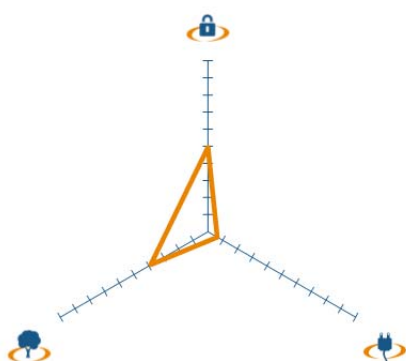
Canada overall maintains its position in the top three balancing the energy trilemma very well. Canada's scores are very strong across all indicators that drive energy security and social equity. Good environmental performance is achieved despite high levels of energy and emissions intensity per GDP per capita, as Canada exhibits a lower environmental footprint than its peers. Canada experiences slight drops in political, societal and economic performance. Contextual performance overall remains 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 future trends/issues that policymakers must 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.

¹ Data for shale gas resources not available

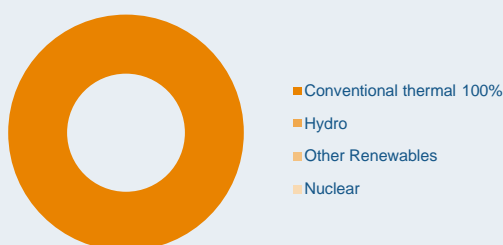
ENERGY SUSTAINABILITY BALANCE



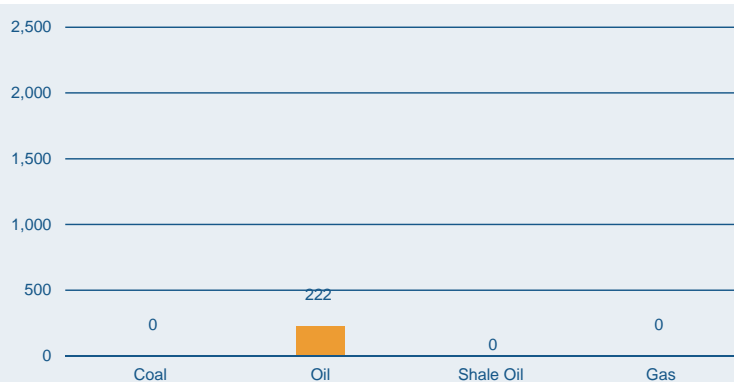
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	-	-	70	
Energy security	-	-	48	
Social equity	-	-	88	
Environmental impact mitigation	-	-	58	
Contextual performance	-	-	91	
Political strength	-	-	93	
Societal strength	-	-	93	
Economic strength	-	-	80	
Overall rank	-	-	86	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

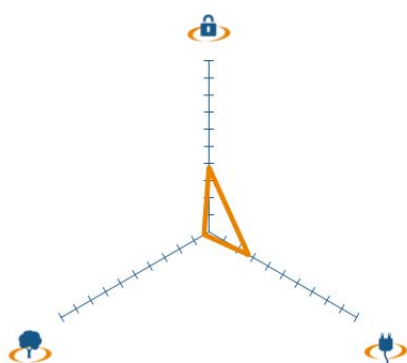
Industrial sector (% of total GDP)	6.7	GDP per capita (PPP, USD); GDP Group	1,842 (D)
TPEP / TPEC (net energy exporter)	61.92	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.48	CO ₂ emissions (metric tons) per capita	0.03
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	n.a.

INDEX COMMENTARY

Chad's energy security performance is supported by a very high ratio of production to total energy supply and a good wholesale margin on gasoline; however low performing indicators are low diversity of electricity production and the positive 5-year energy consumption growth trend. The latter is however necessary for Chad's economic and social development as electricity access is still incomplete, leading to Chad's poor ranking in social equity (rank 88). Performance in environmental impact mitigation is driven by very low energy and emission intensity per capita, but a low quality of air and water. Chad slightly underperforms in mitigating its environmental impact when compared to other countries with similar level of energy intensity per capita. Contextual performance is overall rather weak. Economic strength is slightly better due to low costs of living as proportion of household consumption expenditure.

CHINA

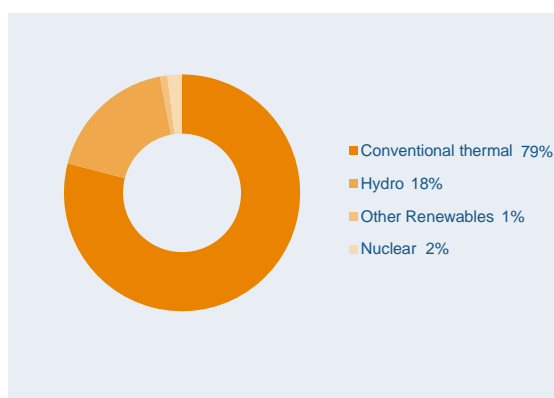
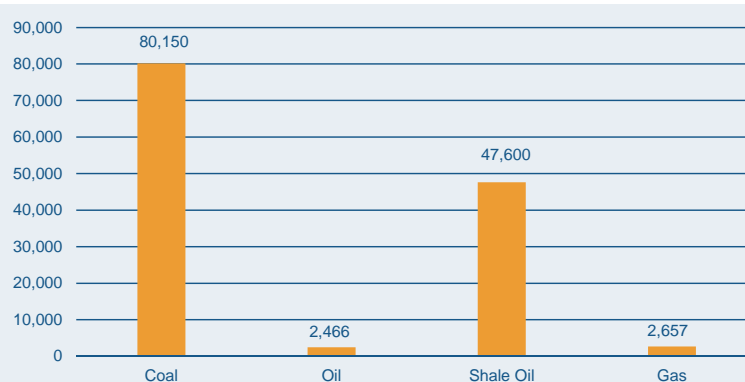
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	84	82	84	-
Energy security	71	45	59	-
Social equity	72	72	69	+
Environmental impact mitigation	80	87	91	-
Contextual performance	40	39	40	-
Political strength	57	59	60	-
Societal strength	59	59	57	+
Economic strength	7	5	8	-
Overall rank	78	71	71	

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

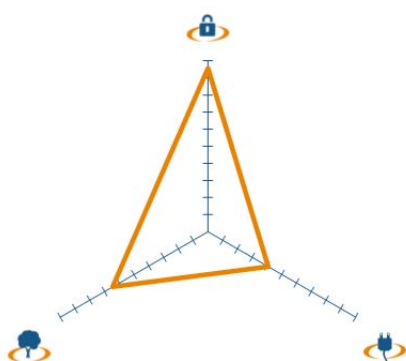
Industrial sector (% of total GDP)	46.8	GDP per capita (PPP, USD); GDP Group	7,551 (C)
TPEP / TPEC (net energy importer)	0.91	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.78	CO ₂ emissions (metric tons) per capita	5.78
Energy affordability (USD per kWh)	0.05	Population with access to electricity (%)	99.4

INDEX COMMENTARY

China maintains its position in the Index on rank 71. Energy security decreases due to a lower wholesale margin on gasoline and a slower reduction in energy consumption growth when compared to other countries due to China's continuing development and high economic growth; these trends are only partly offset by higher diversity of electricity production. China most struggles with environmental impact mitigation (rank 91) due to a very weak performance across all indicators, particularly in the quality of air and water. Improvements can also be seen in social equity driven by an increase in the quality and affordability of electricity supply. China experiences small drops in all three contextual dimensions, but remains in a strong economic position (rank 8).

¹ Data for shale gas resources not available

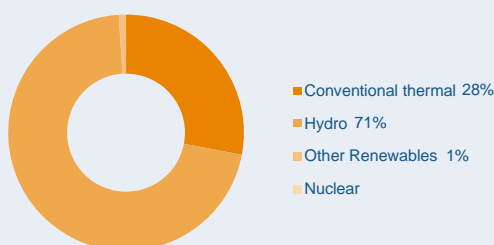
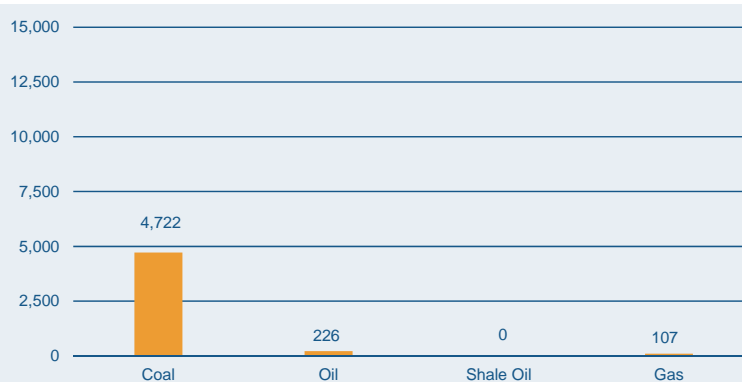
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	32	26	24	+
Energy security	18	6	5	+
Social equity	61	59	56	+
Environmental impact mitigation	33	33	34	-
Contextual performance	62	62	55	+
Political strength	59	64	59	+
Societal strength	55	57	54	+
Economic strength	65	58	51	+
Overall rank	37	32	33	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	37.6	GDP per capita (PPP, USD); GDP Group	9,585 (C)
TPEP / TPEC (net energy exporter)	3.13	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.64	CO ₂ emissions (metric tons) per capita	1.65
Energy affordability (USD per kWh)	0.11	Population with access to electricity (%)	93.6

INDEX COMMENTARY

Colombia experiences a decline in the Index by one place. This is mostly due to a slightly weaker environmental performance driven by an increase in CO₂ emission from electricity and heat generation as well as a slower decrease in emissions intensity per capita compared to peer countries. This could not be entirely offset by a better relative performance in the quality of air and water. Slight improvements were made in social equity (rank 56), but Colombia still struggles to provide full access to electricity for its entire population (7% without access). Performance in energy security remained very strong with well diversified electricity production and exports as well as a strong, increasing wholesale margin on gasoline. Colombia also achieved slight improvements in all contextual dimensions.

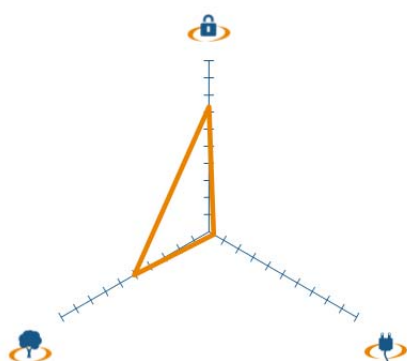
TRENDS AND OUTLOOK

- 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 CO₂ 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) the promotion of energy efficiency on energy demand and supply side, and consolidate 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 applied to 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, protection of water sources, promoting the use of renewable energy, sustainable city development, protection of the oceans, and increasing employment to reduce poverty.

¹ Data for shale gas resources not available

CONGO (DEMOCRATIC REPUBLIC)

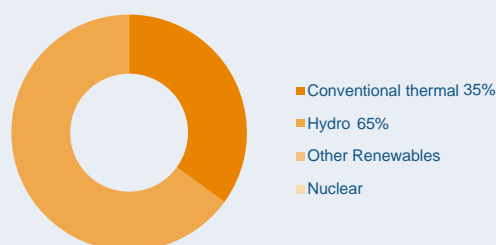
ENERGY SUSTAINABILITY BALANCE



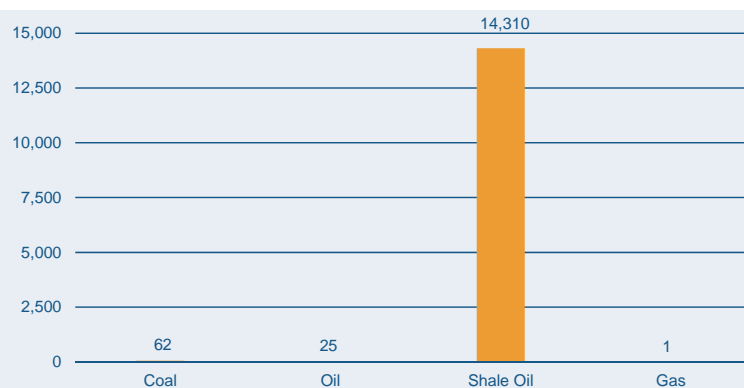
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	74	64	55	+
Energy security	51	30	26	+
Social equity	88	89	91	-
Environmental impact mitigation	52	51	47	+
Contextual performance	91	92	94	-
Political strength	91	92	94	-
Societal strength	91	92	94	-
Economic strength	85	81	88	-
Overall rank	83	77	69	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



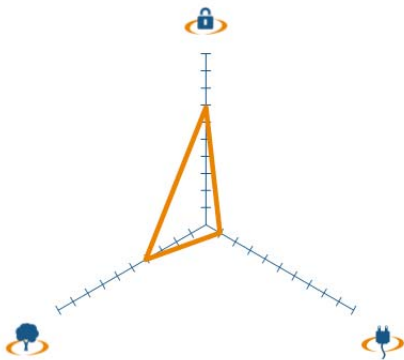
KEY METRICS

Industrial sector (% of total GDP)	70.7	GDP per capita (PPP, USD); GDP Group	328 (D)
TPEP / TPEC (net energy exporter)	1.18	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.32	CO ₂ emissions (metric tons) per capita	0.13
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	30.0

INDEX COMMENTARY

The Congo (Democratic Republic) improves by eight places in the Index to rank 69. Environmental performance slightly increases due to the maintaining of low CO₂ emissions in electricity and heat generation relative to peer countries. The weak performance in social equity further deteriorates (rank 91) with changes for the worse across all indicators and still only 30% of the population having access to electricity. A rise in energy security is driven by more diversified electricity production which outweighs the decrease in the wholesale margin on gasoline. The positive energy consumption growth, necessary for the economic and social development of the Congo (Democratic Republic), presents a challenge for the energy security dimension. The country scores very poorly across all indicators in the contextual dimensions. It now occupies the last rank in the political and social dimension and ranks only slightly better in economic strength (rank 88).

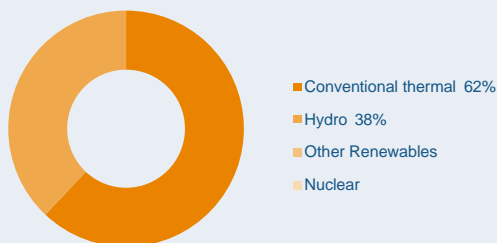
ENERGY SUSTAINABILITY BALANCE



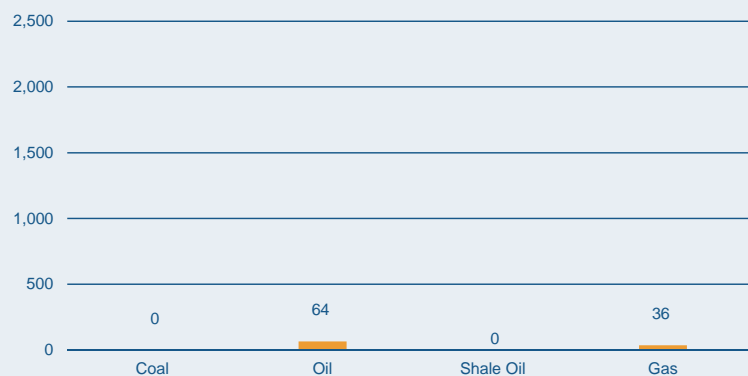
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	70	60	59	+
Energy security	42	3	30	-
Social equity	77	85	85	
Environmental impact mitigation	65	77	56	+
Contextual performance	89	87	89	-
Political strength	90	90	90	
Societal strength	90	91	90	+
Economic strength	78	78	83	-
Overall rank	81	74	70	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

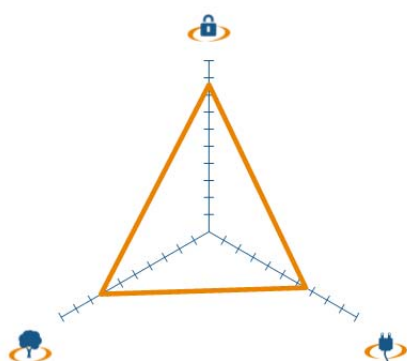
Industrial sector (% of total GDP)	21.0	GDP per capita (PPP, USD); GDP Group	1,683 (D)
TPEP / TPEC (net energy exporter)	1.55	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.36	CO ₂ emissions (metric tons) per capita	0.64
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	47.3

INDEX COMMENTARY

The Côte d'Ivoire increases by four places in the Index to rank 70. Energy security performance overall is good due a very strong ratio of production to total energy supply and well diversified energy exports. The recent drop in this dimension is driven by a decrease of the wholesale margin on gasoline, less diversified electricity production and a further increase in the positive 5-year energy consumption growth rate. The consumption increase is however necessary for the country's economic and social development and to increase the weak performance in social equity (rank 85) with only 47% of the population having access to electricity. An increase in environmental performance was driven by less CO₂ emissions from electricity and heat generation and improvements in the air and water quality when compared to peer countries. Performance across all indicators measuring political and societal strength is very weak and showed little improvement over the last year. Economic performance is slightly better due to a relatively low cost of living as proportion of household consumption expenditure, but credit availability and macroeconomic stability remain low.

CROATIA

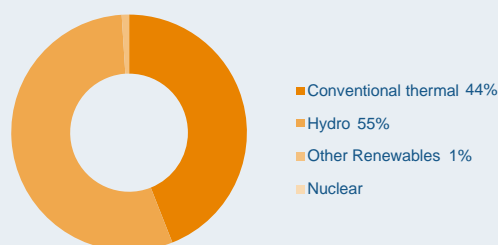
ENERGY SUSTAINABILITY BALANCE



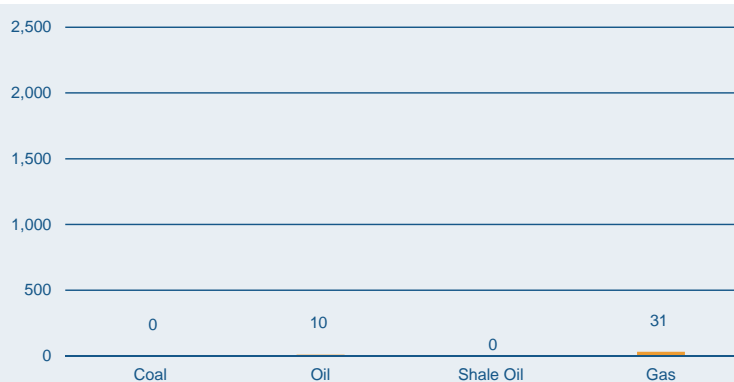
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	40	13	17	-
Energy security	76	11	14	-
Social equity	29	32	33	-
Environmental impact mitigation	25	26	26	
Contextual performance	48	50	54	-
Political strength	39	39	39	
Societal strength	43	41	40	+
Economic strength	61	66	77	-
Overall rank	40	17	24	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



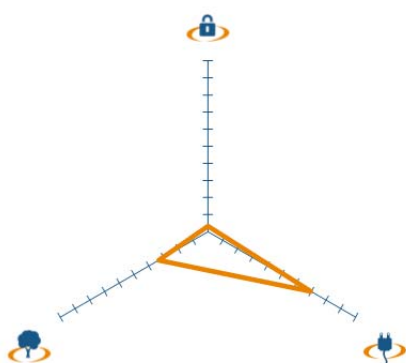
KEY METRICS

Industrial sector (% of total GDP)	25.5	GDP per capita (PPP, USD); GDP Group	17,819 (B)
TPEP / TPEC (net energy importer)	0.45	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.30	CO ₂ emissions (metric tons) per capita	4.88
Energy affordability (USD per kWh)	0.10	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Croatia overall drops seven places in the Index to rank 24. Slight deteriorations can be observed in all energy dimensions. Decreases in energy consumption are slower than in peer countries, leading to a drop in energy security, which is partly offset by stronger oil reserve stocks. Environmental impact mitigation remains constant as higher energy and emissions intensity per GDP per capita and a lower quality of air and water are offset by reductions in emissions from electricity and heat generation. Croatia's weak economic situation further deteriorates by eleven places (rank 77) due to less macroeconomic stability. Performance in social equity, political and societal strength remains relatively constant.

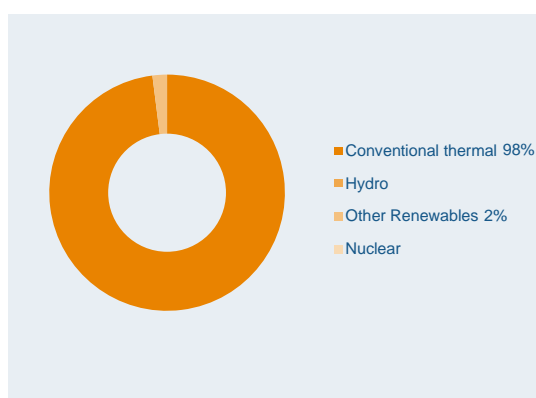
ENERGY SUSTAINABILITY BALANCE



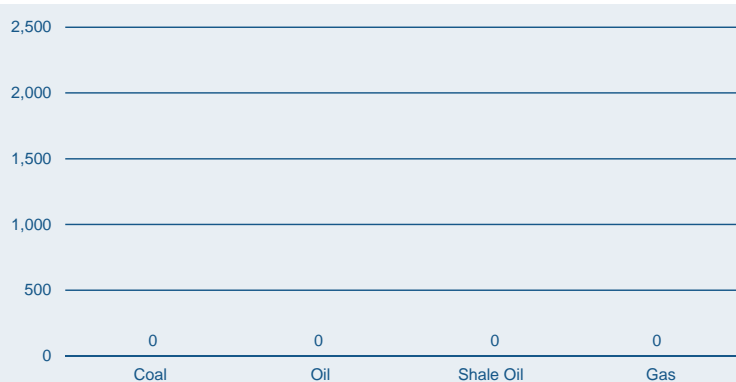
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	62	67	64	+
Energy security	89	90	91	-
Social equity	28	28	29	-
Environmental impact mitigation	54	59	63	-
Contextual performance	27	25	23	+
Political strength	26	26	23	+
Societal strength	21	23	25	-
Economic strength	41	28	28	
Overall rank	48	51	49	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

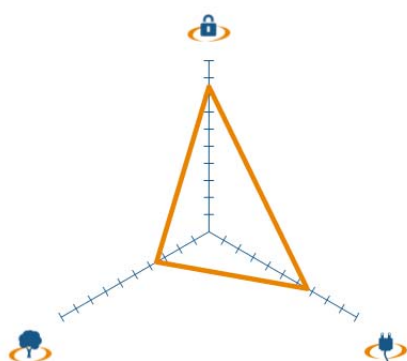
Industrial sector (% of total GDP)	16.5	GDP per capita (PPP, USD); GDP Group	28,782 (B)
TPEP / TPEC (net energy importer)	0.00	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.20	CO ₂ emissions (metric tons) per capita	11.73
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Cyprus increases by two places in the Index. Energy security is overall very weak (rank 91) due to a weak ratio of production to total energy supply, low diversity of electricity production and a low wholesale margin on gasoline. A decrease of the latter caused the small drop in energy security during the last year. Environmental performance struggles with high emissions per capita and from electricity and heat generation as well as a poor quality of air and water. Performance in social equity and the contextual dimensions remains mostly constant. Political strength increases with improvements across all indicators. A better credit availability supports economic strength overall, however costs of living as proportion of total household consumption expenditure are fairly high and macroeconomic stability is low.

CZECH REPUBLIC

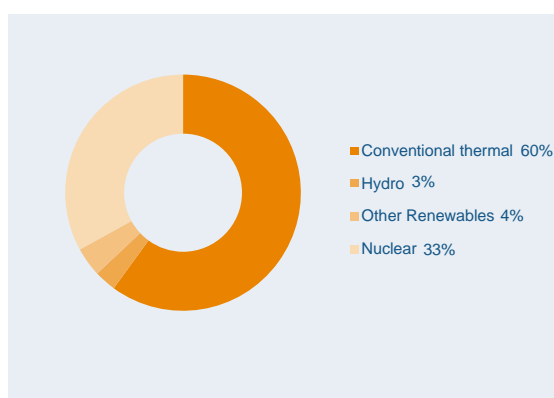
ENERGY SUSTAINABILITY BALANCE



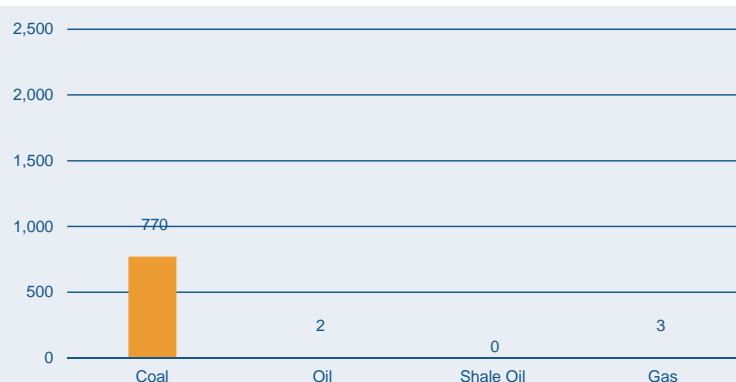
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	19	25	31	-
Energy security	14	38	15	+
Social equity	26	27	32	-
Environmental impact mitigation	46	32	61	-
Contextual performance	35	31	32	-
Political strength	24	18	18	
Societal strength	30	29	29	
Economic strength	64	60	59	+
Overall rank	22	26	29	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	38.1	GDP per capita (PPP, USD); GDP Group	26,122 (B)
TPEP / TPEC (net energy importer)	0.66	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.26	CO ₂ emissions (metric tons) per capita	9.07
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

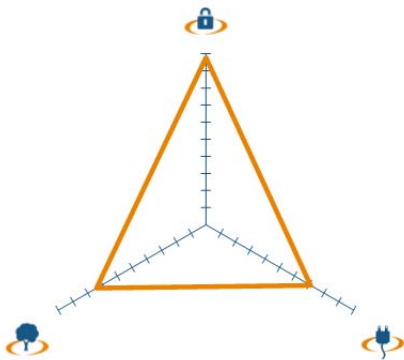
INDEX COMMENTARY

The Czech Republic drops by three places in the Index ranking with up and down movements in different dimensions. It shows close to no changes in its contextual dimensions, among which economic strength is weakest (rank 59). Substantial improvements in energy security are driven by an increase of the wholesale margin on gasoline and a decrease of energy consumption, reversing last year's positive growth rate. Environmental performance decreases substantially despite a decrease in energy intensity per capita, as the Czech Republic underperforms in mitigating its environmental footprint when compared to peer countries with a similar level of energy intensity.

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 by the end of 2012. The policy is based on the following pillars: 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; however, 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 stabilizing 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.

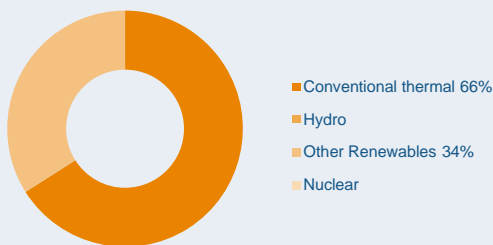
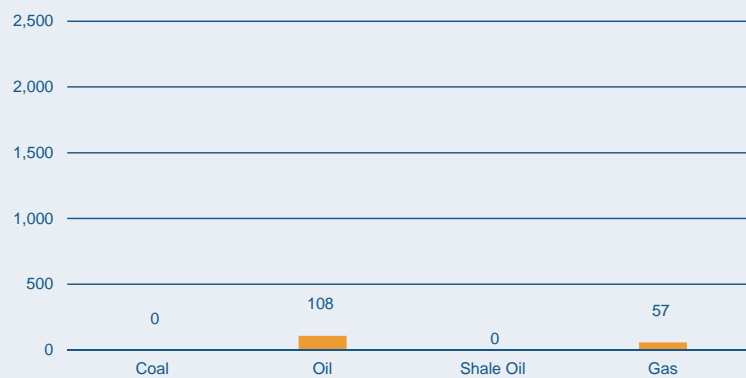
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	9	9	10	-
Energy security	3	5	3	+
Social equity	21	26	28	-
Environmental impact mitigation	29	28	25	+
Contextual performance	3	4	4	
Political strength	5	2	2	
Societal strength	6	5	6	-
Economic strength	14	16	18	-
Overall rank	8	8	7	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)²

KEY METRICS

Industrial sector (% of total GDP)	19.1	GDP per capita (PPP, USD); GDP Group	36,166 (A)
TPEP / TPEC (net energy exporter)	1.23	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.70	CO ₂ emissions (metric tons) per capita	8.95
Energy affordability (USD per kWh)	0.36	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Denmark increases one rank in the Index to rank seven. Environmental impact mitigation slightly improves due to a better quality of air and water when compared to peer countries and due to lower CO₂ emissions from electricity and heat generation. Social equity scores decrease slightly driven by higher gasoline prices. Energy security improves due to a better wholesale margin on gasoline, which is however partly offset by a sustained decrease in energy consumption but the reduction is slower than in peer countries. Denmark continues to exhibit strong contextual performance; however economic strength suffers slightly due to high cost of living and a drop in macroeconomic stability.

TRENDS AND OUTLOOK

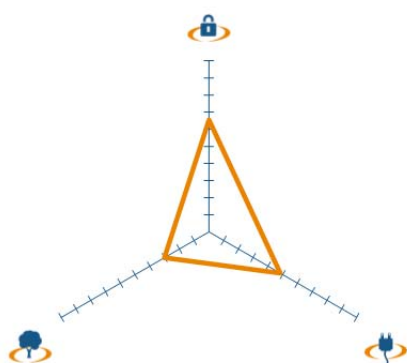
- In March 2012 a new Energy Agreement was reached in Denmark. The Agreement contains a wide range of ambitious initiatives, bringing Denmark closer to reaching the target of 100% renewable energy in the energy and transport sectors by 2050 by committing to large investments up to 2020 in energy efficiency, 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 CO₂ 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.

¹ As noted by the Danish WEC member committee available data from national sources might differ from data used to calculate the Energy Sustainability Index, e.g., CO₂ emissions.

² Data for shale gas resources not available

EGYPT (ARAB REPUBLIC)

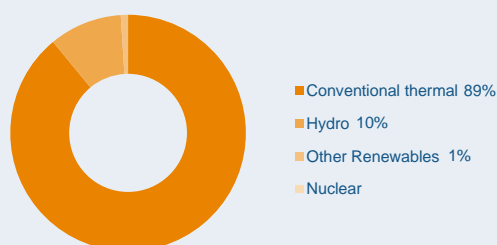
ENERGY SUSTAINABILITY BALANCE



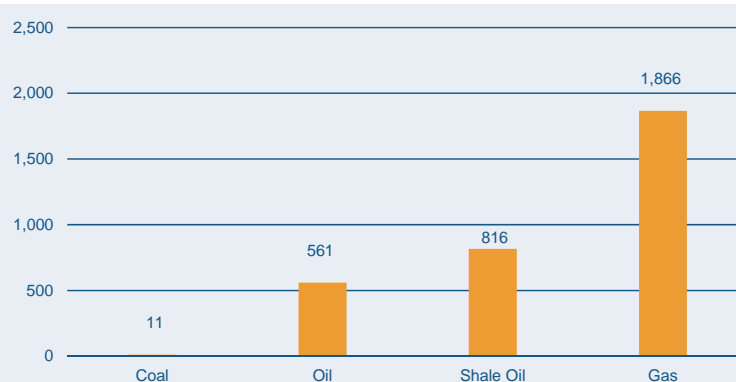
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	30	42	45	-
Energy security	33	14	33	-
Social equity	51	47	49	-
Environmental impact mitigation	22	74	66	+
Contextual performance	67	69	74	-
Political strength	71	67	71	-
Societal strength	67	63	66	-
Economic strength	54	67	71	-
Overall rank	36	50	55	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



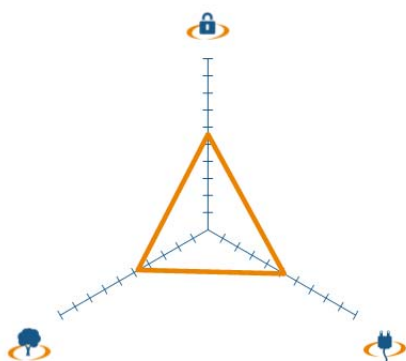
KEY METRICS

Industrial sector (% of total GDP)	37.6	GDP per capita (PPP, USD); GDP Group	6,417 (C)
TPEP / TPEC (net energy exporter)	1.15	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	2.32	CO ₂ emissions (metric tons) per capita	2.48
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.6







INDEX COMMENTARY

Egypt decreases in the Index ranking by five places due to a decrease in energy security and small drops in social equity as well as in political, societal and economic strength. Energy security performs well overall due to a good ratio of production to total energy supply, a strong wholesale margin on gasoline and good diversity of energy exports; however a lower level of diversity of the electricity production and continued increases in the consumption growth rate present challenges to energy security and led to the recent drop. Egypt's environmental performance increased as the quality of air and water improved relative to peer countries. Egypt still struggles with providing high quality and affordable electricity to its population and exhibits high gasoline prices, thus experiencing a small decline in social equity. Performance in contextual dimensions is weak across most indicators, for example, societal strength further deteriorates due to a decrease in control of corruption and rule of law.

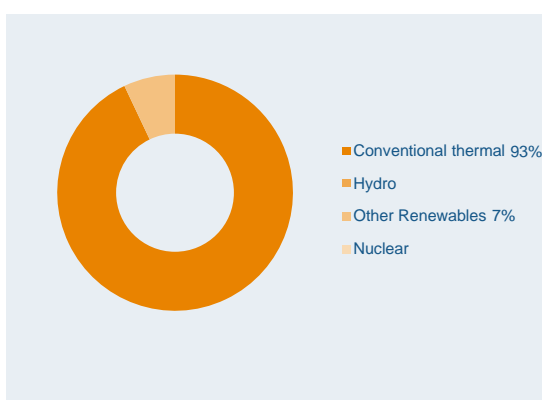
ENERGY SUSTAINABILITY BALANCE



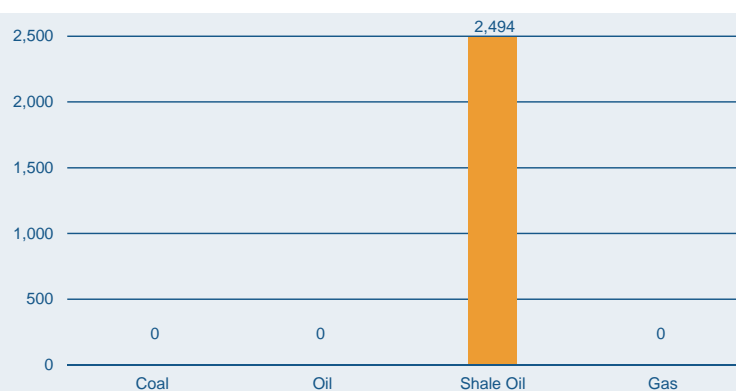
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	26	46	43	+
 Energy security	46	69	42	+
 Social equity	47	46	46	
 Environmental impact mitigation	5	29	50	-
Contextual performance	28	24	24	
 Political strength	23	21	22	-
 Societal strength	29	30	28	+
 Economic strength	38	26	27	-
Overall rank	23	38	35	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	28.5	GDP per capita (PPP, USD); GDP Group	18,539 (B)
TPEP / TPEC (net energy importer)	0.63	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	3.22	CO ₂ emissions (metric tons) per capita	13.05
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

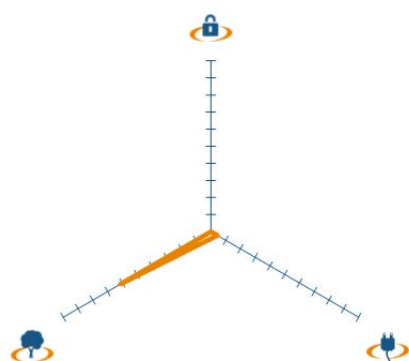
Estonia rises in the Index by three places to rank 35. This was mainly triggered by significant improvements in energy security driven by a decrease in energy consumption, as well as a more diversified electricity production and an increased wholesale margin on gasoline. Environmental impact mitigation decreases due to a significant drop in the quality of air and water, which is partly offset by small improvements in CO₂ emissions from electricity and heat generation. Estonia exhibits a constant performance in social equity and the contextual dimensions. Overall, Estonia performs better in all contextual dimensions; however, the 75/25 Index weighting regime means better contextual scores, both absolute and relative, have only limited impact while the country struggles with improving its energy performance.

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 impact mitigation, mainly due to CO₂ 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 will be completely abolished starting January 1, 2013 which is expected to lead a slight increase of electricity prices.
- 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 interconnections with neighbouring countries; and 3) the ability to satisfy most of its need for diesel fuel from refining shale oil. However, Estonian policymakers need to also focus on the other two aspects of the energy trilemma, environmental impact mitigation and social equity, while keeping energy security levels high.

ETHIOPIA

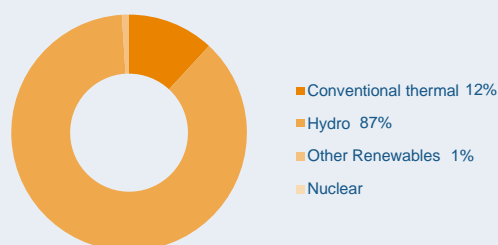
ENERGY SUSTAINABILITY BALANCE



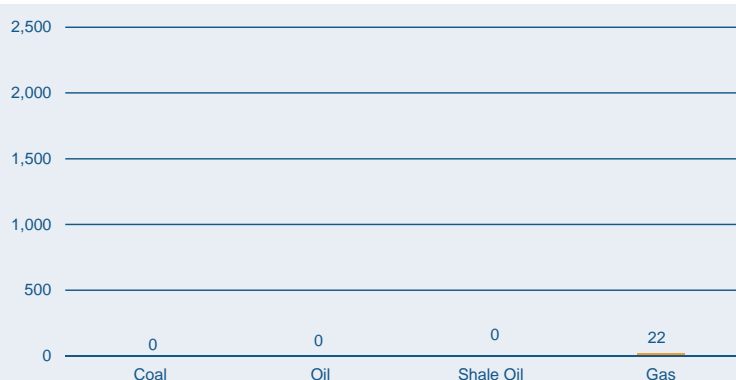
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	91	89	85	+
Energy security	87	89	94	-
Social equity	89	92	90	+
Environmental impact mitigation	85	66	37	+
Contextual performance	88	88	88	
Political strength	84	85	85	
Societal strength	80	85	86	-
Economic strength	87	90	79	+
Overall rank	91	92	89	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



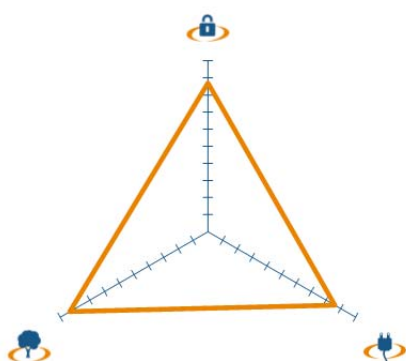
KEY METRICS

Industrial sector (% of total GDP)	13.0	GDP per capita (PPP, USD); GDP Group	1,019 (D)
TPEP / TPEC (net energy importer)	0.27	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.69	CO ₂ emissions (metric tons) per capita	0.48
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	17.0

INDEX COMMENTARY

Ethiopia increases its position in the Index by three places to rank 89 due to improvements in environmental impact mitigation and economic strength. Environmental performance, Ethiopia's strongest performance, further increases due to a better quality of air and water and lower CO₂ emissions from electricity and heat generation; however this is partly offset by higher energy and emissions intensity per GDP per capita. Low performance in social equity remains (rank 90) as only 17% of the population has access to electricity. Ethiopia now ranks last in energy security with a poor performance across all indicators. The recent downward trend was driven by a decrease in the wholesale margin on gasoline and by the increased, positive energy consumption growth rate, which is however necessary for Ethiopia's economic and social development. Poor performance across all indicators drives the rankings in the three contextual dimensions; however economic strength was improved by eleven positions due to stronger macroeconomic stability.

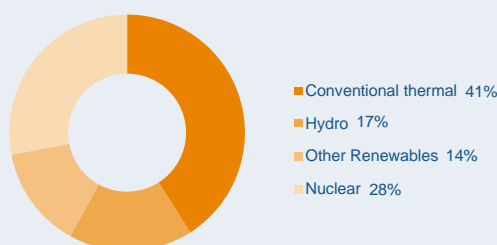
ENERGY SUSTAINABILITY BALANCE



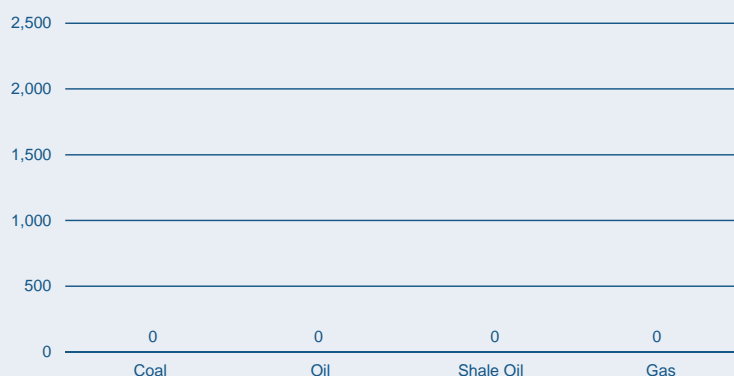
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	5	2	5	-
Energy security	6	7	13	-
Social equity	15	14	14	
Environmental impact mitigation	15	6	6	
Contextual performance	7	5	8	-
Political strength	2	1	1	
Societal strength	5	2	3	-
Economic strength	25	23	29	-
Overall rank	4	2	5	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	29.2	GDP per capita (PPP, USD); GDP Group	34,661 (A)
TPEP / TPEC (net energy importer)	0.37	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.75	CO ₂ emissions (metric tons) per capita	9.70
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

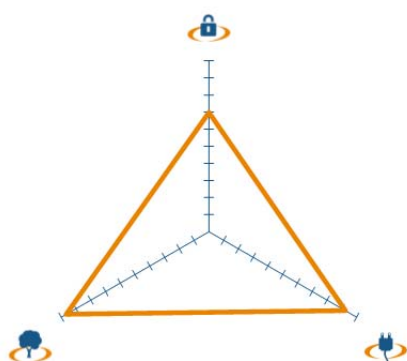
Finland's slight drop from rank two to five in the Index is caused by slight drops across most energy and contextual dimensions. While social equity and environmental impact mitigation scores remain constant, Finland's energy security score suffers from a slower decrease in the energy consumption growth compared to other countries and a deterioration in the ratio of production to total energy supply; these negative trends are however tempered by an increase in the wholesale margin on gasoline. Finland continues to perform strongly across all political and social indicators. Due to high cost of living, economic strength is Finland's weakest dimension and it experiences a further decrease of six spots in this dimension because improvements in cost of living, macroeconomic stability and credit availability are slower than its peer countries.

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 as 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 which 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 (mainly affects light fuel oil in domestic heating and other fossil fuels in District heating and industrial cogeneration) which will increase costs but also 'clean' the fuel mix.
- A number of policies are under discussion including: 1) an ambition to completely phase out coal by 2025; 2) limiting the use of peat, a domestic biofuel which is not categorised as a renewable; and 3) limitation of oil consumption and support for electric mobility.

FRANCE

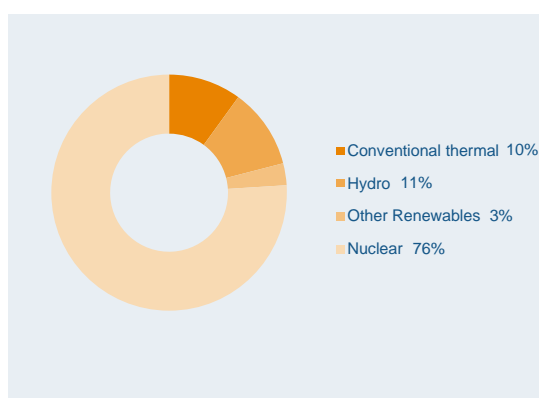
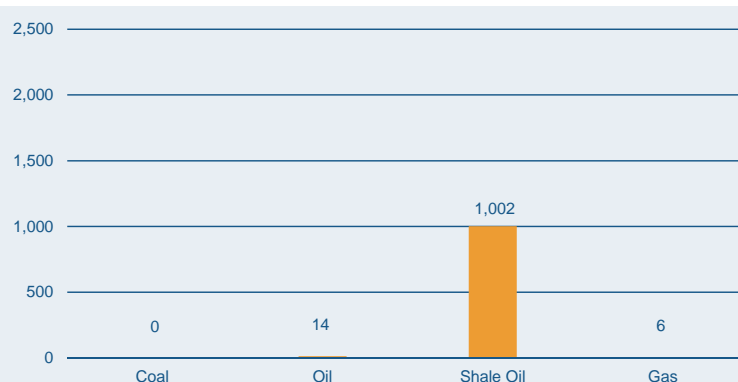
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	4	5	8	-
Energy security	21	29	29	
Social equity	6	10	8	+
Environmental impact mitigation	3	3	4	-
Contextual performance	23	20	27	-
Political strength	21	22	20	+
Societal strength	14	13	16	-
Economic strength	36	34	49	-
Overall rank	6	7	9	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

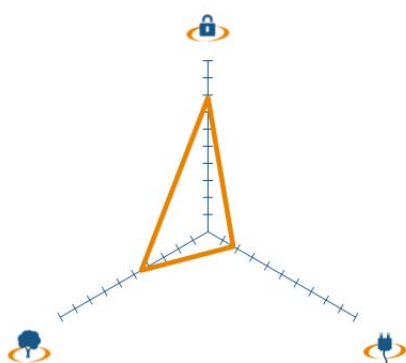
Industrial sector (% of total GDP)	18.8	GDP per capita (PPP, USD); GDP Group	33,997 (A)
TPEP / TPEC (net energy importer)	0.45	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.81	CO ₂ emissions (metric tons) per capita	6.32
Energy affordability (USD per kWh)	0.16	Population with access to electricity (%)	100.0

INDEX COMMENTARY

France drops by two places in the Index with a very high performance in social equity, environmental impact mitigation and a steady, although slightly less strong position in energy security. Environmental performance is driven by good quality of air and water and low emissions intensity on a per capita basis and in electricity and heat generation. Energy intensity per capita remains on a relatively high level. While France performs well in all social equity indicators, its energy security score is mainly supported by highly diversified electricity production and a continuous decrease in energy consumption. France's slight drop from rank seven to nine in the Index is driven by a substantial decrease in its economic performance due to less macroeconomic stability as well as a small decrease in political strength.

¹ Data for shale gas resources not available

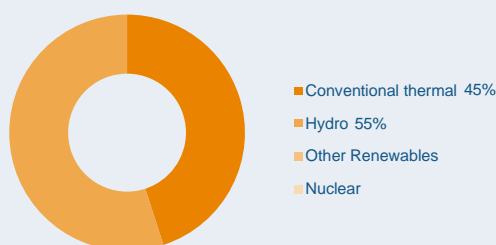
ENERGY SUSTAINABILITY BALANCE



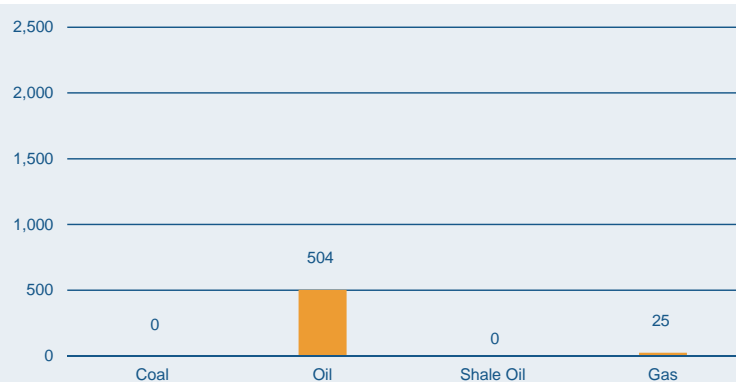
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	-	61	46	+
Energy security	-	10	21	-
Social equity	-	77	78	-
Environmental impact mitigation	-	79	52	+
Contextual performance	-	86	87	-
Political strength	-	73	70	+
Societal strength	-	80	77	+
Economic strength	-	91	94	-
Overall rank	-	73	59	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

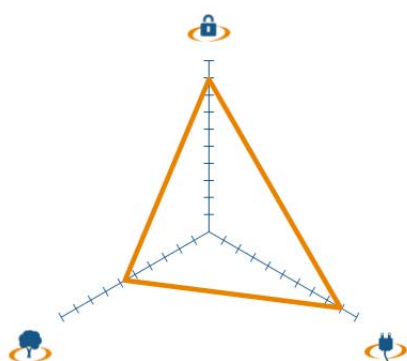
Industrial sector (% of total GDP)	54.4	GDP per capita (PPP, USD); GDP Group	15,197 (B)
TPEP / TPEC (net energy exporter)	11.72	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.55	CO ₂ emissions (metric tons) per capita	8.32
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	36.7

INDEX COMMENTARY

Gabon rises fourteen ranks in the Index overall. Performance in energy security is strong due to a good ratio of energy production to total energy supply and a relatively strong diversity of electricity production. The 5-year energy consumption growth rate is a challenge for energy security, but necessary for Gabon's economic and social development as only 37% of Gabon's population has access to electricity. This also explains the weak performance in social equity. Due to low energy intensity, Gabon has a low environmental impact. An increase in this dimension was driven by lower emissions intensity per capita, lower CO₂ emission from electricity and heat generation and an improvement in the quality of air and water when compared to peer countries. Gabon's contextual performance is rather weak across all indicators. Political strength increased slightly due to small improvements in political stability and an increase in control of corruption led to improvements in societal strength. However, a further decrease in credit availability and relatively high costs of living as proportion of household consumption expenditure led to the poor performance in economic strength. Data to measure the macroeconomic stability indicator is missing for Gabon.

GERMANY

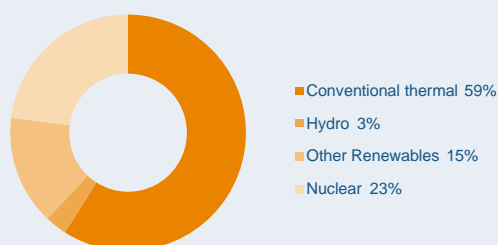
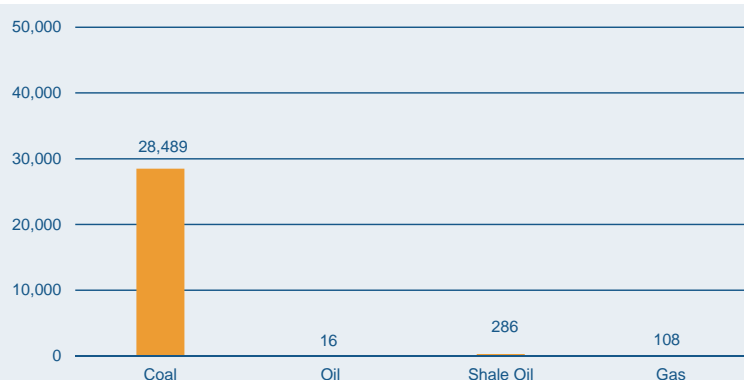
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	21	14	14	
Energy security	10	13	11	+
Social equity	14	12	11	+
Environmental impact mitigation	63	44	41	+
Contextual performance	15	12	12	
Political strength	14	15	14	+
Societal strength	17	17	13	+
Economic strength	21	19	19	
Overall rank	18	10	11	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	28.6	GDP per capita (PPP, USD); GDP Group	36,013 (A)
TPEP / TPEC (net energy importer)	0.35	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.83	CO ₂ emissions (metric tons) per capita	9.36
Energy affordability (USD per kWh)	0.32	Population with access to electricity (%)	100.0

INDEX COMMENTARY

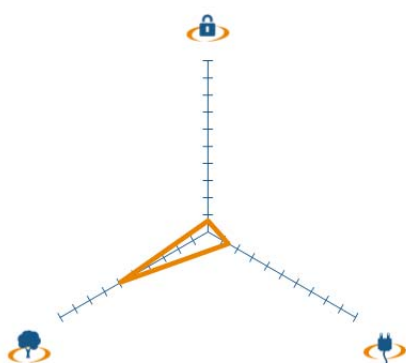
Germany showed a very stable and overall strong performance across all dimensions and drops by one place in the Index. Despite small improvements since last year, environmental performance remains weak (rank 41) with relatively high energy and emissions intensity per GDP per capita and high CO₂ emissions from electricity and heat generation. Slight improvements can be noted in energy security due to an increased wholesale margin on gasoline and increase of its oil reserve stocks. Better results in social equity are driven by an improvement in the quality and affordability of electricity supply. An improvement in societal strength is supported by a rise in the education indicator.

TRENDS AND OUTLOOK

- The most recent policy development in Germany, initiated before 2010, is the German Energy Transition. The goal of the German Energy Transition of 2011 is a strong increase in power generation from renewable sources, a reduction of primary energy usage and CO₂ emissions. Furthermore, following the accident in Fukushima (Japan) in March 2011, the government made the decision to completely abandon the use of nuclear power 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 as 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 still will 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.

¹ Data for shale gas resources not available

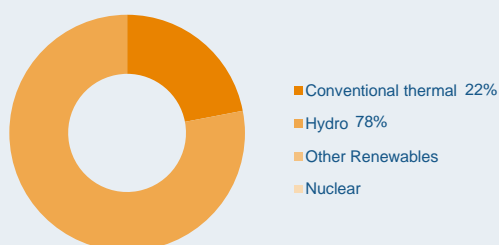
ENERGY SUSTAINABILITY BALANCE



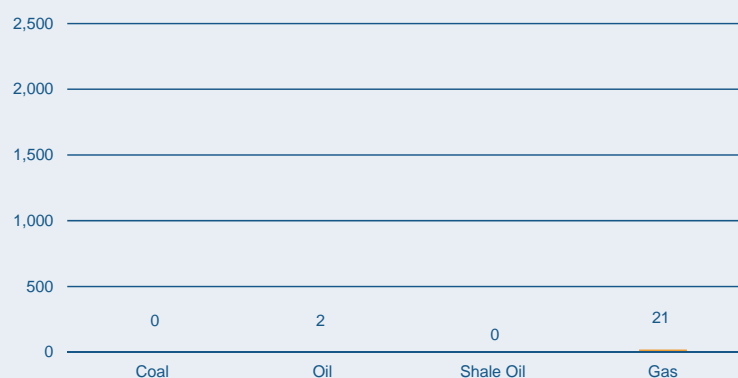
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	75	78	80	-
Energy security	60	79	88	-
Social equity	79	80	81	-
Environmental impact mitigation	53	38	39	-
Contextual performance	76	72	75	-
Political strength	52	51	50	+
Societal strength	68	66	65	+
Economic strength	89	88	93	-
Overall rank	76	80	81	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

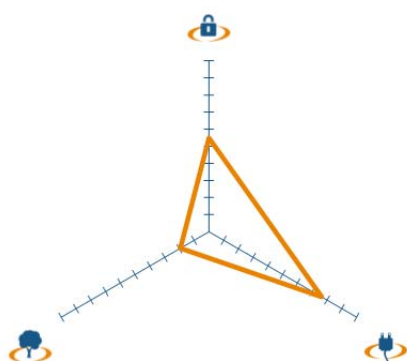
Industrial sector (% of total GDP)	21.0	GDP per capita (PPP, USD); GDP Group	2,725 (D)
TPEP / TPEC (net energy importer)	0.43	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.02	CO ₂ emissions (metric tons) per capita	0.57
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	60.5

INDEX COMMENTARY

Ghana decreases by one position to rank 81 in the Index. The energy security rank overall is supported by a relatively good ratio of production to total electricity supply and a good diversity of electricity production. The decrease in energy security during the last year was driven by further decreases in the weakest indicators: the low wholesale margin on gasoline further decreased and the positive 5-year energy consumption growth rate increased. The latter is however necessary for Ghana's economic and social development, as only 61% of the population have access to electricity, leading to low social equity scores. Environmental performance overall is strong due to a very low emissions intensity per capita and low CO₂ emissions from heat and electricity generation. Ghana outperforms countries with similar levels of energy intensity per capita in mitigating its environmental impact, but it does so less than a year ago. Political and societal performance remains relatively stable. Economic strength is Ghana's weakest dimension due to very low credit availability and low macroeconomic stability.

GREECE

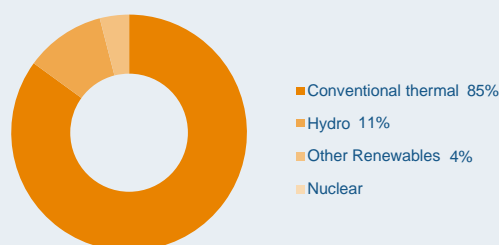
ENERGY SUSTAINABILITY BALANCE



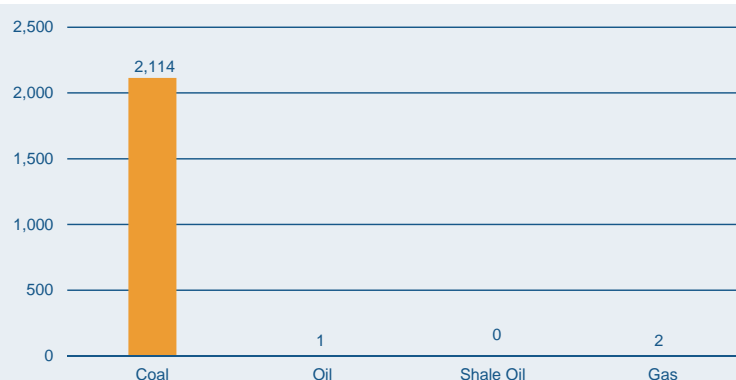
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	46	58	44	+
Energy security	50	63	43	+
Social equity	10	16	23	-
Environmental impact mitigation	86	83	76	+
Contextual performance	34	40	39	+
Political strength	38	41	41	
Societal strength	34	36	36	
Economic strength	45	47	47	
Overall rank	44	52	42	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



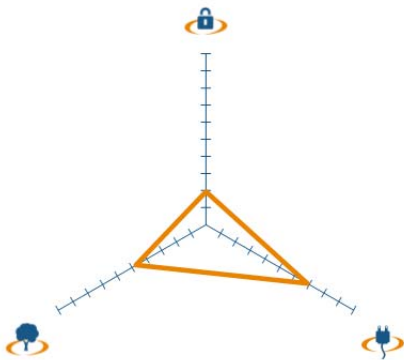
KEY METRICS

Industrial sector (% of total GDP)	17.9	GDP per capita (PPP, USD); GDP Group	27,668 (B)
TPEP / TPEC (net energy importer)	0.29	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.87	CO ₂ emissions (metric tons) per capita	8.98
Energy affordability (USD per kWh)	0.16	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Greece increases its Index ranking by ten places to rank 42, mostly due to stronger energy security. This was driven by an improvement across all indicators except the oil stock reserves which decreased slightly. Generally, the ratio of production to total energy supply remains the weakest indicator in this dimension. Greece continues to perform well in social equity but experiences a small decline in the quality and affordability of its electricity supply. An improvement in the environmental ranking is driven by a lower CO₂ emission from electricity and heat generation, while performance in other indicators. However, in spite of substantial increases in energy intensity per capita, Greece seems to perform slightly better than last year in mitigating its environmental impact when compared to countries with similar levels of energy intensity. Contextual performance is overall constant.

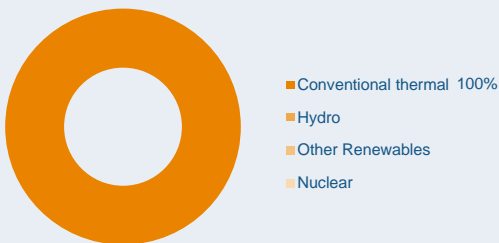
ENERGY SUSTAINABILITY BALANCE



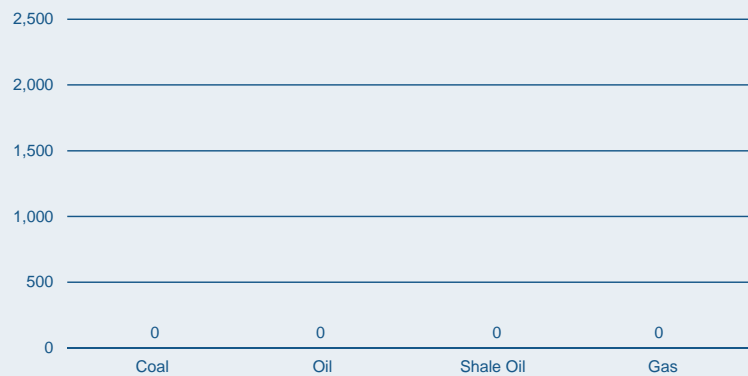
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	55	50	49	+
Energy security	77	66	76	-
Social equity	32	29	30	-
Environmental impact mitigation	49	60	49	+
Contextual performance	2	3	2	+
Political strength	3	7	9	-
Societal strength	12	14	11	+
Economic strength	3	1	1	
Overall rank	32	35	34	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

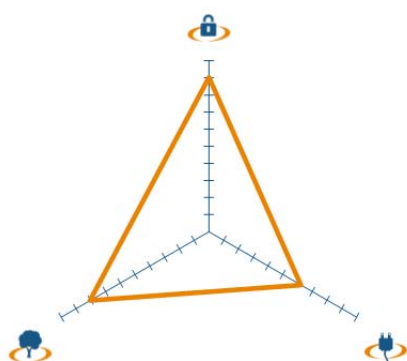
Industrial sector (% of total GDP)	6.8	GDP per capita (PPP, USD); GDP Group	46,128 (A)
TPEP / TPEC (net energy importer)	0.00	Energy intensity (million BTU per USD)	0.06
Emission intensity (kg of CO ₂ per USD)	5.05	CO ₂ emissions (metric tons) per capita	12.11
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Hong Kong's Index ranking increases by one place which is mostly due to a better environmental performance. Hong Kong has a very high and increasing level of energy intensity per capita but is able to outperform peer countries in mitigating its environmental impact. Hong Kong's weak energy security is due to a very low ratio of production to total energy supply and low diversity of electricity production. However, the ranking drop was driven by a decrease in the wholesale margin on gasoline and a decrease in the 5-year energy consumption growth rate which was reduced, but slower than in other countries. Performance in social equity is mostly constant and Hong Kong maintained its strong performance across all contextual indicators and dimensions.

HUNGARY

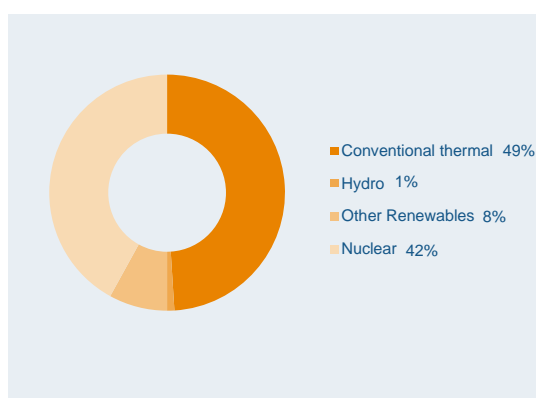
ENERGY SUSTAINABILITY BALANCE



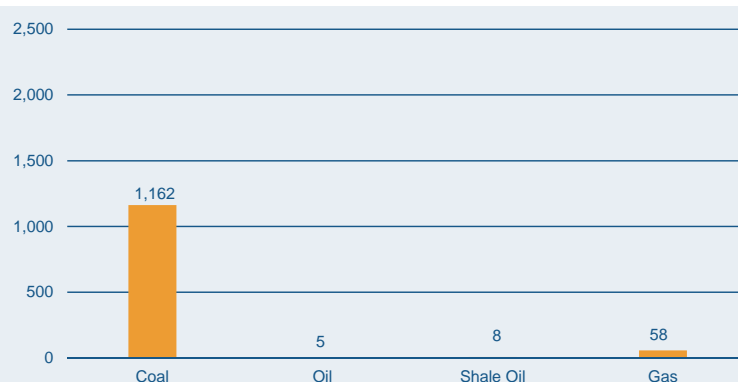
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	21	18	15	+
Energy security	24	20	10	+
Social equity	37	39	36	+
Environmental impact mitigation	24	22	19	+
Contextual performance	42	43	41	+
Political strength	27	30	29	+
Societal strength	33	35	37	-
Economic strength	72	68	66	+
Overall rank	25	21	19	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



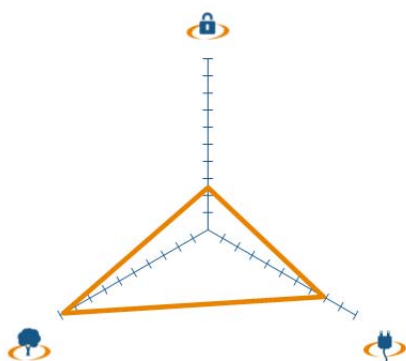
KEY METRICS

Industrial sector (% of total GDP)	31.3	GDP per capita (PPP, USD); GDP Group	18,809 (B)
TPEP / TPEC (net energy importer)	0.39	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.26	CO ₂ emissions (metric tons) per capita	5.00
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Hungary rises by two places in the Index up to rank 19. The upward trend is mainly driven by an increase in energy security, which results from a decrease in energy consumption growth reversing last year's positive growth rate, as well as an increase of its oil reserve stock reaching up to 113 days. Minor improvements are also visible in social equity and environmental impact mitigation. Performance in political and economic strength improved slightly, while societal strength deteriorated a little bit.

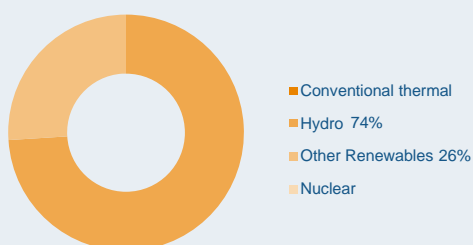
ENERGY SUSTAINABILITY BALANCE



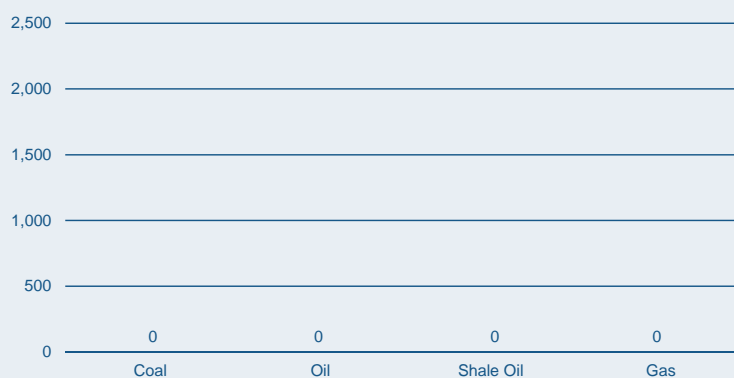
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	14	16	25	-
Energy security	49	55	71	-
Social equity	16	19	21	-
Environmental impact mitigation	1	2	3	-
Contextual performance	30	30	25	+
Political strength	16	14	15	-
Societal strength	1	4	7	-
Economic strength	79	83	57	+
Overall rank	15	14	23	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

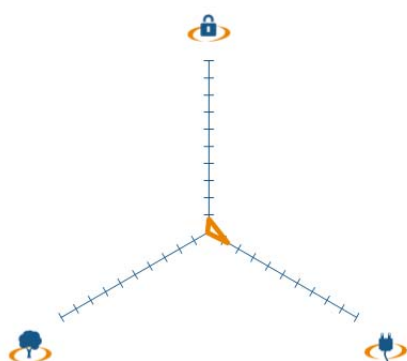
Industrial sector (% of total GDP)	24.7	GDP per capita (PPP, USD); GDP Group	36,535 (A)
TPEP / TPEC (net energy importer)	0.78	Energy intensity (million BTU per USD)	0.07
Emission intensity (kg of CO ₂ per USD)	1.10	CO ₂ emissions (metric tons) per capita	10.56
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Iceland drops nine places down to rank 23 in the Index due to a weaker performance in energy security which was driven by a decrease in the wholesale margin on gasoline and a slightly lower ratio of production to total energy supply. Not reliant on fossil fuels Iceland has a strong environmental performance. A small drop in social equity is visible as Iceland made slower progress than its peer countries in improving the quality and affordability of electricity. Iceland's weak economic position improved by 22 places, mainly due to stronger macroeconomic stability.

INDIA

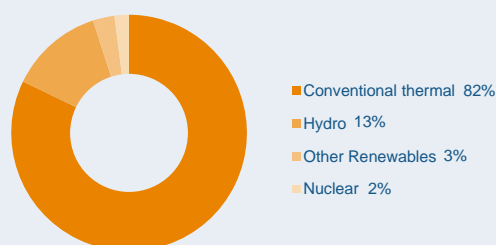
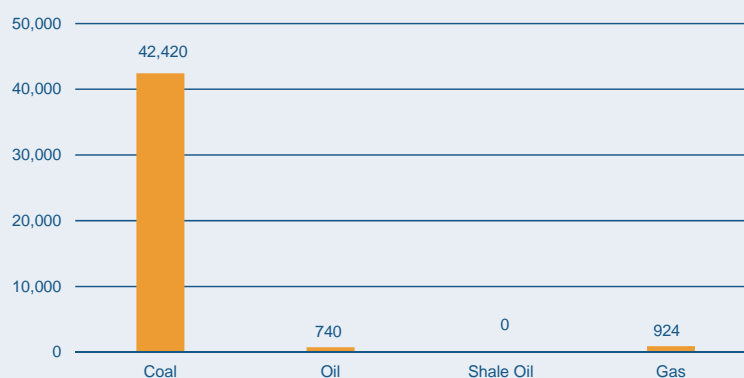
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	86	92	94	-
Energy security	57	84	87	-
Social equity	80	84	82	+
Environmental impact mitigation	87	86	93	-
Contextual performance	55	56	64	-
Political strength	67	68	73	-
Societal strength	60	64	67	-
Economic strength	42	39	42	-
Overall rank	84	89	93	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

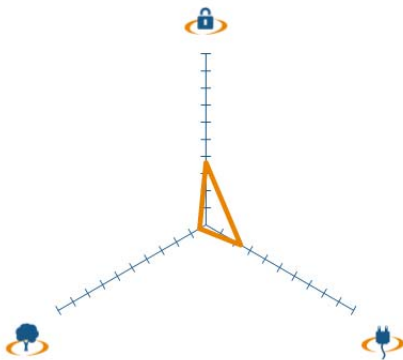
Industrial sector (% of total GDP)	26.4	GDP per capita (PPP, USD); GDP Group	3,419 (D)
TPEP / TPEC (net energy importer)	0.67	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	3.51	CO ₂ emissions (metric tons) per capita	2.03
Energy affordability (USD per kWh)	0.05	Population with access to electricity (%)	66.3

INDEX COMMENTARY

India decreases by four places to rank 93 in the Index with small downward movements across all dimensions. In energy security, India struggles most with a low wholesale margin on gasoline, weak oil reserve stocks and a positive and increasing 5-year energy consumption growth rate, which is however necessary for India's economic and social development. Social equity performance is weak as only 67% of the population has access to electricity. India's weak environmental performance (rank 93) is overall driven by a very low quality of air and water, very high emissions from electricity and heat generation and high emissions on a per capita level. With a medium level of energy intensity per capita, India thus underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. India performs relatively better in the contextual dimensions. India's strongest dimension, economic strength, experiences a small drop due to a decrease in macroeconomic stability.

¹ Data for shale gas resources not available

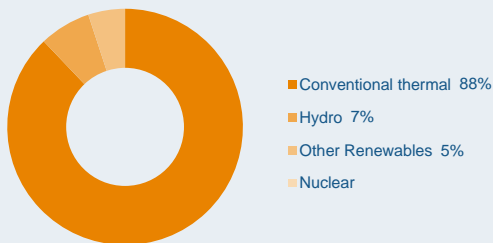
ENERGY SUSTAINABILITY BALANCE



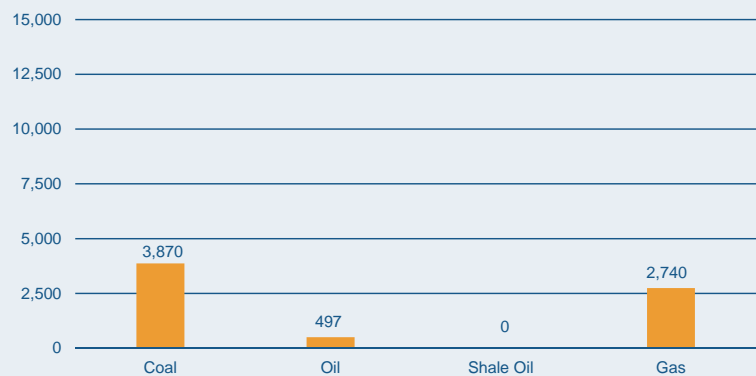
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	69	79	86	-
Energy security	29	47	60	-
Social equity	66	61	72	-
Environmental impact mitigation	88	90	90	
Contextual performance	68	62	59	+
Political strength	73	70	69	+
Societal strength	71	69	72	-
Economic strength	51	40	32	+
Overall rank	71	76	83	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	47.2	GDP per capita (PPP, USD); GDP Group	4,353 (D)
TPEP / TPEC (net energy exporter)	2.10	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.26	CO ₂ emissions (metric tons) per capita	2.70
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	64.5

INDEX COMMENTARY

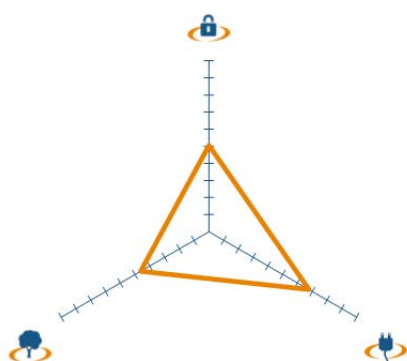
Indonesia falls seven places in the Index. A drop in energy security is driven by a decrease in the weakest indicator, the wholesale margin on gasoline; this was offset by a slight reduction in the 5-year energy consumption trend. However, the energy consumption growth rate remains positive which is necessary for Indonesia's social and economic development as only 65% of the population have access to electricity, leading to low social equity scores. Environmental performance remains constant but is overall very weak due to high emissions from heat and electricity generation and a low quality of air and water. Indonesia underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. Political and societal strength remains mostly stable, although a small deterioration of control of corruption and rule of law lead to a small drop of societal strength. The strong economic performance is supported by low costs of living as proportion of household consumption expenditure and a good macroeconomic stability, slightly offset by low credit availability.

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 reduce energy elasticity to less than 1 which is aligned with the target of economic growth, enhance 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 which 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 focusing 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, etc.; 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.

IRAN (ISLAMIC REPUBLIC)

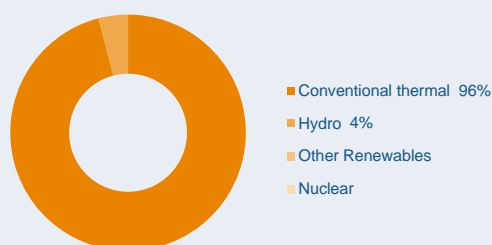
ENERGY SUSTAINABILITY BALANCE



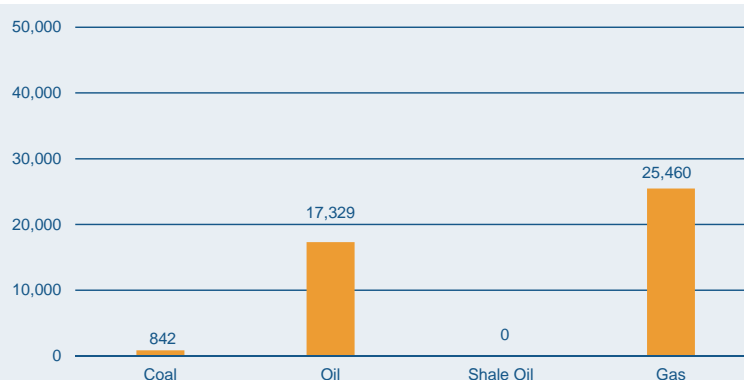
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	27	48	38	+
 Energy security	34	71	47	+
 Social equity	25	30	31	-
 Environmental impact mitigation	40	50	51	-
Contextual performance	82	82	79	+
 Political strength	88	88	89	-
 Societal strength	79	79	78	+
 Economic strength	70	65	58	+
Overall rank	39	63	48	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



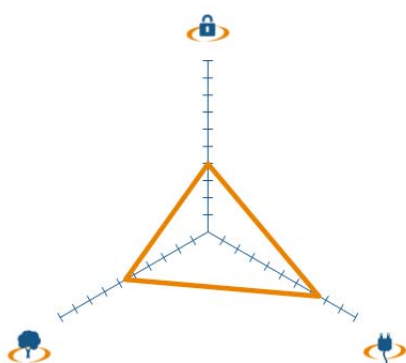
KEY METRICS

Industrial sector (% of total GDP)	37.7	GDP per capita (PPP, USD); GDP Group	12,722 (C)
TPEP / TPEC (net energy exporter)	1.58	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	2.74	CO ₂ emissions (metric tons) per capita	7.17
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	98.4

INDEX COMMENTARY

Iran increases its Index ranking by 15 places due to significant improvements in energy security. These were driven by a reduction in the 5-year energy consumption growth rate and a slower decrease in the wholesale margin on gasoline as noted in peer countries. Iran performs slightly worse than last year in mitigating its environmental impact when compared to countries with similar levels of energy intensity. Iran's weakest dimension remains political strength (rank 89) with poor performance in regulatory quality and political stability. Performance in societal strength (rank 78) mostly struggles with control of corruption and rule of law. Economic strength improves by seven places (rank 58) due to an increase in macroeconomic stability; however costs of living as proportion of total household consumption expenditure remain very high and credit availability is low.

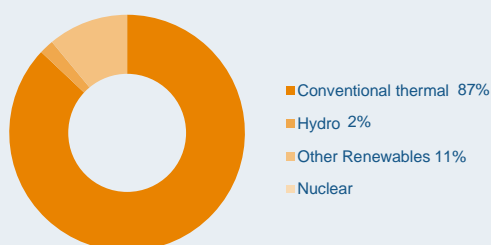
ENERGY SUSTAINABILITY BALANCE



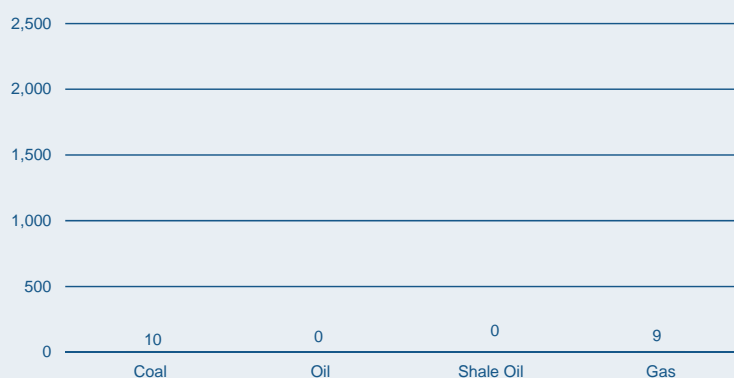
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	36	49	35	+
Energy security	64	88	57	+
Social equity	27	24	24	
Environmental impact mitigation	32	41	42	-
Contextual performance	11	17	16	+
Political strength	9	13	13	
Societal strength	18	18	19	-
Economic strength	18	29	33	-
Overall rank	28	39	30	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

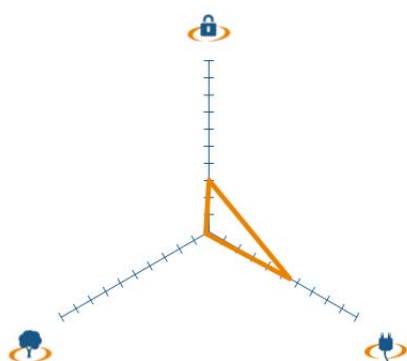
Industrial sector (% of total GDP)	29.0	GDP per capita (PPP, USD); GDP Group	39,492 (A)
TPEP / TPEC (net energy importer)	0.08	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.67	CO ₂ emissions (metric tons) per capita	9.01
Energy affordability (USD per kWh)	0.23	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Ireland increases by nine places in the Index, due to an increase in energy security. The improvements were driven by a substantial increase in the wholesale margin on gasoline and a reduction in energy consumption, which reverses last year's positive growth rate. Ireland now scores comparatively well in these two indicators, but still lags behind in oil stock reserves and in diversity of electricity production. Moreover, it has a very low ratio of production to total energy supply. Performance in social equity remains stable. A small decrease in environmental impact mitigation is driven by higher energy intensity per GDP per capita and by a decrease in the quality of air and water. Ireland's performance in the contextual dimensions is fairly constant; however a drop in economic strength is driven by further decreases in macroeconomic stability, the countries weakest contextual indicator.

ISRAEL

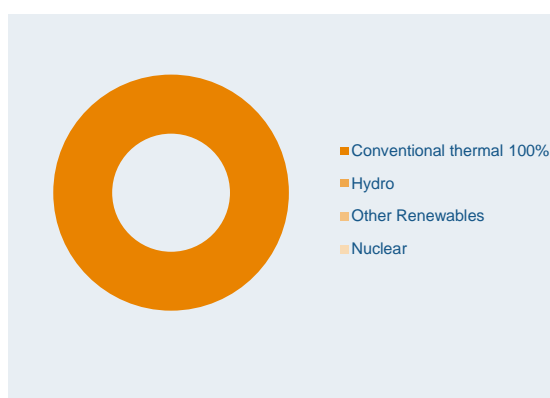
ENERGY SUSTAINABILITY BALANCE



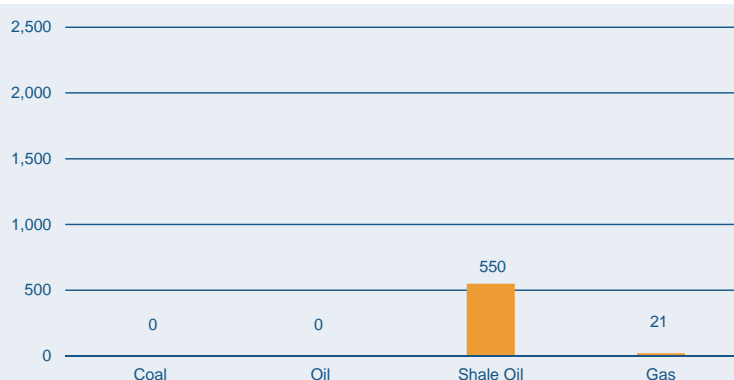
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	81	69	74	-
Energy security	81	52	66	-
Social equity	40	42	43	-
Environmental impact mitigation	91	89	92	-
Contextual performance	39	37	33	+
Political strength	42	43	40	+
Societal strength	24	26	22	+
Economic strength	56	53	48	+
Overall rank	73	61	61	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



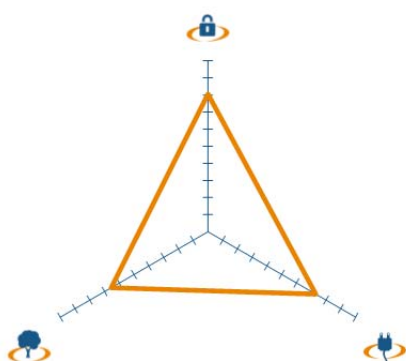
KEY METRICS

Industrial sector (% of total GDP)	31.1	GDP per capita (PPP, USD); GDP Group	29,602 (B)
TPEP / TPEC (net energy importer)	0.05	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.99	CO ₂ emissions (metric tons) per capita	9.51
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.7

INDEX COMMENTARY

Israel maintains its ranking in the Index as an improvement in all contextual dimensions is offset by a weaker performance in all energy dimensions. The decrease in energy security is mostly driven by a continuous increase in energy consumption growth compared to peers. Generally a weak ratio of production to total energy supply and low diversity of electricity production affects energy security, even though Israel has a strong wholesale margin on gasoline. Israel performs particularly weak in environmental impact mitigation (rank 92) due to high emissions per capita and from electricity and heat generation as well as a low quality of air and water. Israel thus underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. Social equity remains mostly unchanged since last year. Improvements across most contextual indicators drive increases in the three dimensions. However, the weakest indicators remain political stability and the cost of living as proportion of total household consumption expenditure.

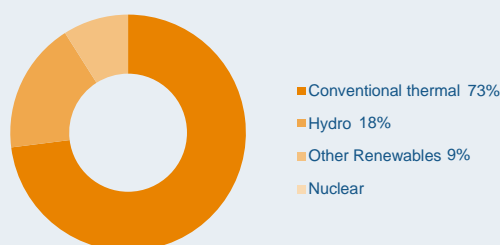
ENERGY SUSTAINABILITY BALANCE



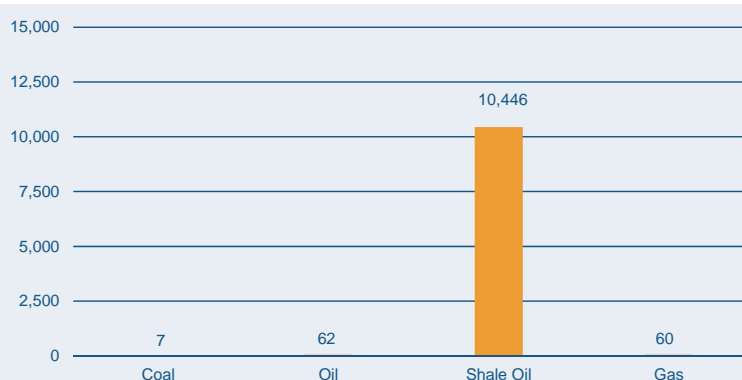
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	38	37	20	+
Energy security	44	49	19	+
Social equity	23	23	26	-
Environmental impact mitigation	57	48	33	+
Contextual performance	38	32	34	-
Political strength	37	38	38	
Societal strength	32	33	34	-
Economic strength	53	42	43	-
Overall rank	33	31	21	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.7	GDP per capita (PPP, USD); GDP Group	29,841 (B)
TPEP / TPEC (net energy importer)	0.16	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.79	CO ₂ emissions (metric tons) per capita	6.76
Energy affordability (USD per kWh)	0.26	Population with access to electricity (%)	100.0

INDEX COMMENTARY

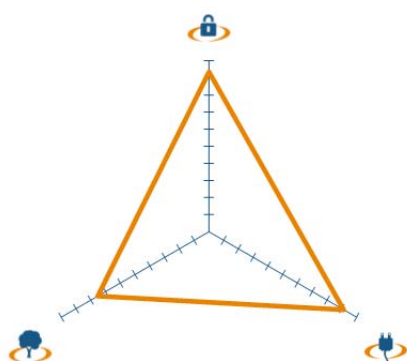
As a result of improved energy performance, Italy improves its Index position by ten places to rank 21. A better wholesale margin on gasoline, more diversified electricity production and relatively high oil reserve stocks all lead to a substantial jump in the energy security dimension, even though Italy reduces its energy consumption slower than peer countries. Although energy intensity per GDP per capita increases, Italy reduced emissions intensity per capita and the quality of air and water improved relative to peer countries, allowing the country to win ground in the environmental impact mitigation. Italy shows a stable performance across all contextual dimensions.

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 decree "DI Sviluppo" came into force in July 2012 and confirmed tax breaks for restructuring activities and the improvement of energy performances in buildings; 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 impact mitigation 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 social 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, e.g., a further integration and convergence towards EU spot liquid markets and price formulas.

JAPAN

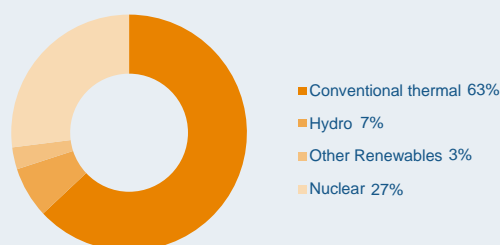
ENERGY SUSTAINABILITY BALANCE



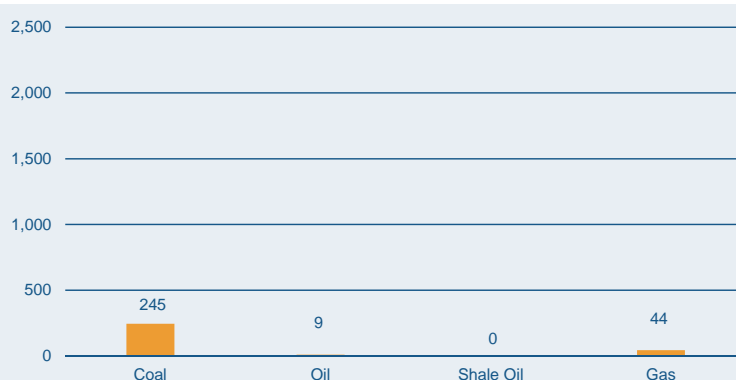
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	11	10	7	+
Energy security	5	16	7	+
Social equity	12	6	9	-
Environmental impact mitigation	39	37	24	+
Contextual performance	24	27	28	-
Political strength	18	16	20	-
Societal strength	13	12	12	
Economic strength	47	51	54	-
Overall rank	11	11	8	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.3	GDP per capita (PPP, USD); GDP Group	34,330 (A)
TPEP / TPEC (net energy importer)	0.19	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.87	CO ₂ emissions (metric tons) per capita	8.61
Energy affordability (USD per kWh)	0.23	Population with access to electricity (%)	100.0

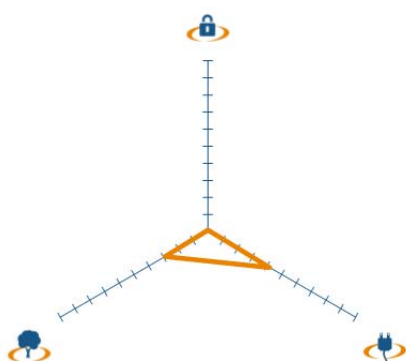
INDEX COMMENTARY

Japan's rise by three ranks in the Index was driven by an improved energy performance, while contextual scores remained mostly constant with a small negative trend. Improvement in energy security was triggered by an increased wholesale margin on gasoline. Stronger environmental performance was driven by lower emissions intensity and a better quality of air and water. It has to be noted however, that the data currently available does not cover any repercussions from the Fukushima accident. Japan's weakest dimension is economic strength due to high cost of living and relatively low macroeconomic stability.

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.
- After the devastating earthquake and tsunami which caused the accident at the Fukushima Daiichi nuclear power plant, Japan's Strategic Energy Plan is under revision. Policymakers have to focus on defining the future energy mix after scientifically evaluating and comparing all available energy technologies. A subcommittee under the advisory committee on energy and natural resources has completed the review based on analysis and assessment of the impact on the trade balance, employment and electricity rates in connection with the adoption of either one of the three energy mix options for 2030: abandon nuclear power, reduce nuclear power (15%) or keep nuclear power (20-25%). Other sources for power generation include 25-35% renewable energy, 35-50% conventional thermal and 15% non-utility generation. A conclusion is to be expected in the second half of 2012 after completing the public debate.

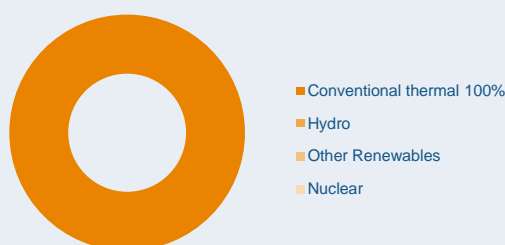
ENERGY SUSTAINABILITY BALANCE



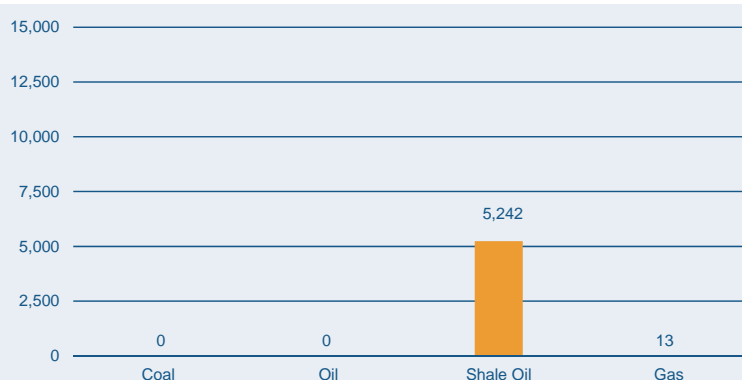
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	67	80	82	-
Energy security	84	82	93	-
Social equity	49	54	55	-
Environmental impact mitigation	47	67	67	
Contextual performance	32	37	36	+
Political strength	49	49	51	-
Societal strength	42	43	44	-
Economic strength	23	30	26	+
Overall rank	60	70	68	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

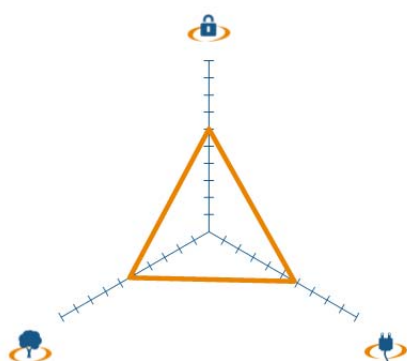
Industrial sector (% of total GDP)	30.8	GDP per capita (PPP, USD); GDP Group	5,767 (C)
TPEP / TPEC (net energy importer)	0.03	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	2.50	CO ₂ emissions (metric tons) per capita	3.28
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.9

INDEX COMMENTARY

Jordan rises in the Index by two places. Energy security is the weakest dimension (rank 93), primarily due to a very low ratio of production to total energy supply, low diversity of electricity production, a low wholesale margin on gasoline and a continued, positive energy consumption growth rate. Performance in social equity and environmental impact mitigation remains fairly constant as a reduction of CO₂ emissions from electricity and heat generation is offset by higher energy and emission intensity per capita and a lower quality of air and water. Small deteriorations in economic and societal strength are driven by small decreases across all indicators, except education which shows a positive movement. The comparatively strong economic performance overall is driven by a low cost of living as proportion of household consumption expenditure and a good availability of credits.

KAZAKHSTAN¹

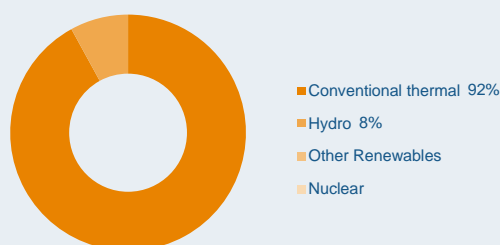
ENERGY SUSTAINABILITY BALANCE



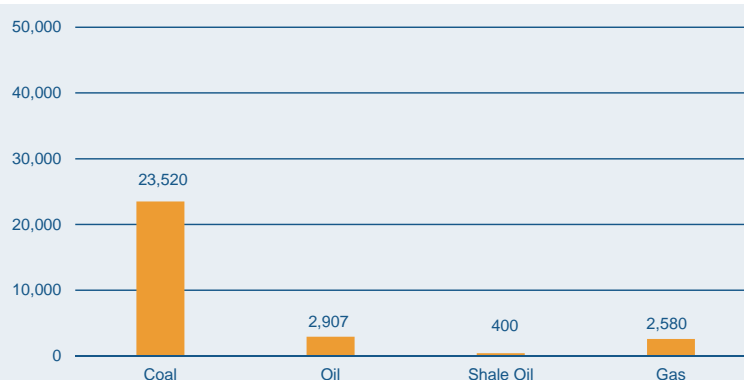
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	39	23	34	-
Energy security	70	34	38	-
Social equity	41	37	40	-
Environmental impact mitigation	20	21	44	-
Contextual performance	75	65	68	-
Political strength	61	52	55	-
Societal strength	77	72	76	-
Economic strength	71	59	62	-
Overall rank	49	30	43	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	37.9	GDP per capita (PPP, USD); GDP Group	12,015 (C)
TPEP / TPEC (net energy exporter)	2.52	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.92	CO ₂ emissions (metric tons) per capita	20.47
Energy affordability (USD per kWh)	0.04	Population with access to electricity (%)	55.0

INDEX COMMENTARY

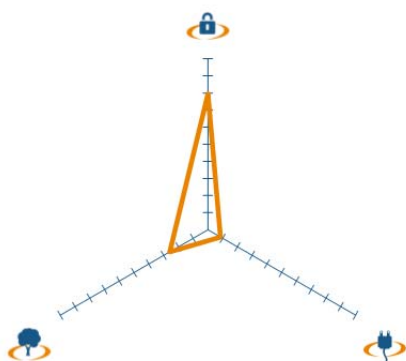
Kazakhstan drops in the Index by thirteen places due to deteriorations across all dimensions. Energy security decreases due to an increase in energy consumption and small deteriorations across all other indicators. A small rise in gasoline prices and a slight decrease in quality and affordability of electricity supply lead to a weaker performance in social equity. Due to a substantial increase in energy intensity per capita, Kazakhstan performs worse in mitigating its environmental footprint compared to countries with similar levels of energy intensity. A decrease in political stability and effectiveness of government drives the change in political strength. Societal strength also deteriorates due to a further decrease in control of corruption and in rule of law. The weakest indicator for economic strength remains high costs of living as proportion of household consumption expenditure.

TRENDS AND OUTLOOK

- The Government of Kazakhstan together with business sector, energy industry and industrial associations, has developed and implemented a clear energy strategy and well-defined energy policy with supporting programs that support the development of a sustainable energy system.
- The most recent policy developments which 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 programs 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 shall continue the existing successful practices to maintain a favourable investment climate, which allows not only improving the country's energy sustainability balance, but also attracting 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.

¹ As noted by the Kazakhstani WEC member committee available data from national sources might differ from data used to calculate the Energy Sustainability Index, e.g., access to electricity is reported to be nearly 100%.

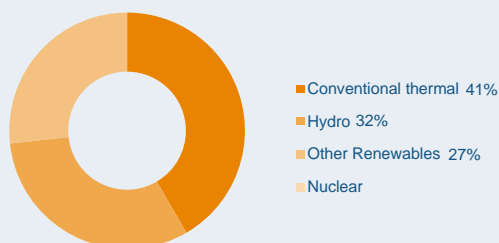
ENERGY SUSTAINABILITY BALANCE



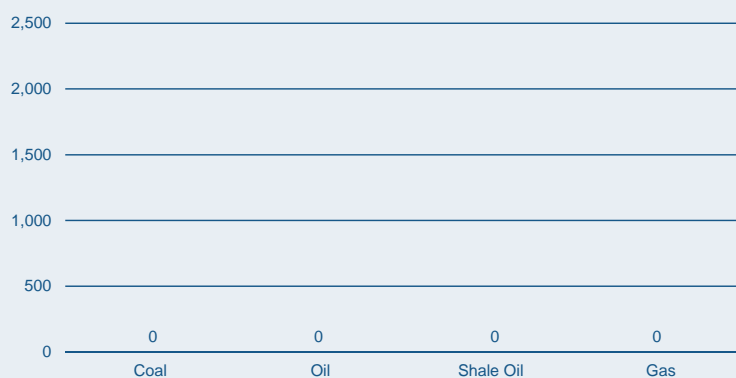
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	51	59	61	-
Energy security	35	23	20	+
Social equity	87	86	86	
Environmental impact mitigation	34	54	69	-
Contextual performance	83	85	86	-
Political strength	76	77	78	-
Societal strength	86	88	85	+
Economic strength	75	76	75	+
Overall rank	65	69	67	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

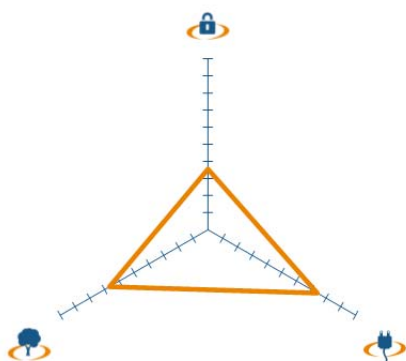
Industrial sector (% of total GDP)	16.4	GDP per capita (PPP, USD); GDP Group	1,676 (D)
TPEP / TPEC (net energy importer)	0.19	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	2.24	CO ₂ emissions (metric tons) per capita	1.80
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	16.1

INDEX COMMENTARY

Kenya rises two places in the Index. Energy security is the strongest dimension due to a good wholesale margin on gasoline and high diversity of electricity production, however the ratio of production to total energy supply is very weak and Kenya struggles with a continued positive energy consumption growth rate. This expansion of energy consumption is however necessary for Kenya's economic and social development as only 16% of the population has access to electricity. This also leads to low social equity scores (rank 86). Environmental performance decreased substantially due to an increase in CO₂ emissions from electricity and heat generation and a small decrease in the quality of air and water. Kenya performs poorly across all contextual indicators. The economic performance is primarily supported by a good cost of living as proportion of household consumption expenditure.

KOREA (REPUBLIC)

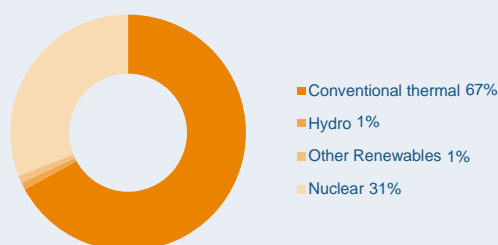
ENERGY SUSTAINABILITY BALANCE



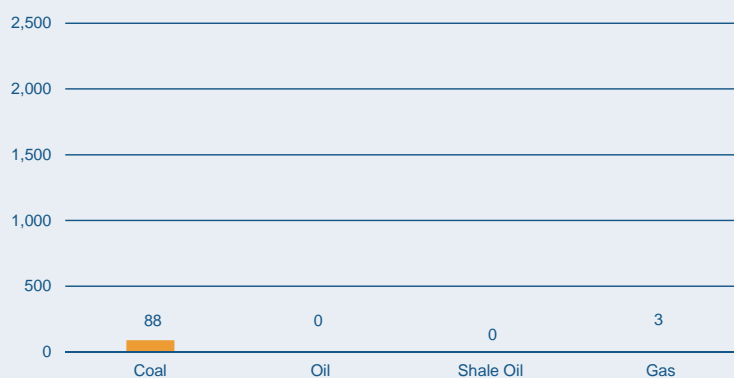
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	43	44	33	+
Energy security	63	83	61	+
Social equity	31	25	25	
Environmental impact mitigation	48	35	32	+
Contextual performance	21	19	20	-
Political strength	33	36	36	
Societal strength	27	24	26	-
Economic strength	9	8	9	-
Overall rank	34	37	27	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	39.2	GDP per capita (PPP, USD); GDP Group	30,042 (A)
TPEP / TPEC (net energy importer)	0.15	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.32	CO ₂ emissions (metric tons) per capita	10.81
Energy affordability (USD per kWh)	0.10	Population with access to electricity (%)	100.0

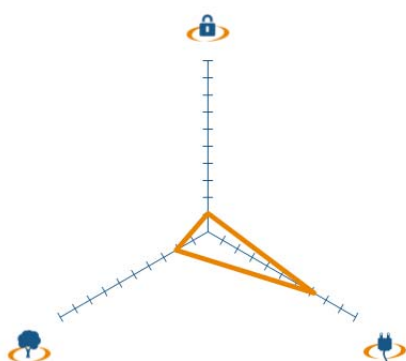
INDEX COMMENTARY

Korea experienced a significant jump of ten spots in the Index to rank 27. An increase in the wholesale margin on gasoline, slightly more diversified electricity production and stronger oil reserve stocks led to a substantial rise in energy security. However, at rank 61, this dimension is still the weakest. Due to a better quality of air and water and overall lower environmental impact, Korea was able to outperform other countries in mitigating its environmental footprint given its increasing level of energy intensity per capita, leading to an improvement in its environmental performance. The contextual performance as well as the social equity score remains mostly unchanged.

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, etc. Environmental impact mitigation calls for action given 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. In terms of environmental impact mitigation 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 R&DD. 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.

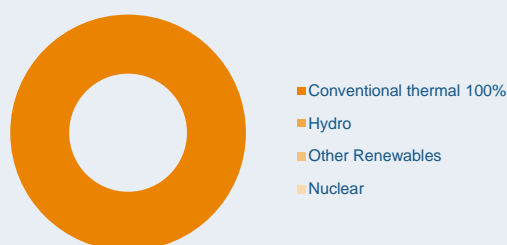
ENERGY SUSTAINABILITY BALANCE



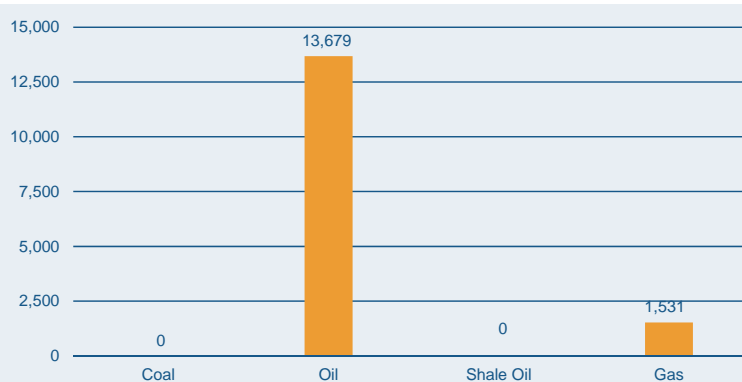
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	66	73	66	+
Energy security	72	92	84	+
Social equity	33	31	27	+
Environmental impact mitigation	74	68	74	-
Contextual performance	29	29	30	-
Political strength	47	47	47	
Societal strength	40	41	42	-
Economic strength	4	4	5	-
Overall rank	54	60	54	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

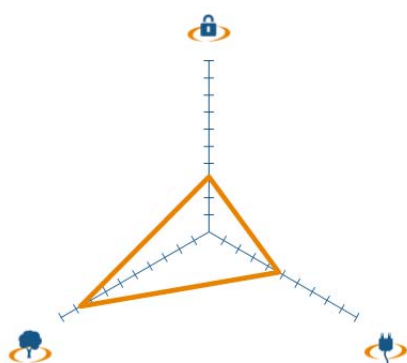
Industrial sector (% of total GDP)	47.4	GDP per capita (PPP, USD); GDP Group	38,778 (A)
TPEP / TPEC (net energy exporter)	4.60	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.42	CO ₂ emissions (metric tons) per capita	23.69
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Kuwait rises in the Index by six places due to improvements in all energy dimensions. Energy security remains the weakest dimension (rank 84) due to very low diversification of electricity production and energy exports, a low wholesale margin on gasoline and a sustained positive energy consumption growth; however Kuwait has a very good ratio of production to total energy supply. Environmental performance decreases due to a further deterioration of Kuwait's weakest indicators: CO₂ emissions from electricity and heat generation and emissions intensity per GDP per capita; both increased since last year. This could be partly offset by an improvement in the quality of air and water relative to peer countries. Strong performance in social equity (rank 27) is driven by very low gasoline prices and good performance in providing high quality and affordable electricity access. Performance in the contextual dimensions was mostly constant. Kuwait's strong economic position is mostly driven by very good macroeconomic stability and low costs of living as proportion of household consumption expenditure.

LATVIA

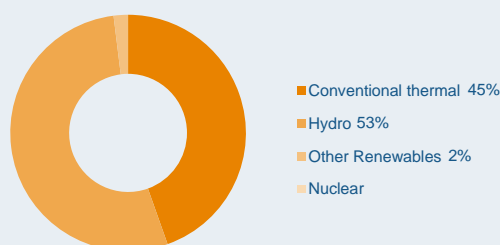
ENERGY SUSTAINABILITY BALANCE



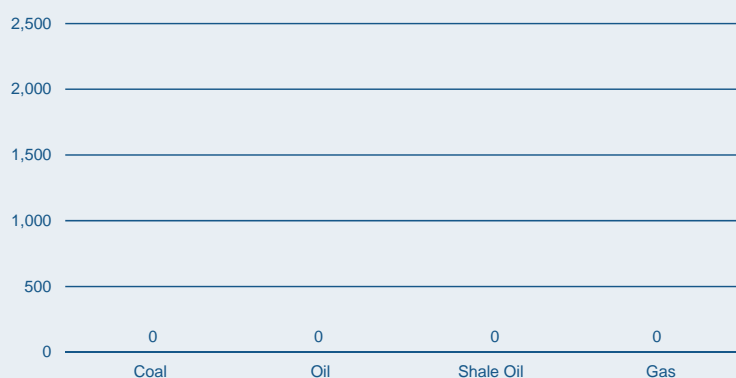
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	32	18	36	-
Energy security	55	22	64	-
Social equity	50	50	50	
Environmental impact mitigation	7	9	13	-
Contextual performance	49	46	47	-
Political strength	36	35	32	+
Societal strength	39	39	38	+
Economic strength	68	63	72	-
Overall rank	31	23	37	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



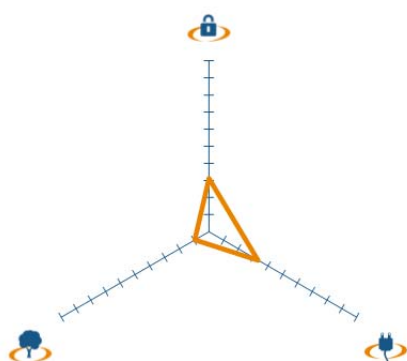
KEY METRICS

Industrial sector (% of total GDP)	21.7	GDP per capita (PPP, USD); GDP Group	14,419 (B)
TPEP / TPEC (net energy importer)	0.19	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	1.72	CO ₂ emissions (metric tons) per capita	3.79
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Latvia drops in the Index by 14 places to rank 37. A substantial decrease in energy security makes this dimension the weakest one (rank 64). This was driven by a decrease in the wholesale margin on gasoline and a slowing down of the reductions in energy consumption. Latvia's strong environmental performance also experiences a drop driven by higher energy and emissions intensity per capita as well as by a declined quality of air and water; this is only partly offset by a reduction of CO₂ emissions from electricity and heat generation. In addition, Latvia's very weak economic situation further deteriorates due to a decline in macroeconomic stability and credit availability.

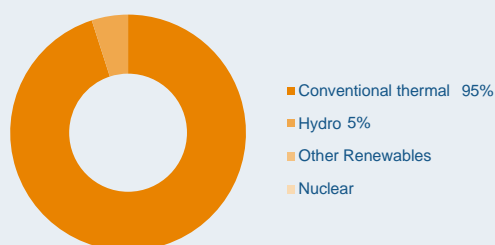
ENERGY SUSTAINABILITY BALANCE



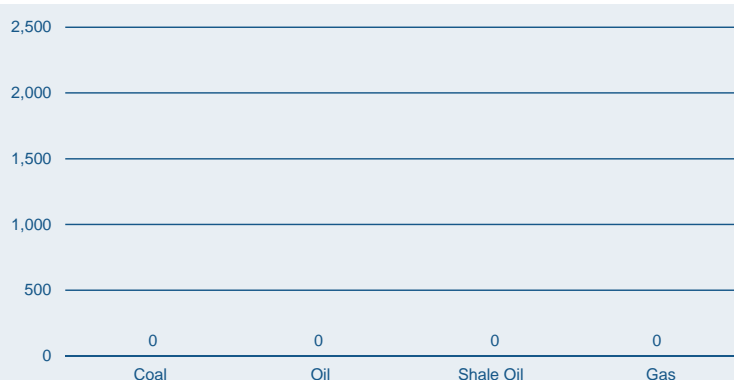
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	73	70	81	-
Energy security	68	44	65	-
Social equity	43	62	63	-
Environmental impact mitigation	77	82	85	-
Contextual performance	54	61	58	+
Political strength	78	79	74	+
Societal strength	81	60	62	-
Economic strength	8	38	35	+
Overall rank	67	72	77	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	19.7	GDP per capita (PPP, USD); GDP Group	15,168 (B)
TPEP / TPEC (net energy importer)	0.03	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.51	CO ₂ emissions (metric tons) per capita	3.80
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.9

INDEX COMMENTARY

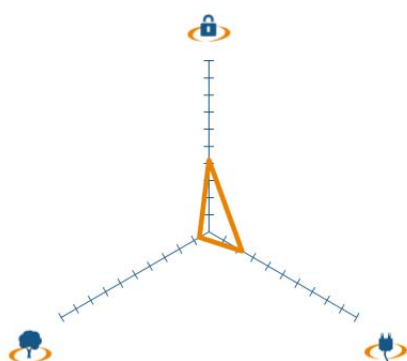
The Lebanon drops five places in the Index due to a decrease in energy security. Energy security struggles with a very low ratio of production to total energy supply and low diversification of electricity production; the recent drop was driven by a deterioration of the stronger indicators: a decrease in the wholesale margin on gasoline and an increase in the 5-year energy consumption growth trend. Social equity remains fairly constant with good gasoline prices but with a low performance in providing high quality, affordable electricity access. Lebanon's weakest dimension is environmental impact mitigation with very high CO₂ emissions from electricity and heat generation and high emissions intensity per capita. Lebanon thus underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. In the contextual dimension the Lebanon struggles with political stability, while small improvements are noted for regulatory quality and effectiveness of government as well as control of corruption and rule of law. A low macroeconomic stability, mediocre scores in credit availability, but very low costs of living as proportion of household consumption expenditure drive the relatively strong economic performance (rank 35).

TRENDS AND OUTLOOK

- Lebanon has a chronic electricity supply problem. However, in 2010, the Government has 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 quite promising oil and gas exploration program.
- 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.

LIBYA

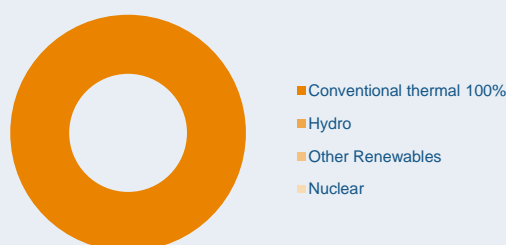
ENERGY SUSTAINABILITY BALANCE



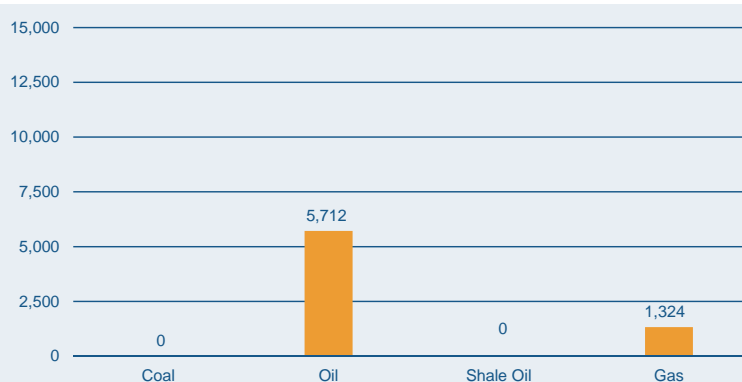
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	76	86	83	+
Energy security	52	70	55	+
Social equity	56	64	73	-
Environmental impact mitigation	90	92	88	+
Contextual performance	60	68	81	-
Political strength	74	72	84	-
Societal strength	70	75	91	-
Economic strength	34	43	52	-
Overall rank	75	86	88	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

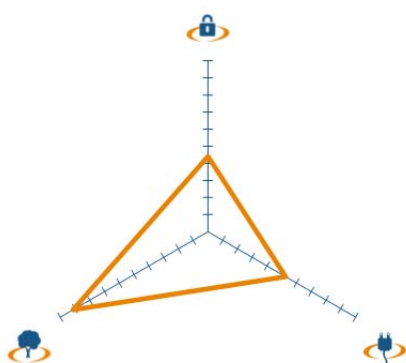
Industrial sector (% of total GDP)	49.5	GDP per capita (PPP, USD); GDP Group	14,384 (C)
TPEP / TPEC (net energy exporter)	5.49	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.07	CO ₂ emissions (metric tons) per capita	8.66
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	97.0

INDEX COMMENTARY

Libya decreases in the Index by two places to rank 88 which is mostly driven by a decrease in social equity and all contextual dimensions. Overall, performance in energy security is supported by a very good ratio of production to total energy supply, but it struggles with diversity of electricity production and achieves mediocre scores in the wholesale margin on gasoline and the 5-year energy consumption growth trend which is positive. A further drop in providing high quality and affordable electricity led to a decrease in the social equity dimension ranking during the last year and only 97% of the population has access to electricity. Environmental performance overall is weak due to high emissions intensity per capita, a poor quality of air and water and very high CO₂ emissions from electricity and heat generation. Libya significantly underperforms in mitigating its environmental impact when compared to countries with similar energy intensity levels. A small positive trend can be noted since last year. Political and societal stability remain weak, with a still mediocre performance in economic strength. A deterioration across all political and societal strength indicators led to significant drops in both dimensions.

¹ Data for shale gas resources not available

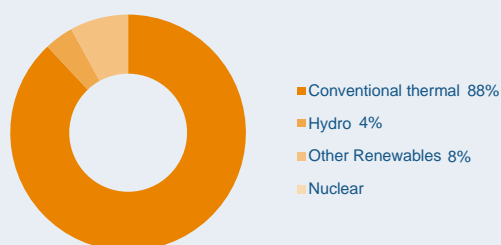
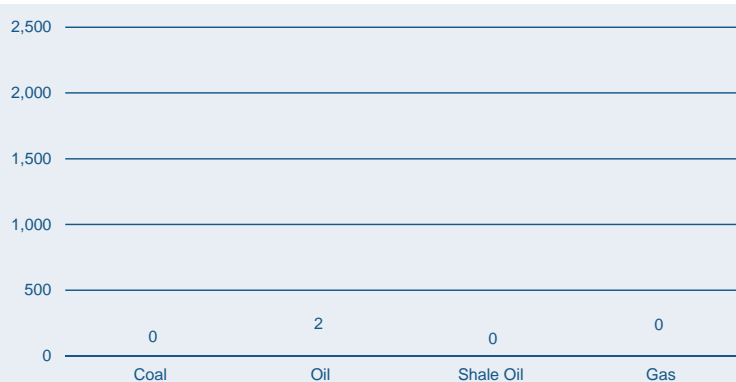
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	24	20	30	-
Energy security	43	36	53	-
Social equity	46	45	45	
Environmental impact mitigation	6	5	9	-
Contextual performance	37	34	36	-
Political strength	30	32	31	+
Societal strength	38	37	35	+
Economic strength	50	50	55	-
Overall rank	27	22	31	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	28.2	GDP per capita (PPP, USD); GDP Group	17,333 (B)
TPEP / TPEC (net energy importer)	0.33	Energy intensity (million BTU per USD)	0.04
Emission intensity (kg of CO ₂ per USD)	1.56	CO ₂ emissions (metric tons) per capita	4.79
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

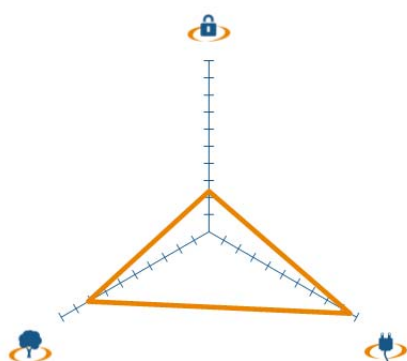
INDEX COMMENTARY

Lithuania moves down nine places to rank 31. There is a significant drop in energy security by 17 places driven by less diversified electricity production and a decrease of the wholesale margin on gasoline; negative trends that can only be partly offset by a decrease in energy consumption growth. Lithuania experiences a small drop in environmental performance; however it continues to perform very well despite a high level of energy intensity per capita as it outperforms other countries with similar levels of energy intensity. Lithuania did not manage to improve its performance in social equity and contextual performance remains mostly constant. However, Lithuania's weak economic position further deteriorates to rank 55 due to less credit availability.

¹ Data for shale gas resources not available

LUXEMBOURG

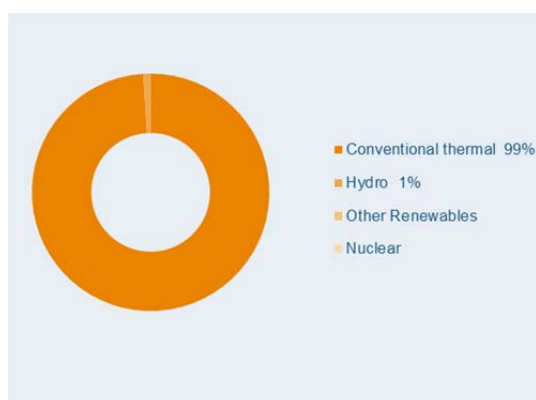
ENERGY SUSTAINABILITY BALANCE



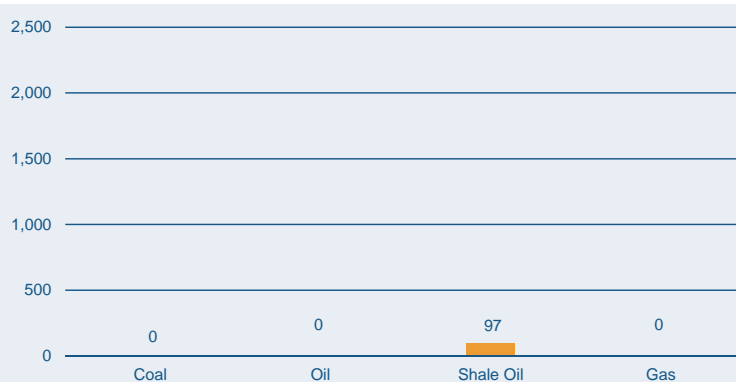
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	23	27	25	+
Energy security	74	81	72	+
Social equity	5	5	5	
Environmental impact mitigation	12	13	18	-
Contextual performance	4	2	3	-
Political strength	6	3	6	-
Societal strength	19	16	17	-
Economic strength	2	2	2	
Overall rank	16	13	18	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



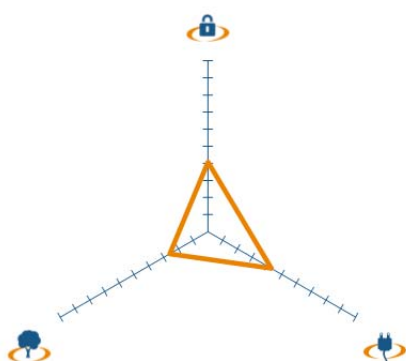
KEY METRICS

Industrial sector (% of total GDP)	13.6	GDP per capita (PPP, USD); GDP Group	78,906 (A)
TPEP / TPEC (net energy importer)	0.02	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.46	CO ₂ emissions (metric tons) per capita	20.91
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Luxembourg drops five places down to rank 18; however it continues to show a strong and relatively constant performance in the contextual and most energy dimensions. Luxembourg improved its performance in energy security driven by a further decrease in energy consumption and an increased wholesale margin on gasoline; however electricity production became less diversified.

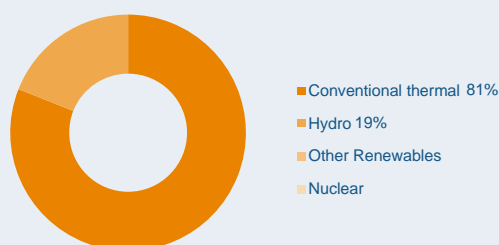
ENERGY SUSTAINABILITY BALANCE



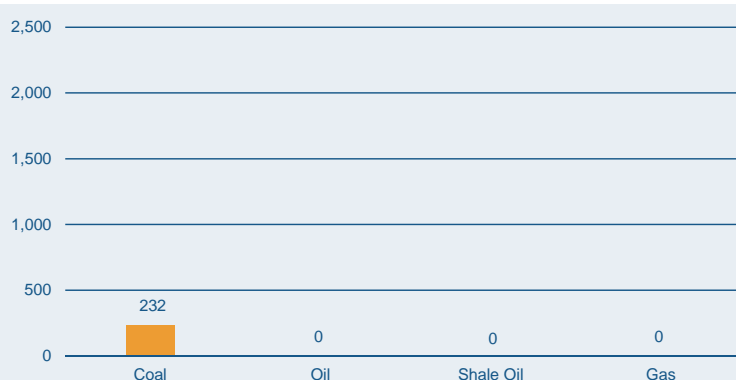
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	37	51	63	-
Energy security	23	43	56	-
Social equity	57	58	54	+
Environmental impact mitigation	43	58	68	-
Contextual performance	63	60	60	
Political strength	55	55	56	-
Societal strength	49	47	49	-
Economic strength	75	72	69	+
Overall rank	43	58	62	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

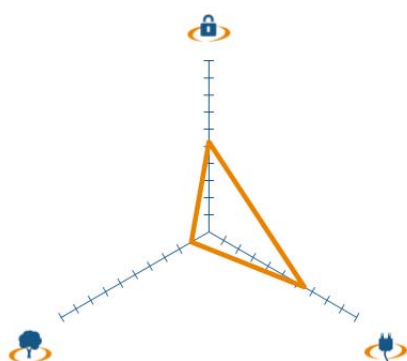
Industrial sector (% of total GDP)	27.1	GDP per capita (PPP, USD); GDP Group	9,868 (C)
TPEP / TPEC (net energy importer)	0.55	Energy intensity (million BTU per USD)	0.06
Emission intensity (kg of CO ₂ per USD)	3.62	CO ₂ emissions (metric tons) per capita	3.57
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Macedonia decreases four places in the Index. The drop in energy security is primarily driven by a decrease in the wholesale margin on gasoline, which is Macedonia's weakest indicator in this dimension; however this is partly offset by a reduction in energy consumption. Small improvements in the quality and affordability of electricity access as well as a small decrease in the gasoline prices improve social equity. Environmental performance drops due to a decrease in the quality of air and water, higher energy intensity and increased emissions per capita; which is partly offset by lower CO₂ emissions from electricity and heat generation. Contextual performance overall remains stable. Political strength slightly decreases due to a small drop in political stability and effectiveness of government. Economic performance remains the weakest dimension due to very high cost of living as proportion of household consumption expenditure. Minor improvements are driven by improved macroeconomic stability and slightly better credit availability.

MEXICO¹

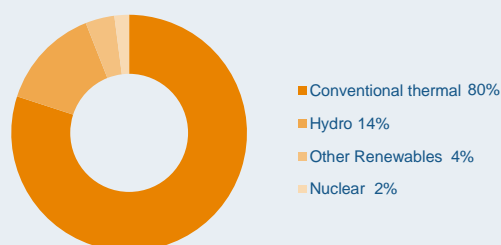
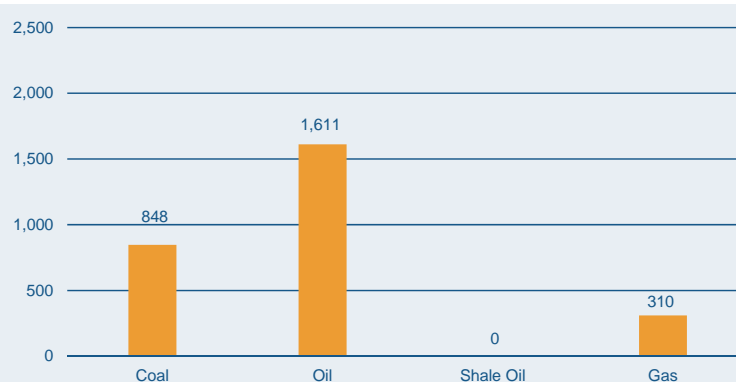
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	57	47	52	-
Energy security	48	51	45	+
Social equity	42	34	34	
Environmental impact mitigation	73	64	83	-
Contextual performance	46	46	46	
Political strength	50	53	52	+
Societal strength	61	58	57	+
Economic strength	28	27	30	-
Overall rank	53	46	50	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)²

KEY METRICS

Industrial sector (% of total GDP)	34.2	GDP per capita (PPP, USD); GDP Group	13,932 (C)
TPEP / TPEC (net energy exporter)	1.23	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.29	CO ₂ emissions (metric tons) per capita	3.95
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Mexico's overall drop by four places in the Index to rank 50 is mainly driven by a weaker environmental performance. This is caused by increased emissions in the electricity and heat generation and a lower quality of air and water, and could not be offset by improvements achieved in emissions and energy intensity per capita. Environmental impact mitigation is Mexico's weakest dimension (rank 83) of the energy trilemma. Energy security increases due to a substantial decrease in the energy consumption growth rate. Mexico's performance in social equity and in the contextual dimensions remains stable. Political stability, rule of law and availability of credits to the private sector are particularly weak indicators.

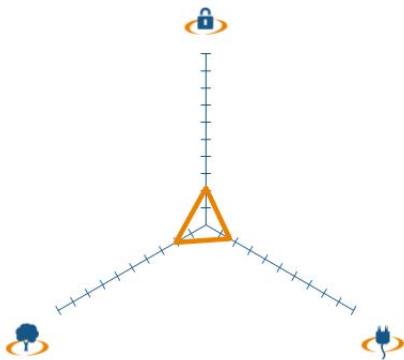
TRENDS AND OUTLOOK

- 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 the Congress in 2009, with the provision to 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 program; 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.

² As noted by the Mexican WEC member committee available data from national sources might differ from data used to calculate the Energy Sustainability Index and shown under key metrics

¹ Data for shale gas resources not available

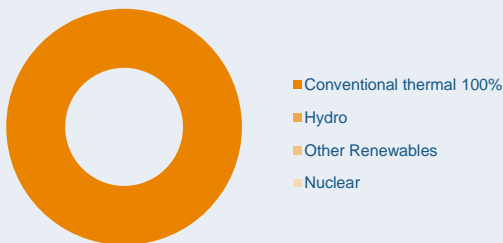
ENERGY SUSTAINABILITY BALANCE



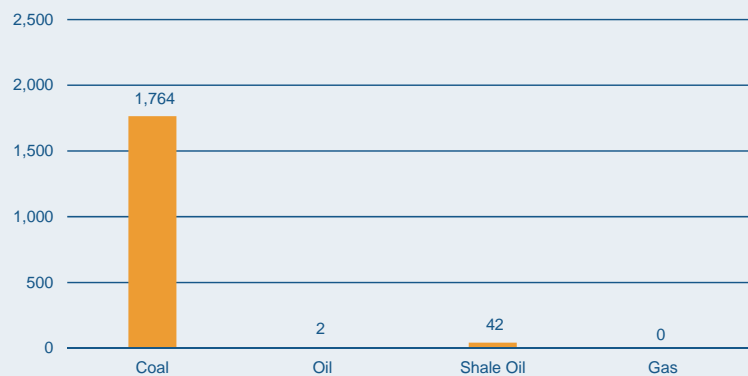
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	87	87	89	-
Energy security	83	72	74	-
Social equity	81	78	79	-
Environmental impact mitigation	72	78	75	+
Contextual performance	70	56	53	+
Political strength	65	66	62	+
Societal strength	76	74	71	+
Economic strength	59	31	23	+
Overall rank	88	85	85	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

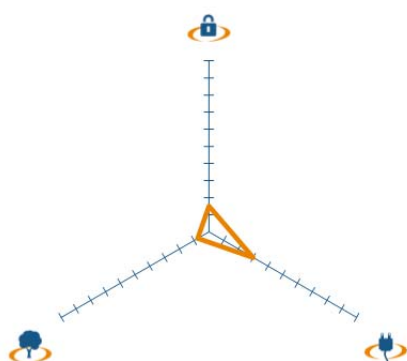
Industrial sector (% of total GDP)	32.6	GDP per capita (PPP, USD); GDP Group	4,020 (D)
TPEP / TPEC (net energy exporter)	2.71	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	4.00	CO ₂ emissions (metric tons) per capita	3.99
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	67.0

INDEX COMMENTARY

Mongolia remains constant on rank 85 of the Index. Performance in energy security is weak due to low diversity in electricity production and a positive and increasing 5-year energy consumption growth trend. The recent drop in energy security was driven by a decrease in the wholesale margin on gasoline. As only 67% of the population have access to electricity, social equity performance is low (rank 79). A small improvement in environmental performance is driven by a better quality of air and water when compared to peer countries but Mongolia still underperforms in mitigating its environmental impact compared to countries with a similar level of energy intensity per capita. While the country continues to struggle with its performance in political and societal strength it further improves its already strong economic performance, which is driven by low costs of living as proportion of household consumption expenditure and good macroeconomic stability, even though credit availability only achieves mediocre scores.

MOROCCO

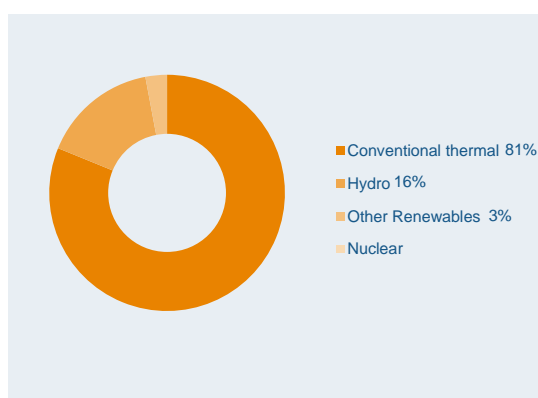
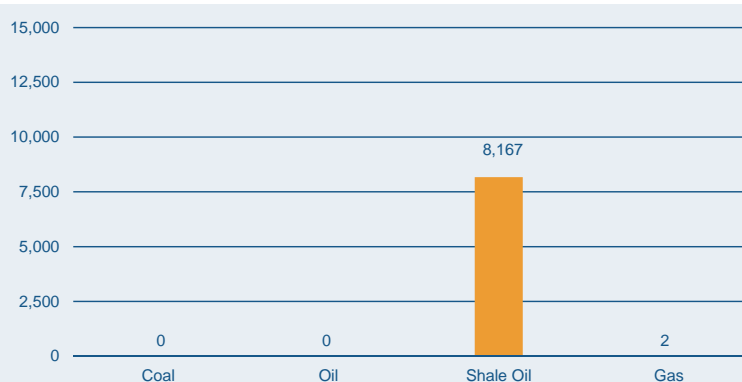
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	85	84	91	-
Energy security	88	77	80	-
Social equity	65	66	66	
Environmental impact mitigation	70	76	87	-
Contextual performance	57	58	56	+
Political strength	60	60	64	-
Societal strength	64	65	63	+
Economic strength	49	46	41	+
Overall rank	85	82	87	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

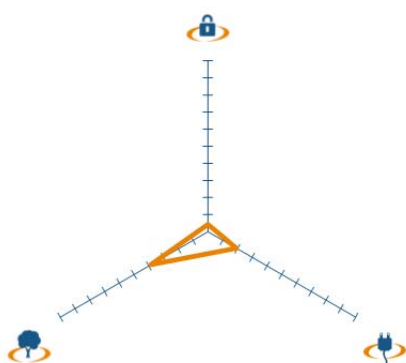
Industrial sector (% of total GDP)	32.2	GDP per capita (PPP, USD); GDP Group	4,794 (D)
TPEP / TPEC (net energy importer)	0.05	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.27	CO ₂ emissions (metric tons) per capita	1.18
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	97.0

INDEX COMMENTARY

Morocco drops by five places in the Index. Energy security overall is supported by a good wholesale margin on gasoline, but struggles with a low ratio of production to total energy supply and a positive 5-year energy consumption trend which further increased during the last year. However improvements were visible in diversity of electricity production. Social equity struggles most with high gasoline prices, but also with providing high quality and affordable access to electricity. Overall, Morocco has high CO₂ emissions from electricity and heat generation and a low quality of air and water, and thus underperforms in mitigating its environmental impact compared to other countries with similar levels of energy intensity per capita. Morocco shows a mediocre performance across most of the indicators measuring the contextual performance. Overall an increase by five places in economic strength is driven by small improvements in macroeconomic stability and credit availability.

¹ Data for shale gas resources not available

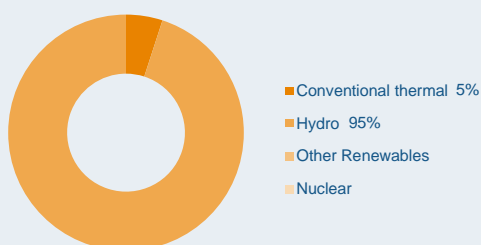
ENERGY SUSTAINABILITY BALANCE



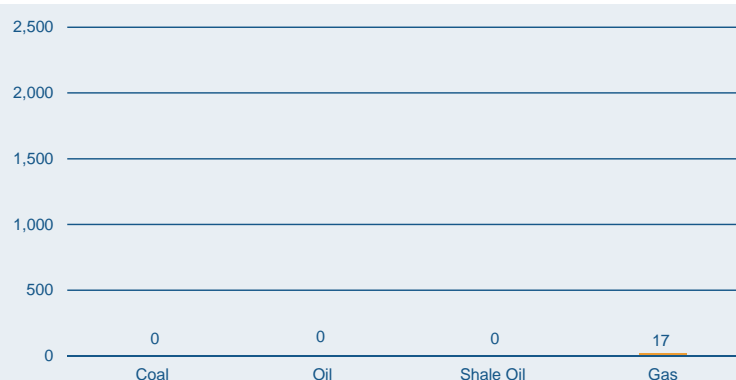
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	77	85	87	-
Energy security	82	75	90	-
Social equity	73	75	76	-
Environmental impact mitigation	44	73	57	+
Contextual performance	45	48	50	-
Political strength	40	42	43	-
Societal strength	58	62	61	+
Economic strength	39	36	46	-
Overall rank	68	81	79	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

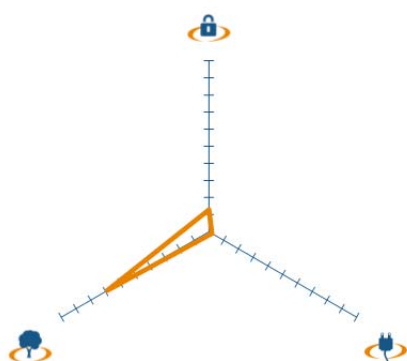
Industrial sector (% of total GDP)	33.3	GDP per capita (PPP, USD); GDP Group	7,016 (C)
TPEP / TPEC (net energy importer)	0.19	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.12	CO ₂ emissions (metric tons) per capita	5.64
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	34.0

INDEX COMMENTARY

Namibia rises two places in the Index to rank 79, which is mainly driven by an increase in environmental performance due to fewer emissions from electricity and heat generation and lower energy intensity per capita. However, energy security drops substantially (rank 90) due to less diversified electricity production and a decrease in the wholesale margin on gasoline; which is only partly offset by a strong reduction in the positive energy consumption growth rate. The low performance in social equity remains (rank 76) as only 34% of the population has currently access to electricity. Political and societal strength remain mostly constant, while Namibia struggles with its education indicators and health performance. Economic performance drops slightly due to a decrease in macro-economic stability.

NEPAL

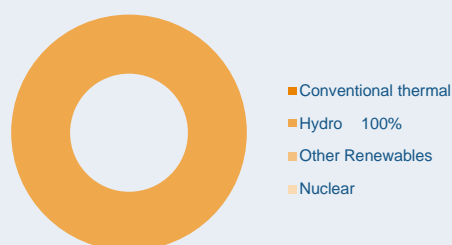
ENERGY SUSTAINABILITY BALANCE



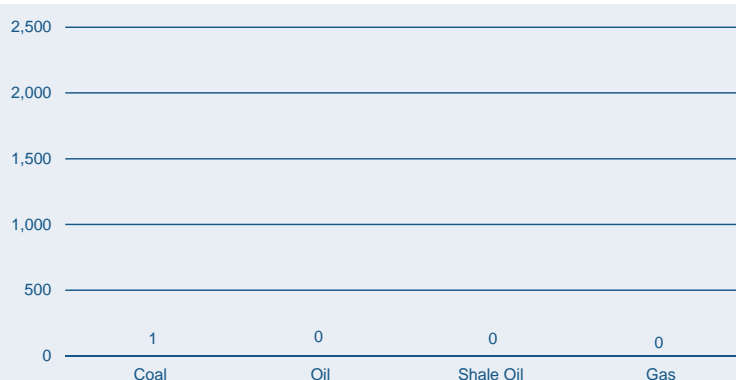
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	72	74	76	-
Energy security	75	76	82	-
Social equity	90	90	92	-
Environmental impact mitigation	21	25	29	-
Contextual performance	74	72	67	+
Political strength	87	89	88	+
Societal strength	83	84	84	
Economic strength	35	32	17	+
Overall rank	74	78	74	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



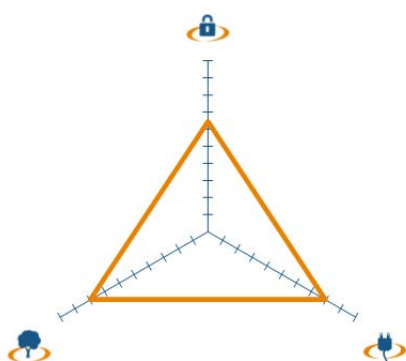
KEY METRICS

Industrial sector (% of total GDP)	15.0	GDP per capita (PPP, USD); GDP Group	1,269 (D)
TPEP / TPEC (net energy importer)	0.39	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.46	CO ₂ emissions (metric tons) per capita	0.28
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	43.6

INDEX COMMENTARY

Nepal rises four ranks in the Index. In the energy security dimension, Nepal most struggles with diversity of electricity production; however, the recent drop was driven by a decrease in the wholesale margin on gasoline and a decreased ratio of energy production to total energy supply. Energy consumption growth was reduced during the last year but remains positive. This will remain a challenge for Nepal's economic and social development as only 44% of the population has access to electricity. Low electricity access lead to Nepal's weak performance in social equity. The decrease in environmental performance is driven by a lower quality of air and water, which is Nepal's weakest indicator in this dimension and by an increase in CO₂ emissions from electricity and heat generation. However, these negative trends are offset by a small decrease in energy intensity per GDP per capita. Nepal's strong economic position is supported by low costs of living as proportion of household consumption expenditure. The recent increase however was driven by an increase in macroeconomic stability. Performance in political and societal strength remains weak.

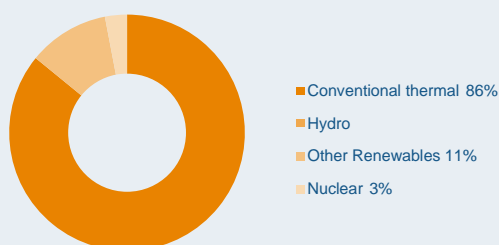
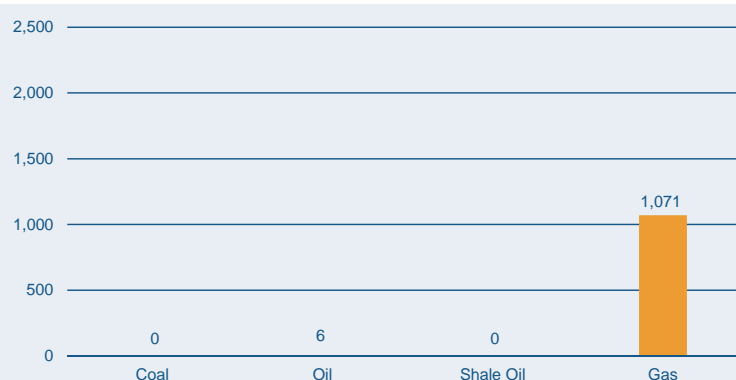
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	18	29	18	+
Energy security	11	53	34	+
Social equity	24	22	20	+
Environmental impact mitigation	45	31	20	+
Contextual performance	8	6	6	
Political strength	13	11	11	
Societal strength	10	8	5	+
Economic strength	12	11	12	-
Overall rank	13	16	14	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	24.2	GDP per capita (PPP, USD); GDP Group	40,969 (A)
TPEP / TPEC (net energy importer)	0.67	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.28	CO ₂ emissions (metric tons) per capita	14.98
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

The Netherlands rises by two places in the Index to rank 14. With a strong but constant contextual performance, the position increase was driven by an improvement in all energy dimensions. Energy security had suffered a harsh drop from 2010 to 2011, which could be recuperated this year partly due to an increase of the wholesale margin on gasoline and a decrease in the energy consumption growth, reversing last year's positive growth rate. In addition, the Netherlands continued their improvements in environmental impact mitigation, supported by a decrease in CO₂ emissions from electricity and heat generation and by an improvements of the quality of air and water which was especially high relative to peer countries.

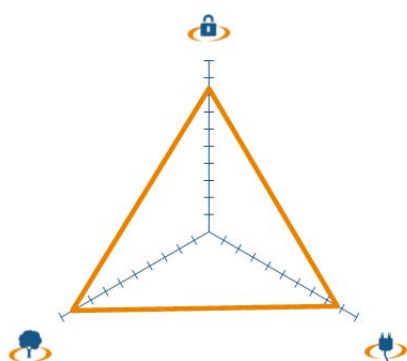
TRENDS AND OUTLOOK

- The Netherlands are well-positioned in the Index but still face a number of challenges. These include the public debate around installation of additional onshore wind capacity; rather 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 feed-in-tariff 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 (e.g., energy, water, resources, waste) by removing 'red tape', adjusting policies where appropriate, making knowledge available, etc.; 2) energy innovation 'top sector approach' designed to strengthen market steering, market involvement and market resources for energy innovation in seven key areas, including gas, solar, offshore wind, industrial efficiency, and biomass/bio-based economy; and 3) the SDE+ (stimulation of sustainable/renewable energy) feed in scheme, which 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 (e.g., 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 (e.g., 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 are expected to strengthen its position as 'gas country', with an increased focus on the role of gas as a 'balancing fuel' in a system that moves towards sustainability.

¹ Data for shale gas resources not available

NEW ZEALAND

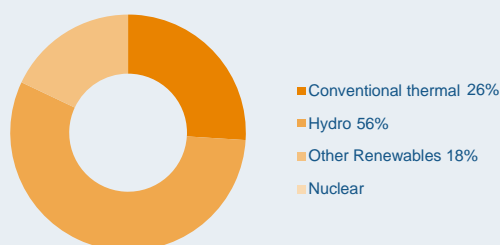
ENERGY SUSTAINABILITY BALANCE



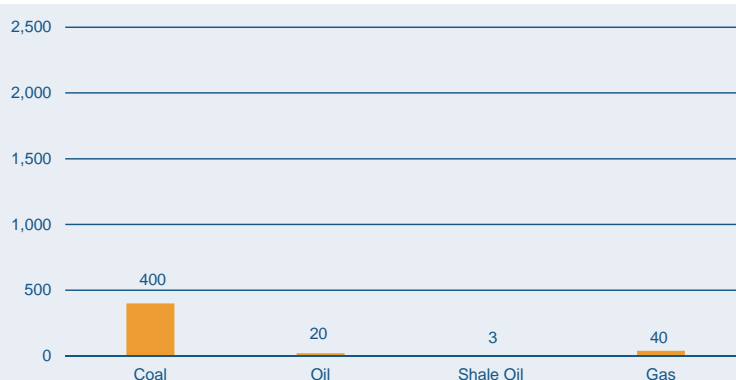
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	6	7	6	+
Energy security	17	33	16	+
Social equity	13	13	13	
Environmental impact mitigation	11	7	8	-
Contextual performance	8	8	7	+
Political strength	7	6	3	+
Societal strength	7	9	9	
Economic strength	20	17	20	-
Overall rank	5	6	6	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.5	GDP per capita (PPP, USD); GDP Group	26,997 (B)
TPEP / TPEC (net energy importer)	0.82	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.16	CO ₂ emissions (metric tons) per capita	8.94
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

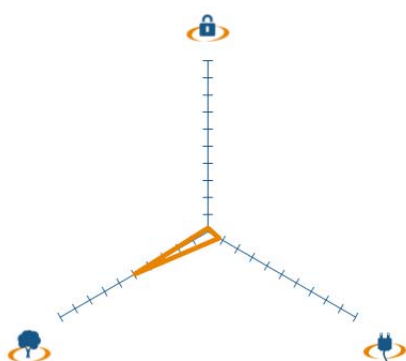
INDEX COMMENTARY

New Zealand remains constant on rank six in the Index. Improvements in energy security are driven by an increased wholesale margin on gasoline and oil reserve. Performance in other dimensions remains solid, except a small drop in its economic performance which is driven by a decrease in macroeconomic stability.

TRENDS AND OUTLOOK

- New Zealand is well-positioned in the Index and could see further improvements due to the increased use renewable energy sources and gas in electricity and heat generation which will lower CO₂ emissions and improve environmental impact mitigation performance.
- NZ Energy Strategy and NZEECS provide an overarching policy framework, its four priorities of diverse resource development, environmental responsibility, efficient use of energy, secure and affordable energy should improve New Zealand's performance in all three energy dimensions. Key initiatives are: 1) a national ETS, which allows the protection of the competitiveness of export industries by allocations; and 2) the New Zealand Energy Strategy which has an aspirational aim to increase the amount of renewable electricity from 70% to 90% by 2025, facilitated by ETS, market mechanisms and grid investment, and without compromising security of supply or competitiveness. The two major parties both support the ETS and have similar renewable energy goals, which should help to increase investment certainty in the sector.
- Trends to be watched are: 1) The extensions of the ETS to cover all sectors including agricultural emissions, and be fully internationally tradable; 2) An increasing proportion of electricity from renewable energy sources with gas likely make up most of the rest; 3) accommodating increasing intermittent wind generation; 4) Promotion of demand side measures including energy efficiency, and the use of renewables in the industrial and domestic sectors; and 5) Capitalising on opportunities to improve transport energy efficiency and the use of alternative transport fuels, which could contribute to greater energy security and have a positive environmental impact. New Zealand's vehicles are generally older and less efficient than those in other countries such as Japan and Europe. Two-thirds of New Zealand's liquid fuel comes from its one refinery and this will increase with the recent announcement of a CCR project.

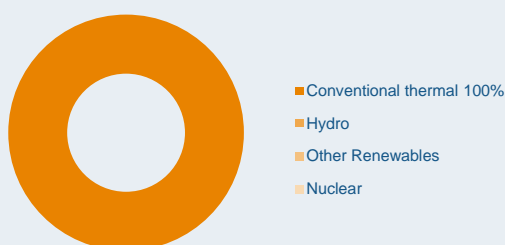
ENERGY SUSTAINABILITY BALANCE



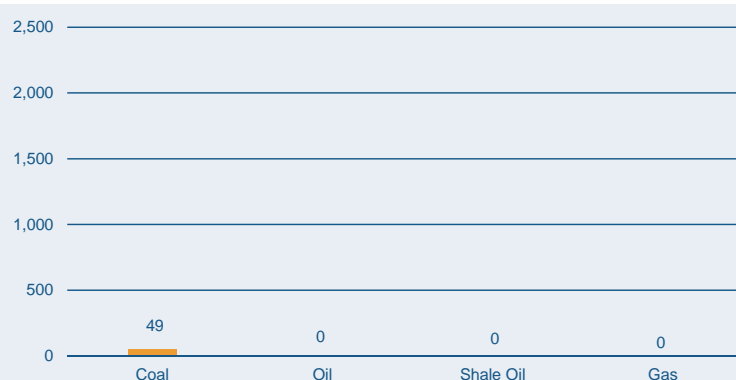
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	88	88	88	
Energy security	80	74	92	-
Social equity	86	88	87	+
Environmental impact mitigation	81	81	48	+
Contextual performance	84	81	83	-
Political strength	81	82	81	+
Societal strength	84	76	74	+
Economic strength	77	73	78	-
Overall rank	90	90	90	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

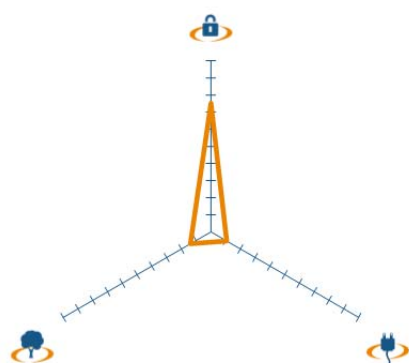
Industrial sector (% of total GDP)	16.0	GDP per capita (PPP, USD); GDP Group	761 (D)
TPEP / TPEC (net energy importer)	0.24	Energy intensity (million BTU per USD)	0.00
Emission intensity (kg of CO ₂ per USD)	0.25	CO ₂ emissions (metric tons) per capita	0.26
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	35.0

INDEX COMMENTARY

Niger remains constant on rank 90 in the Index. The country is in the early stages of developing a well-functioning energy system and performs rather poor across most indicators in the energy security dimension. The continuously increasing energy consumption is necessary for Niger's economic and social development as only 35% of the population has access to electricity. In combination with high gasoline prices this leads to a poor performance in social equity. Environmental performance is stronger due to a still very low energy and emissions intensity per capita and a mediocre quality of air and water. Improvements across all indicators led to a substantial rise in the environmental score. Performance in contextual dimensions is weak and Niger struggles across all indicators.

NIGERIA

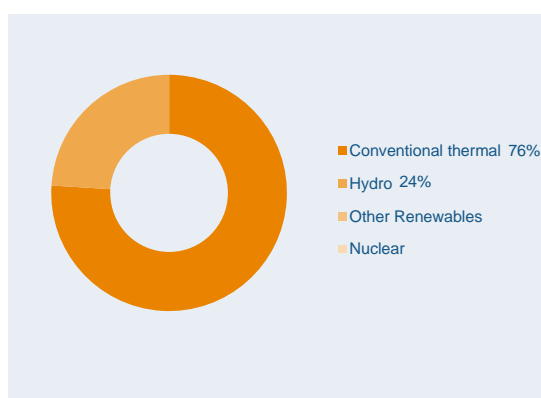
ENERGY SUSTAINABILITY BALANCE



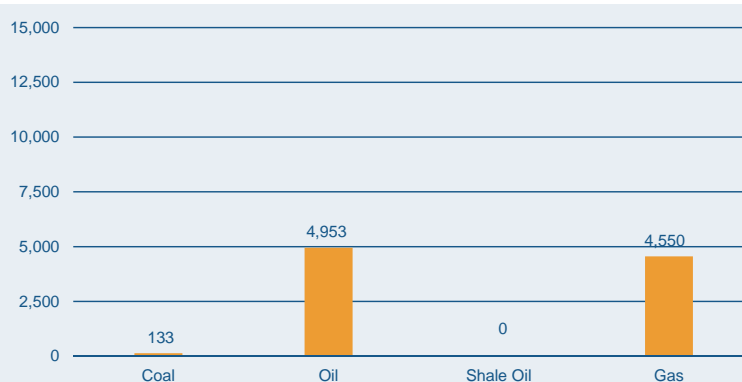
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	68	71	68	+
Energy security	16	18	24	-
Social equity	82	82	84	-
Environmental impact mitigation	83	88	81	+
Contextual performance	85	90	92	-
Political strength	89	91	90	+
Societal strength	89	90	89	+
Economic strength	66	82	92	-
Overall rank	77	83	84	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



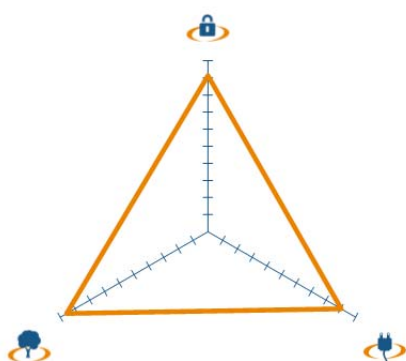
KEY METRICS

Industrial sector (% of total GDP)	33.6	GDP per capita (PPP, USD); GDP Group	2,420 (D)
TPEP / TPEC (net energy exporter)	7.42	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	1.20	CO ₂ emissions (metric tons) per capita	0.98
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	50.6

INDEX COMMENTARY

Nigeria drops one place to rank 84 in the Index with energy security being the only high performing dimension. However, a slight drop in energy security is driven by a decrease in the wholesale margin on gasoline and less diversity in electricity production and energy exports; these trends are only partly offset by a reduction in the energy consumption, which reverses last years' positive growth rate. The performance in social equity sees no positive change (rank 84), with only 50% of the population having access to electricity. Nigeria's weak environmental performance improved slightly (rank 81) but remains low due to a bad quality of air and water and high emissions from electricity and heat generation. Nigeria overall underperforms in mitigating its environmental footprint compared to peer countries with similar levels of energy intensity per capita. Performance across all indicators in the three contextual dimensions is very poor and economic strength experiences a further drop due to a decrease in credit availability and macroeconomic stability.

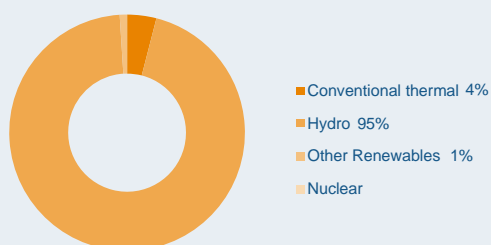
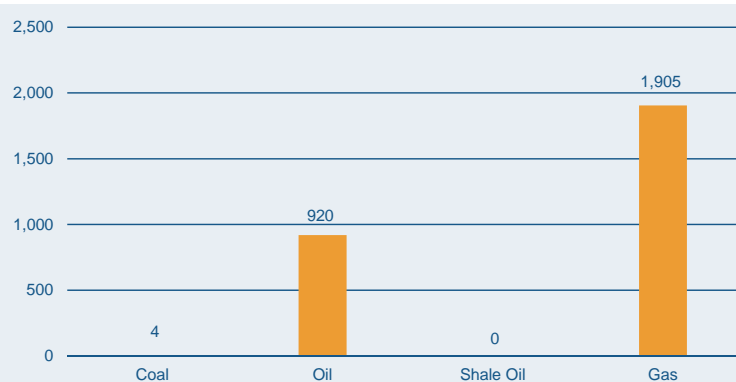
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	3	4	3	+
Energy security	7	21	9	+
Social equity	8	11	10	+
Environmental impact mitigation	4	4	5	-
Contextual performance	10	13	10	+
Political strength	10	10	8	+
Societal strength	4	6	4	+
Economic strength	29	37	24	+
Overall rank	3	5	4	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	39.7	GDP per capita (PPP, USD); GDP Group	52,165 (A)
TPEP / TPEC (net energy exporter)	5.20	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.24	CO ₂ emissions (metric tons) per capita	8.06
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

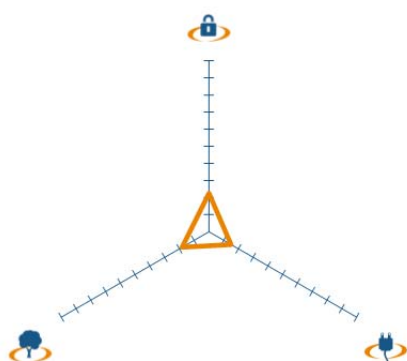
INDEX COMMENTARY

Norway increases by one place to rank four in the Index with improvements in most energy and all contextual dimensions. A substantial improvement in energy security was driven by an increased wholesale margin on gasoline. Driven by small deteriorations across all indicators, the environmental impact mitigation score decreases slightly. Norway exhibits substantially improved macroeconomic stability, which increases Norway's economic strength ranking by thirteen places to rank 24.

¹ Data for shale gas resources not available

PAKISTAN

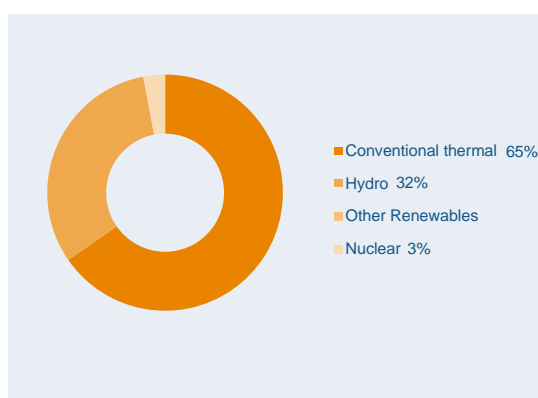
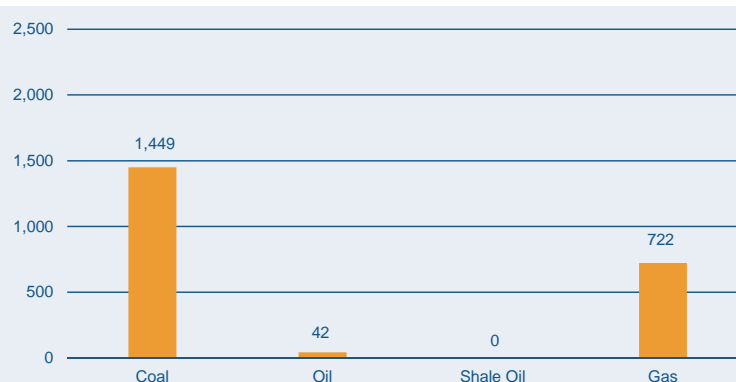
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	83	83	90	-
Energy security	67	64	73	-
Social equity	78	79	80	-
Environmental impact mitigation	68	71	77	-
Contextual performance	87	88	90	-
Political strength	85	87	87	
Societal strength	85	87	87	
Economic strength	81	86	91	-
Overall rank	87	88	92	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	25.8	GDP per capita (PPP, USD); GDP Group	2,721 (D)
TPEP / TPEC (net energy importer)	0.66	Energy intensity (million BTU per USD)	0.06
Emission intensity (kg of CO ₂ per USD)	3.36	CO ₂ emissions (metric tons) per capita	1.31
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	62.4

INDEX COMMENTARY

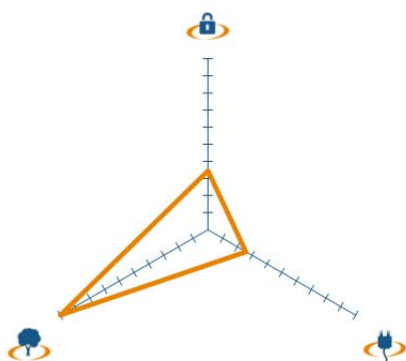
Pakistan decreases four ranks in the overall Index. Energy security is overall supported by strong diversity of electricity production and a relatively good ratio of production to energy supply. However, the wholesale margin on gasoline and the continuously positive 5-year energy consumption growth rate are weaker indicators. A sustained consumption growth is however necessary as only 62% of the population currently has access to electricity. Low electricity access rates lead to low performance in social equity. A decrease in environmental performance is driven by a very low quality of air and water and mediocre performance in the other indicators. Pakistan underperforms in mitigating its environmental footprint compared to countries with similar levels of energy intensity per capita. Performance in the contextual dimension is poor with a weak performance across all indicators.

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 single ministry of energy.

¹ Data for shale gas resources not available

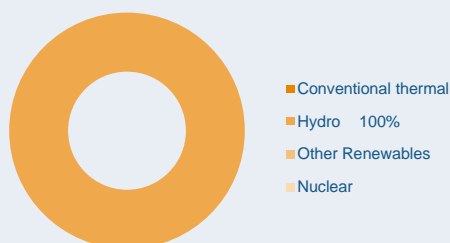
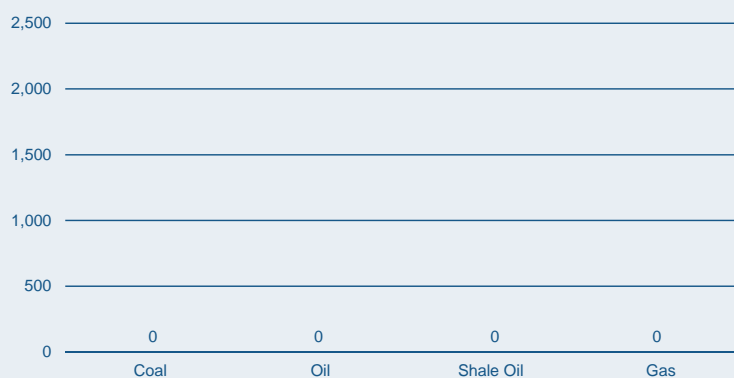
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	41	41	41	
Energy security	38	54	62	-
Social equity	67	69	70	-
Environmental impact mitigation	31	8	1	+
Contextual performance	86	83	85	-
Political strength	79	81	80	+
Societal strength	82	83	82	+
Economic strength	83	71	73	-
Overall rank	59	56	52	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	18.6	GDP per capita (PPP, USD); GDP Group	5,208 (D)
TPEP / TPEC (net energy exporter)	1.22	Energy intensity (million BTU per USD)	0.13
Emission intensity (kg of CO ₂ per USD)	1.15	CO ₂ emissions (metric tons) per capita	0.64
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	96.7

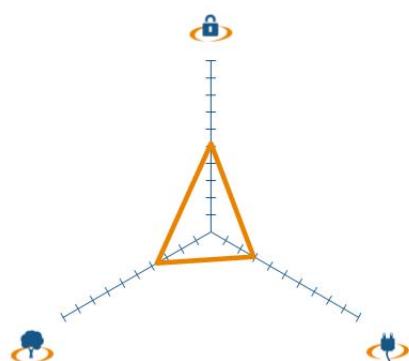
INDEX COMMENTARY

Paraguay rises four places in the Index to rank 52 due to an increase in environmental performance. This is driven by a reduction in emissions per capita and a better quality of air and water when compared to peer countries. Paraguay's top ranking in the environmental dimension is based on good scores in all indicators, despite high levels of energy intensity per capita. A deterioration of energy security was driven by a decrease in the wholesale margin on gasoline and by an increase in the 5-year energy consumption growth rate. Overall the weakest indicators for energy security remain the diversity of electricity production and of energy exports. Low scores in social equity are driven by high gasoline prices and low scores in providing high quality and affordable electricity access. Overall 3% of Paraguay's population doesn't have access to electricity. The weak contextual performance doesn't improve. Weakest indicators remain effectiveness of government for political strength, rule of law and education for societal strength and macroeconomic stability and low credit availability for economic strength.

¹ Data for shale gas resources not available

PERU

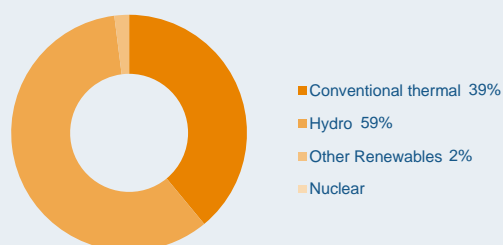
ENERGY SUSTAINABILITY BALANCE



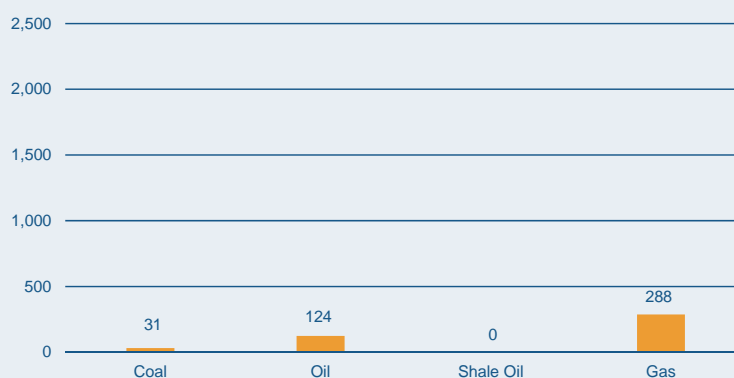
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	63	56	60	-
Energy security	69	48	46	+
Social equity	68	68	67	+
Environmental impact mitigation	36	45	60	-
Contextual performance	56	59	52	+
Political strength	62	61	58	+
Societal strength	66	67	64	+
Economic strength	43	45	34	+
Overall rank	63	59	58	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



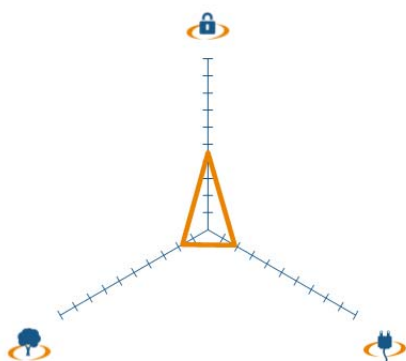
KEY METRICS

Industrial sector (% of total GDP)	38.0	GDP per capita (PPP, USD); GDP Group	9,358 (C)
TPEP / TPEC (net energy importer)	0.81	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.75	CO ₂ emissions (metric tons) per capita	1.51
Energy affordability (USD per kWh)	0.13	Population with access to electricity (%)	85.7

INDEX COMMENTARY

Peru rises by one place in the Index to rank 58. It exhibits a substantial drop in environmental performance driven by higher emissions from electricity and heat generation and a decreased quality of air and water, which is only partly offset by lower energy and emissions intensity per GDP per capita. Overall, Peru thus underperforms in mitigating its environmental impact compared to other countries with similar energy intensity per capita. Small improvements are noted for energy security, but sustained and increasing energy consumption growth and weak oil reserve stocks remain challenges. Social equity remains the weakest dimension (rank 67) and only 85% of the population has access to electricity. Contextual performance increases with small improvements across all indicators. However, political stability, rule of law and credit availability remain very weak indicators overall.

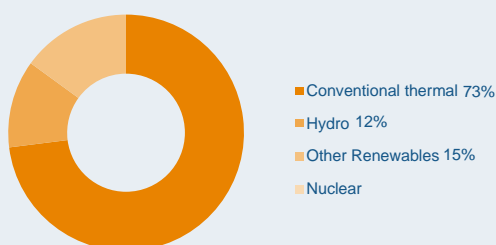
ENERGY SUSTAINABILITY BALANCE



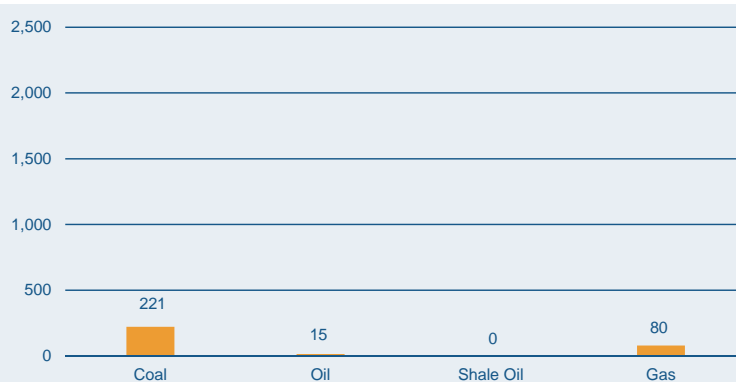
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	64	52	79	-
Energy security	59	31	52	-
Social equity	74	76	77	-
Environmental impact mitigation	41	52	78	-
Contextual performance	61	53	64	-
Political strength	66	69	74	-
Societal strength	69	70	70	-
Economic strength	44	20	37	-
Overall rank	64	57	75	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

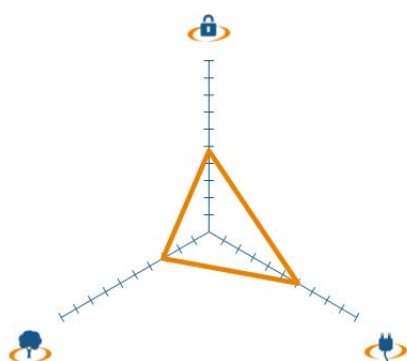
Industrial sector (% of total GDP)	31.5	GDP per capita (PPP, USD); GDP Group	3,920 (D)
TPEP / TPEC (net energy importer)	0.38	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.16	CO ₂ emissions (metric tons) per capita	0.86
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	89.7

INDEX COMMENTARY

The Philippines experience a significant drop by 18 places in the Index due to deteriorations across all dimensions. Energy security drops due to a decrease across all indicators. As only 90% of the population has access to electricity, the Philippines still struggle in social equity. Weak environmental performance is driven by high emissions from electricity and heat generation and poor quality of air and water. Overall, given its energy intensity per capita, the Philippines underperform in mitigating its environmental footprint compared to countries with similar levels of energy intensity. Political and societal strength remain weak, mostly due to low political stability and low control of corruption. The 17 place drop in economic strength is caused by low credit availability.

POLAND

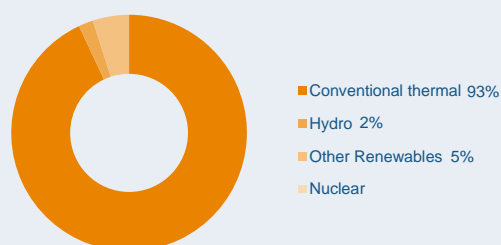
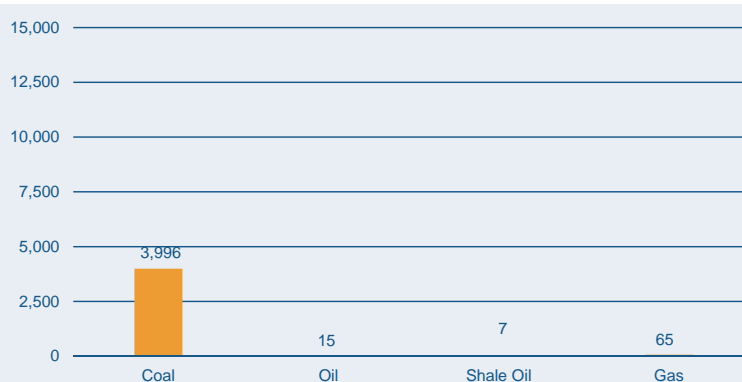
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	44	52	47	+
Energy security	26	57	50	+
Social equity	38	38	38	
Environmental impact mitigation	79	63	65	-
Contextual performance	51	44	44	
Political strength	35	29	25	+
Societal strength	35	31	31	
Economic strength	82	74	82	-
Overall rank	47	53	47	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	33.6	GDP per capita (PPP, USD); GDP Group	18,951 (B)
TPEP / TPEC (net energy importer)	0.63	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.91	CO ₂ emissions (metric tons) per capita	7.48
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

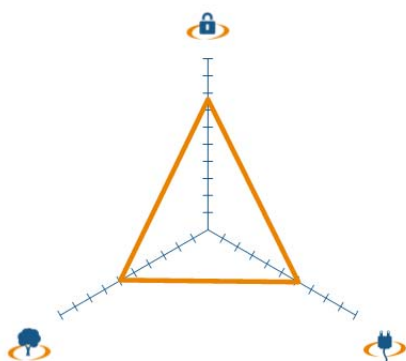
Poland rises in the Index by six places up to rank 47 which is mainly driven by improvements in the energy dimensions. An increase in the wholesale margin on gasoline and more diversified electricity production lead to an increase in energy security despite an increased energy consumption growth rate and a decrease in the oil reserve stocks. Poland's environmental performance slightly decreases due to a lower quality of air and water. However, small improvements across the other indicators can be noted. Poland's performance in social equity and contextual dimensions remains close to constant. Small improvements are noted across all indicators in the political dimension, while Poland's weak economic situation further deteriorates.

TRENDS AND OUTLOOK

- The following most recent energy policy developments are expected to positively affect energy efficiency, increase energy security and improve the mitigation of the environmental impact: 1) diversification of the structure of electricity production by building new, more efficient thermal power and nuclear plants; 2) introduction of incentives that foster the development of renewable energy; 3) diversification of energy supplies; 4) increase of the competitiveness of fuels and energy markets; and 5) limiting the energy sector impact on environment by development of clean coal technologies.
- Expected future trends effecting Poland's sustainability balance and issues for policymakers to focus on are: 1) reduction of primary energy imports possibly by exploiting shale gas resources; 2) modernisation of the energy sector with huge investments necessary in coal mining, electricity and natural gas industries, and environmental protection; and 3) improvement of energy intensity and reduction of CO₂ emission by deploying low emission technologies to achieve 'zero' emission growth.

¹ Data for shale gas resources not available

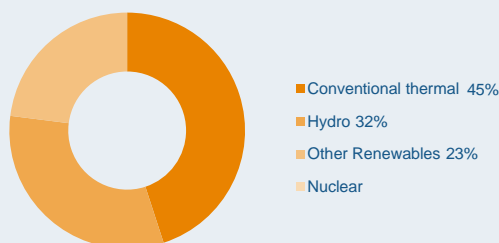
ENERGY SUSTAINABILITY BALANCE



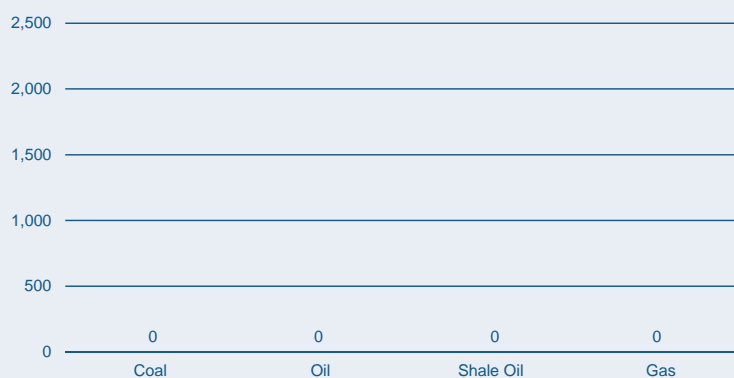
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	20	32	28	+
Energy security	12	39	23	+
Social equity	34	36	37	-
Environmental impact mitigation	38	40	38	+
Contextual performance	20	25	26	-
Political strength	20	24	30	-
Societal strength	26	27	27	
Economic strength	22	25	25	
Overall rank	19	29	25	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	22.8	GDP per capita (PPP, USD); GDP Group	23,257 (B)
TPEP / TPEC (net energy importer)	0.17	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.07	CO ₂ emissions (metric tons) per capita	5.32
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

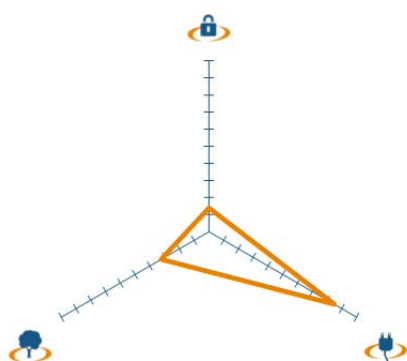
Portugal rises by four places in the Index. Energy security performance improves mainly due to an increased diversification of electricity production; however the improvements were tempered by a relative flat lining trend of energy consumption, which places Portugal in a weaker position compared to its peer countries. A slight increase in environmental impact mitigation was driven by a reduction of CO₂ emissions from electricity and heat generation, despite higher energy and emissions intensity per capita. Political strength drops six positions due to small decreases across the three underlying indicators. Relatively steady social equity and contextual performance leads to a drop of one position to rank 37 in the Index.

TRENDS AND OUTLOOK

- Portugal has made considerable improvements in mitigating its environmental impact (declining emissions and energy intensity, improving air and water quality) and improving its energy security (lower dependence on external sources, increase installed renewable capacity).
- Recent energy policy developments, expected to have positive impact on the energy sustainability balance, include the unbundling of the energy sector, a better regulated access to grid and gas storage, development of grid and market integration with Spain, full domestic market liberalisation, increased competition, development electricity transmission grid, additional gas storage capacity, promotion of renewable energy and of energy efficiency at production and consumption level
- Issues policymakers are expected to focus on are: 1) continue pursuing energy efficiency namely in buildings and in transportation sector; 2) support in a sustainable way renewable energy; 3) decarbonise the economy; 3) search support to the development of interconnections to European electricity and gas markets; 4) promote on- and offshore exploration of oil and gas; and 5) reduce external dependence.

QATAR

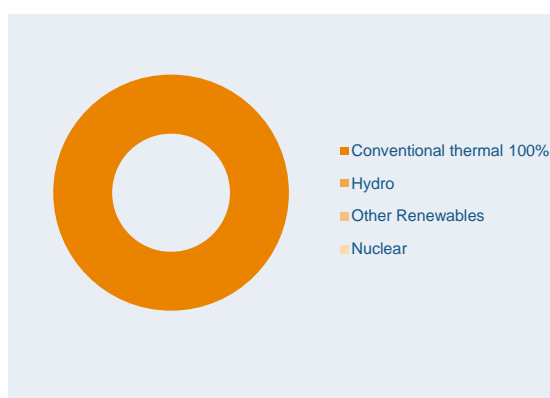
ENERGY SUSTAINABILITY BALANCE



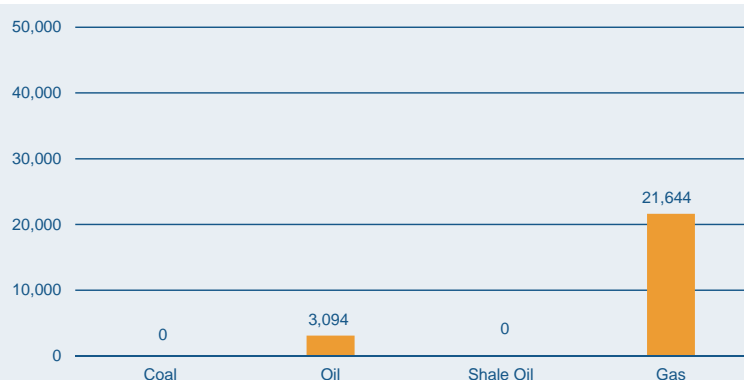
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	51	68	51	+
Energy security	62	91	81	+
Social equity	17	15	15	
Environmental impact mitigation	76	75	64	+
Contextual performance	16	14	17	-
Political strength	28	19	27	-
Societal strength	28	28	32	-
Economic strength	1	7	7	
Overall rank	38	48	41	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



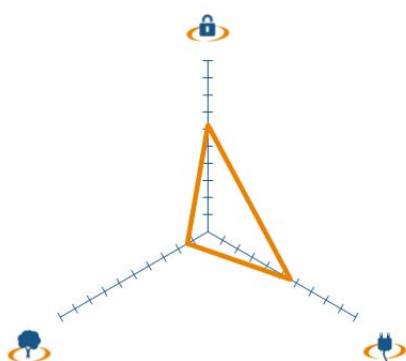
KEY METRICS

Industrial sector (% of total GDP)	73.0	GDP per capita (PPP, USD); GDP Group	88,222 (A)
TPEP / TPEC (net energy exporter)	5.48	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.66	CO ₂ emissions (metric tons) per capita	39.64
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	98.7

INDEX COMMENTARY

Qatar increases its Index ranking by seven places. Energy security is very weak (rank 81) due to weak diversity of electricity production and of energy exports, a small wholesale margin on gasoline and a positive 5-year energy consumption growth trend. However, a decrease in the energy consumption growth trend improved energy security rankings from 2011. An improvement across all indicators also led to a better environmental performance. Qatar continues to perform well in social equity and economic strength with good scores across all indicators. However, a drop in political and societal strength is driven by a small deterioration across all indicators.

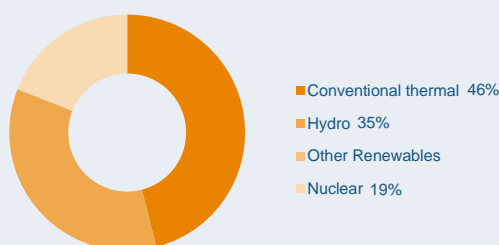
ENERGY SUSTAINABILITY BALANCE



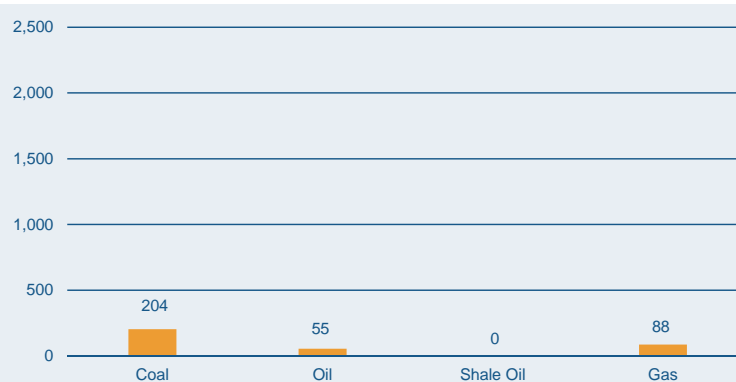
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	35	39	50	-
Energy security	28	46	36	+
Social equity	44	43	42	+
Environmental impact mitigation	50	36	80	-
Contextual performance	59	55	61	-
Political strength	48	46	45	+
Societal strength	45	45	45	
Economic strength	84	79	84	-
Overall rank	41	42	56	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	32.9	GDP per capita (PPP, USD); GDP Group	11,904 (C)
TPEP / TPEC (net energy importer)	0.78	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.36	CO ₂ emissions (metric tons) per capita	3.75
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

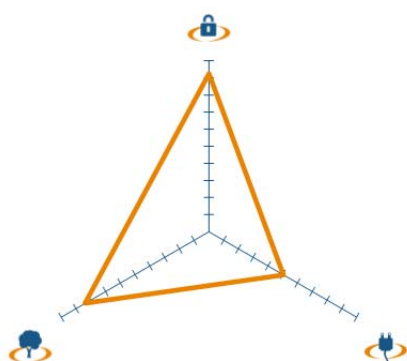
Romania declines in the Index by 14 places to rank 56. Energy security improved due to reductions in energy consumption; those improvements were only partly offset by the decrease in the wholesale margin on gasoline and in the oil reserve stocks. Due to a weak and further decreasing quality of air and water, Romania underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. The substantial drop during the last year makes this dimension Romania's weakest one (rank 80). Romania's weak economic situation further deteriorates (rank 84) due to lower credit availability and a slower improvement in macroeconomic stability when compared to other countries. Weakest indicator in this dimension is the high cost of living as proportion of household consumption expenditure. Romania shows a stable performance in social equity, political and social strength.

TRENDS AND OUTLOOK

- The most recent energy policy development which is expected to positively influence the country's energy sustainability balance is the revision of Romania's renewable energy law which will offer differentiated, and potentially lucrative, green certificate (GC) 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 impact mitigation efforts.

RUSSIA

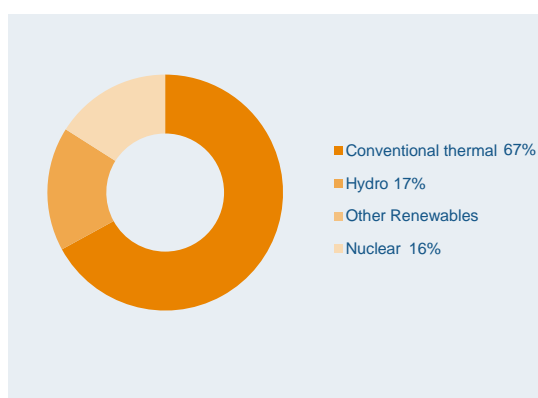
ENERGY SUSTAINABILITY BALANCE



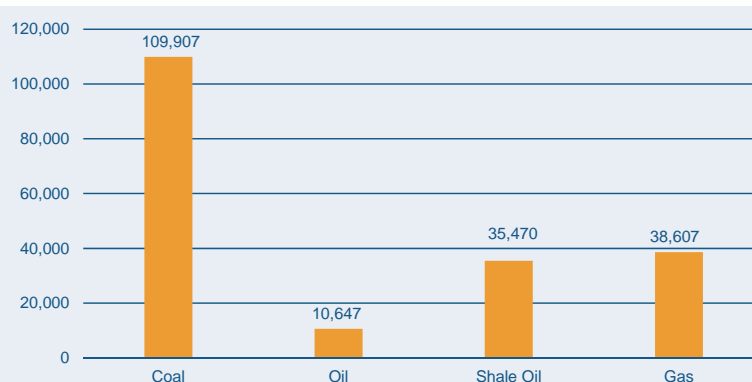
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	17	11	16	-
Energy security	8	2	8	-
Social equity	53	48	47	+
Environmental impact mitigation	14	11	16	-
Contextual performance	71	79	71	+
Political strength	75	76	77	-
Societal strength	72	73	69	+
Economic strength	55	70	53	+
Overall rank	29	27	26	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



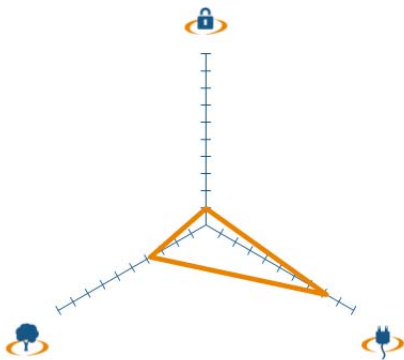
KEY METRICS

Industrial sector (% of total GDP)	36.9	GDP per capita (PPP, USD); GDP Group	15,657 (B)
TPEP / TPEC (net energy exporter)	1.85	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	3.13	CO ₂ emissions (metric tons) per capita	11.00
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Russia increased its Index ranking by one place to rank 26. Russia struggles the most with contextual performance, but improved this somewhat during the last year, increasing its societal strength by four places (to rank 69) and its economic strength by seventeen spots due to increased macroeconomic stability (to rank 53). Russia's environmental performance dropped slightly due to a substantial decrease in the quality of air and water and slower reduction of CO₂ emission from electricity and heat generation compared to its peer countries. This is partly offset by lower energy and emissions intensity per GDP per capita. A decrease in energy security was driven by a decrease of the wholesale margin on gasoline, which outweighs the strong reduction in energy consumption reversing last year's positive growth rate.

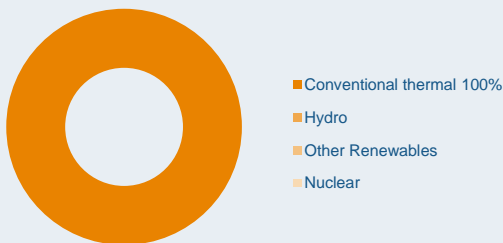
ENERGY SUSTAINABILITY BALANCE



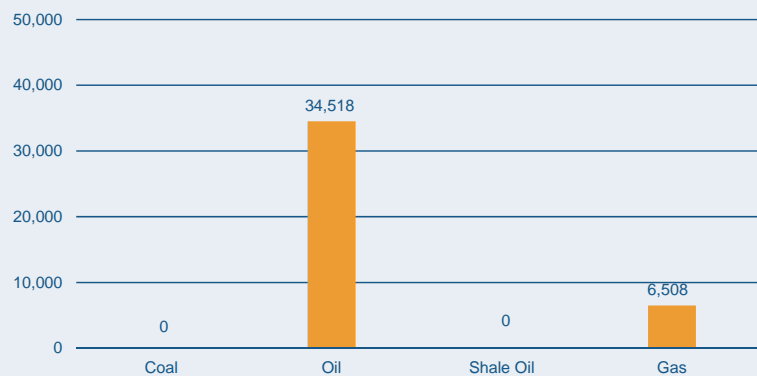
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	48	52	53	-
Energy security	66	85	85	
Social equity	20	18	18	
Environmental impact mitigation	61	56	59	-
Contextual performance	31	32	31	+
Political strength	53	57	54	+
Societal strength	44	44	41	+
Economic strength	10	12	11	+
Overall rank	42	47	46	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

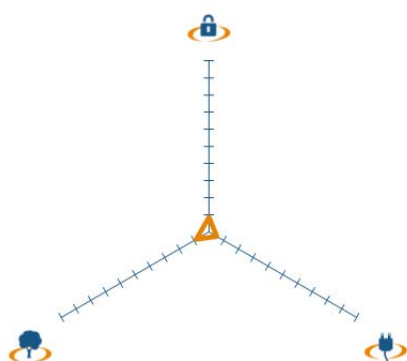
Industrial sector (% of total GDP)	69.1	GDP per capita (PPP, USD); GDP Group	22,714 (B)
TPEP / TPEC (net energy exporter)	2.92	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.68	CO ₂ emissions (metric tons) per capita	17.22
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.0

INDEX COMMENTARY

Saudi Arabia improves by one place in the Index. Environmental performance decreases due a small increase in CO₂ emissions from electricity and heat generation, lower quality of air and water and higher energy intensity. Overall, all environmental indicators remain weak. Performance in energy security and almost all underlying indicators is weak and energy consumption continues to grow. However, the ratio of production to total energy supply is very good. Saudi Arabia's good performance in social equity was maintained, especially supported by low gasoline prices. Saudi Arabia improves in all contextual dimensions. Political strength increases due to more political stability and better effectiveness of government, an improvement in societal strength is driven by increases across all indicators, especially in education, and economic strength increases due to an improvement in macroeconomic stability.

SENEGAL

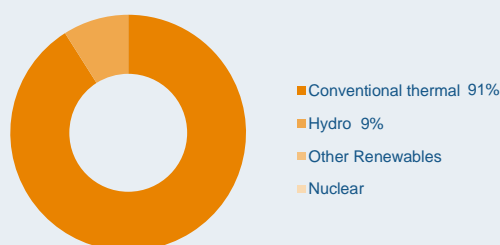
ENERGY SUSTAINABILITY BALANCE



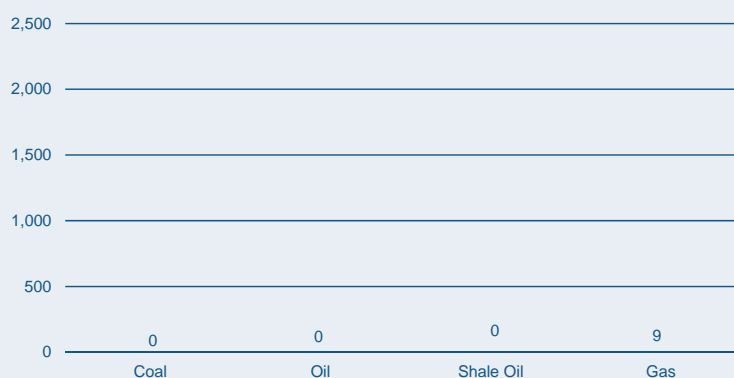
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	90	90	93	-
Energy security	86	78	86	-
Social equity	84	87	89	-
Environmental impact mitigation	84	85	86	-
Contextual performance	78	77	77	
Political strength	63	63	68	-
Societal strength	74	78	78	
Economic strength	73	75	76	-
Overall rank	89	91	94	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



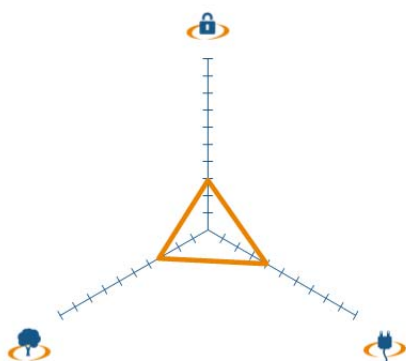
KEY METRICS

Industrial sector (% of total GDP)	22.8	GDP per capita (PPP, USD); GDP Group	1,828 (D)
TPEP / TPEC (net energy importer)	0.04	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.27	CO ₂ emissions (metric tons) per capita	1.13
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	42.0

INDEX COMMENTARY

Senegal drops by three places. Energy security most struggles with a low ratio of production to total energy supply; however the recent decrease was driven by a decrease in the wholesale margin on gasoline, while the 5-year energy consumption growth rate decreased, but still remains positive. Growth in energy consumption is important for Senegal's economic and social development as only 42% of the population has access to electricity. In combination with high gasoline prices this leads to low performance in social equity. Environmental performance is very weak due to high CO₂ emissions from electricity and heat generation and a low quality of air and water. Overall the Senegal underperforms in mitigating its environmental impact when compared to countries with similar levels of energy intensity per capita. Contextual performance remains low, but fairly constant as the country continues to struggle with most indicators, including political stability, effectiveness of government, health, education, control of corruption, rule of law as well as credit availability and macroeconomic stability.

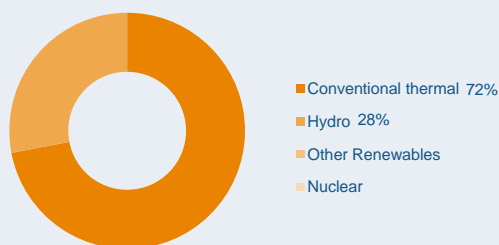
ENERGY SUSTAINABILITY BALANCE



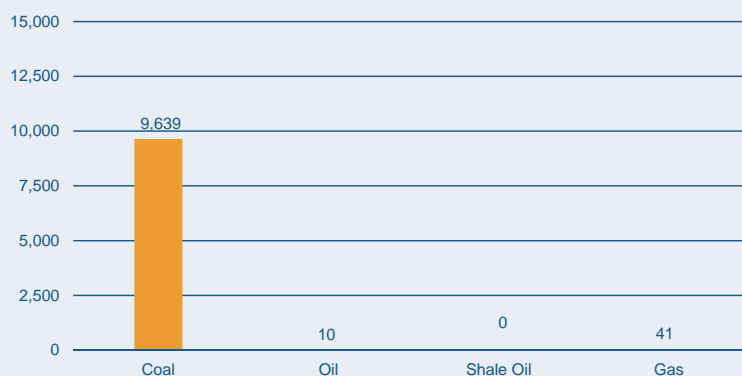
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	80	38	67	-
Energy security	91	35	67	-
Social equity	59	57	57	
Environmental impact mitigation	56	30	62	-
Contextual performance	73	71	72	-
Political strength	64	62	61	+
Societal strength	51	51	52	-
Economic strength	90	89	89	
Overall rank	82	44	66	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	18.7	GDP per capita (PPP, USD); GDP Group	10,258 (C)
TPEP / TPEC (net energy importer)	0.66	Energy intensity (million BTU per USD)	0.08
Emission intensity (kg of CO ₂ per USD)	6.28	CO ₂ emissions (metric tons) per capita	7.08
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

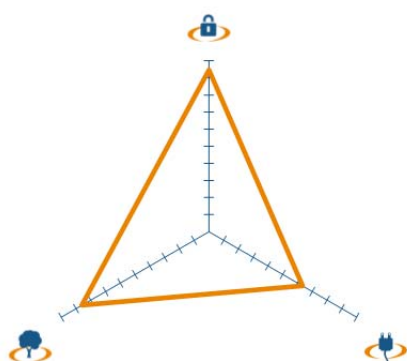
Serbia drops 22 places to rank 66 in the Index due to a weaker energy security and environmental performance. Energy security drops due to a decrease in the already low wholesale margin on gasoline. As the indicators of energy consumption growth and oil stock reserves are missing due to data constraints, a deterioration of one indicator has a very strong impact on the performance. It is therefore possible that the real effective decrease in energy security is smaller but cannot be evaluated due to data constraints. The substantial drop in environmental performance is driven by deteriorations across all indicators, particularly a decrease of the quality of air and water. Serbia's performance in social equity and all contextual dimensions remains constant. Performance in economic strength most struggles with very high costs of living as proportion of household consumption expenditure, while credit availability and macroeconomic stability is stronger and improved since last year's Index

TRENDS AND OUTLOOK

- In the last few years considerable investments have been made in the energy sector (e.g., electrostatic precipitators, new slug and ash removal systems, etc.), transportation system, and waste management, etc.
- 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 impact mitigation dimension.
- The key future issues policymakers should focus on are: 1) by the end of 2012, adopt the new energy sector development strategy until 2030 with a clear vision how the sector incl. the energy mix should develop until 2050; 2) meet the obligation from the South Eastern Europe Energy Treaty to fully open the energy market by 2015; 3) implement flue gas de-sulfurisation in all power plants by 2017; 4) meet EU biofuel targets for 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.

SLOVAKIA

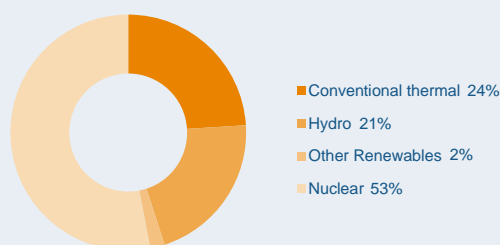
ENERGY SUSTAINABILITY BALANCE



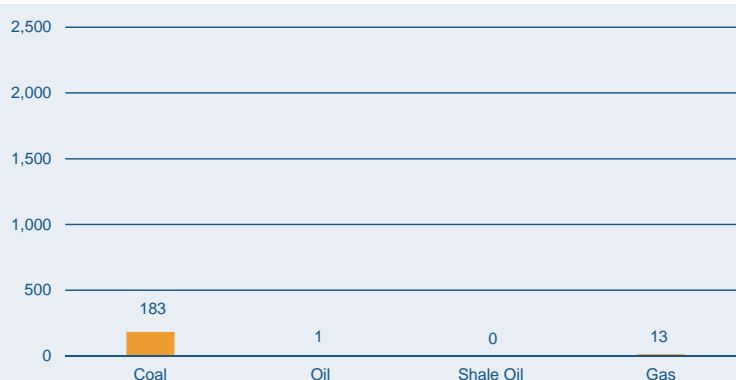
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	12	17	9	+
Energy security	15	28	6	+
Social equity	35	35	35	
Environmental impact mitigation	10	17	14	+
Contextual performance	41	41	45	-
Political strength	25	24	19	+
Societal strength	37	38	39	-
Economic strength	67	62	81	-
Overall rank	17	20	17	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	35.5	GDP per capita (PPP, USD); GDP Group	22,122 (B)
TPEP / TPEC (net energy importer)	0.33	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.15	CO ₂ emissions (metric tons) per capita	6.58
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

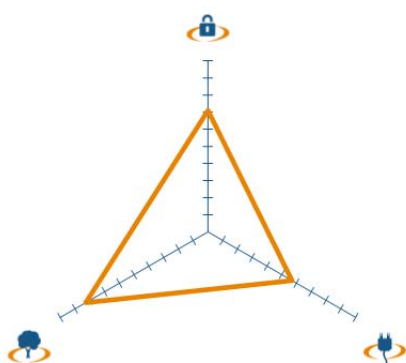
INDEX COMMENTARY

Slovakia rises by three places to rank 17 in the Index. A substantial improvement in energy security is driven by an increased wholesale margin on gasoline and a decrease in energy consumption growth. Political strength slightly improves due to better political stability. Slovakia's weak economic stability further deteriorated this year (rank 81) due to decreased macroeconomic stability.

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, replacing existing by 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 liberalization 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 arising from the development of decentralized production and electric mobility. Increasing energy efficiency in all sectors of the economy remains a challenge as it requires a number of activities, including, structural changes in the economy to diverge from heavy industry to a sophisticated production with high added value, measure to reduce energy consumption of buildings, etc. The role of nuclear energy needs to be discussed as 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.

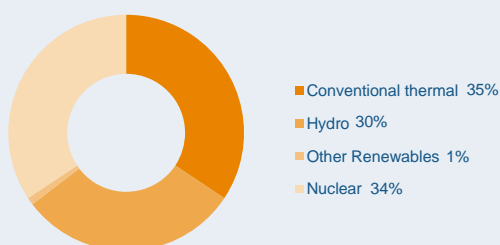
ENERGY SUSTAINABILITY BALANCE



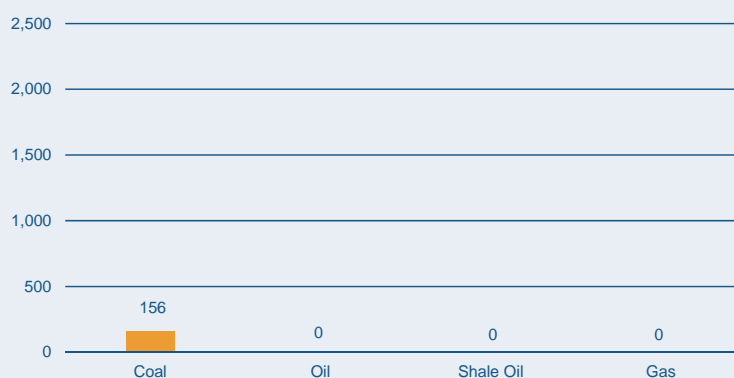
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	15	28	23	+
Energy security	4	41	28	+
Social equity	36	41	41	
Environmental impact mitigation	28	20	17	+
Contextual performance	24	28	29	-
Political strength	22	27	28	-
Societal strength	23	22	24	-
Economic strength	33	35	39	-
Overall rank	14	25	22	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	6.9	GDP per capita (PPP, USD); GDP Group	28,131 (B)
TPEP / TPEC (net energy importer)	0.47	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.19	CO ₂ emissions (metric tons) per capita	8.61
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

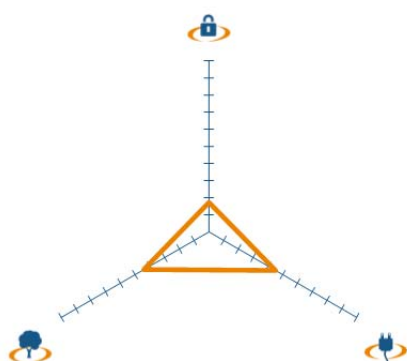
Slovenia's rise by three places to rank 22 was driven by better performance in energy security and environmental impact mitigation. Improved energy security was triggered by an increased wholesale margin on gasoline; however the decrease in energy consumption growth is slower than in peer countries. An increase in environmental performance is driven by a reduction in CO₂ emissions from electricity and heat generation; Slovenia overall outperforms other countries with a similar level of energy intensity per capita in mitigating its environmental footprint. Weakest dimensions remain social equity (rank 41) and economic strength (rank 39) due to high costs of living as proportion to total household consumption.

TRENDS AND OUTLOOK

- Recent energy policy developments include the amendments to the Energy Act in the year 2012 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 social equity.
- South Stream, a gas pipeline which 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 the years 2013 and 2015.
- To improve Slovenia's environmental performance additional financial investments into 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 are necessary.

SOUTH AFRICA

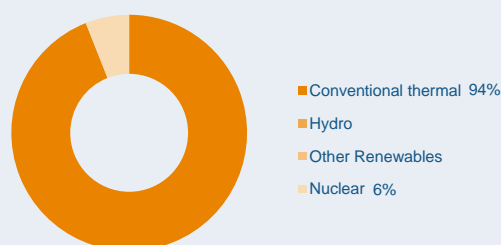
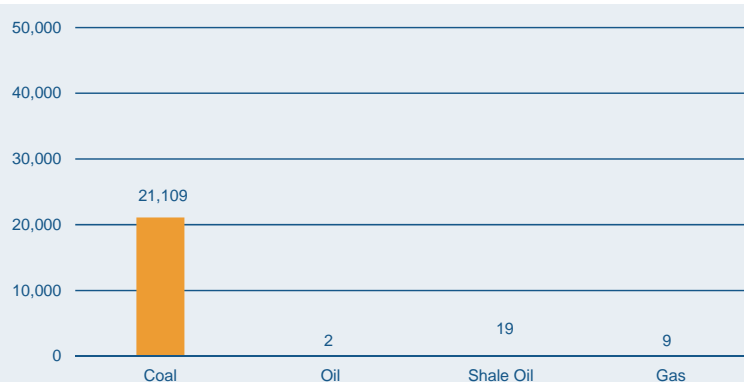
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	50	62	64	-
Energy security	45	59	78	-
Social equity	48	52	52	
Environmental impact mitigation	60	57	53	+
Contextual performance	35	34	35	-
Political strength	43	45	45	
Societal strength	56	61	59	+
Economic strength	19	13	13	
Overall rank	46	55	57	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	31.6	GDP per capita (PPP, USD); GDP Group	10,541 (C)
TPEP / TPEC (net energy exporter)	1.11	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	3.97	CO ₂ emissions (metric tons) per capita	12.01
Energy affordability (USD per kWh)	0.06	Population with access to electricity (%)	75.0

INDEX COMMENTARY

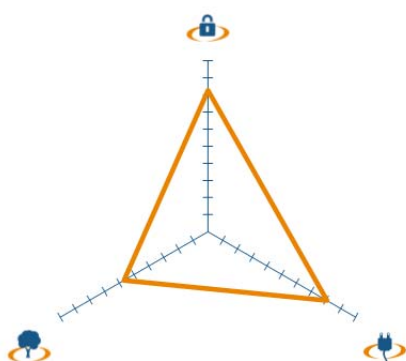
South Africa's drop by two places in the Index to rank 57 is mostly driven by a drop in energy security due to a decrease in the wholesale margin on gasoline, and a particular weak performance in diversification of electricity production. Even though a small upward trend was visible during the last year, South Africa still struggles with all environmental indicators and has very high levels of energy intensity per capita. Performance in social equity remains constant with only 75% of the population having access to electricity. Performance remains fairly constant in all contextual dimensions, among which societal strength remains the weakest one (rank 59).

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 social 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.

¹ Data for shale gas resources not available

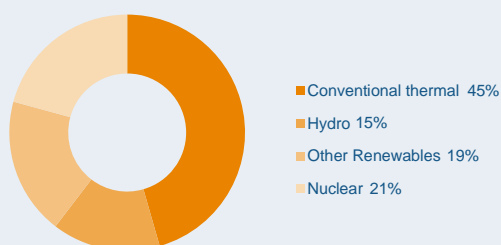
ENERGY SUSTAINABILITY BALANCE



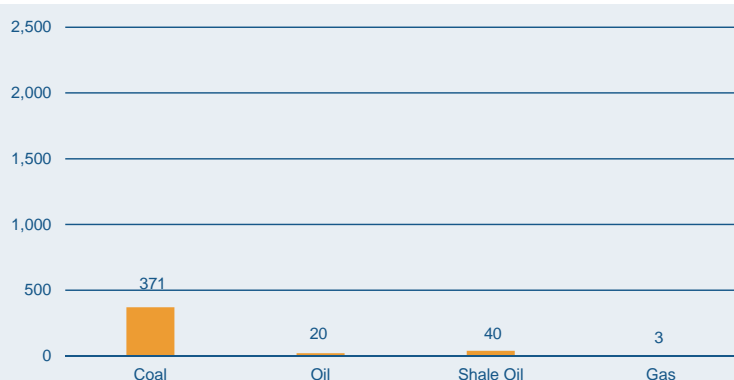
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	31	22	19	+
Energy security	27	27	17	+
Social equity	18	17	19	-
Environmental impact mitigation	62	46	40	+
Contextual performance	22	21	21	
Political strength	34	37	37	
Societal strength	22	21	21	
Economic strength	13	14	14	
Overall rank	26	15	16	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	25.8	GDP per capita (PPP, USD); GDP Group	29,881 (B)
TPEP / TPEC (net energy importer)	0.23	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.93	CO ₂ emissions (metric tons) per capita	7.17
Energy affordability (USD per kWh)	0.19	Population with access to electricity (%)	100.0

INDEX COMMENTARY

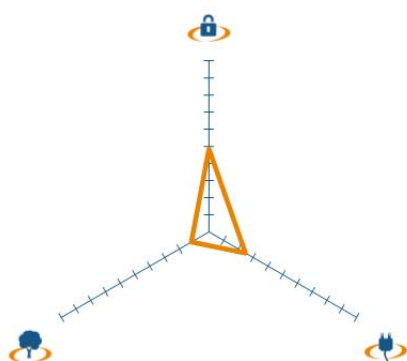
Spain drops one place to rank 16 in the Index. A better performance in energy security was driven by a decrease in energy consumption growth and an increased wholesale margin on gasoline. This was however offset by a drop in social equity, driven by a decrease in the quality and affordability of electricity supply. Spain shows a stable performance in all contextual dimensions.

TRENDS AND OUTLOOK

- The new Spanish administration has pledged its commitment to renewable and low-carbon energy. In doing so, the country pursues a more efficient way of managing its energy needs with own resources, and becoming a more environmental-friendly producer and consumer of energy. As for the social equity aspects, the country has been dragging on a tariff deficit since year 1997. In order to put an end to this situation, the cost of electricity might rise in the next years.
- A new Royal Decree was approved in order to guarantee budgetary stability and promote competitiveness. Among other measurements, the decree lays down the reforms needed to reduce the tariff deficit which jeopardises the economic stability of the power sector. The Spanish administration committed to reach tariff adequacy by the year 2013.
- An indicative energy plan for 2011-2020 has already been developed by the Spanish administration, following three basic objectives: 1) to improve the security of supply; 2) to increase competitiveness and 3) to guarantee the environmental sustainability. In order to ensure the first of these goals and reduce the financial risks of Spain's high energy dependence, it is crucial to improve the level of self-sufficiency. To achieve this goal, the energy policy is based on two pillars: increasing both the energy savings and efficiency and the promoting renewable energy.

SRI LANKA

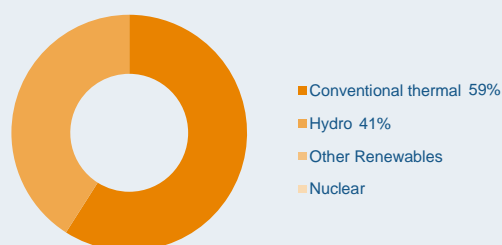
ENERGY SUSTAINABILITY BALANCE



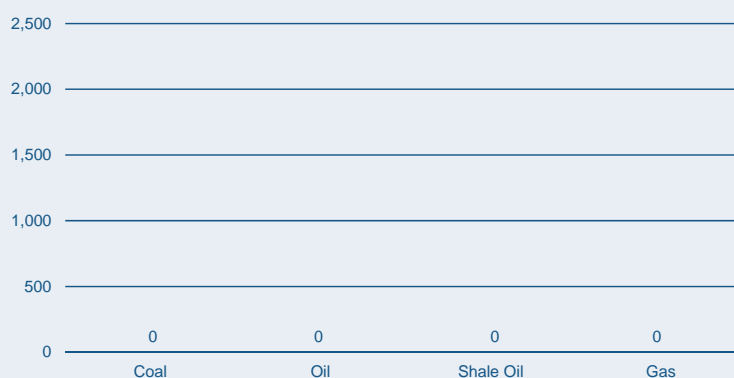
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	71	66	75	-
Energy security	61	40	49	-
Social equity	70	74	71	+
Environmental impact mitigation	55	61	82	-
Contextual performance	66	67	62	+
Political strength	77	75	65	+
Societal strength	47	50	50	
Economic strength	62	63	61	+
Overall rank	70	68	73	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



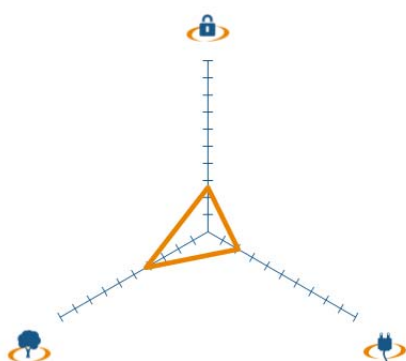
KEY METRICS

Industrial sector (% of total GDP)	29.6	GDP per capita (PPP, USD); GDP Group	5,169 (D)
TPEP / TPEC (net energy importer)	0.17	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.86	CO ₂ emissions (metric tons) per capita	0.82
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	76.6

INDEX COMMENTARY

Sri Lanka drops five places in the Index to rank 73 due to a worsening of energy security and environmental performance. A decrease in energy security is driven by a lower wholesale margin on gasoline and a lower ratio of production to energy supply, Sri Lanka's weakest indicator. These downwards trends were however partly offset by a strong reduction in the 5-year energy consumption growth trend during the last year. Environmental performance is Sri Lanka's weakest dimension (dropping from 35 to rank 82) which is overall driven by a low quality of air and water and high emissions from electricity and heat generation. Small deteriorations since last year are noted across all indicators. With very low energy intensity per capita, Sri Lanka thus underperforms in mitigating its environmental footprint compared to peer countries with similar levels of energy intensity per capita. Sri Lanka continues to struggle with social equity (rank 71) despite small improvements; 24% of the population remains without proper access to electricity. However, slight improvements in economic strength are driven by increased macroeconomic stability and a better political performance is supported by improved political stability and regulatory quality.

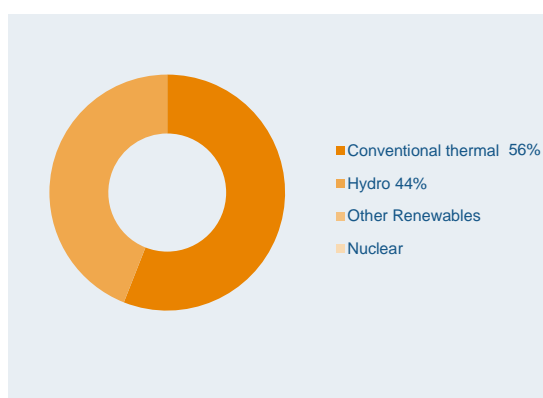
ENERGY SUSTAINABILITY BALANCE



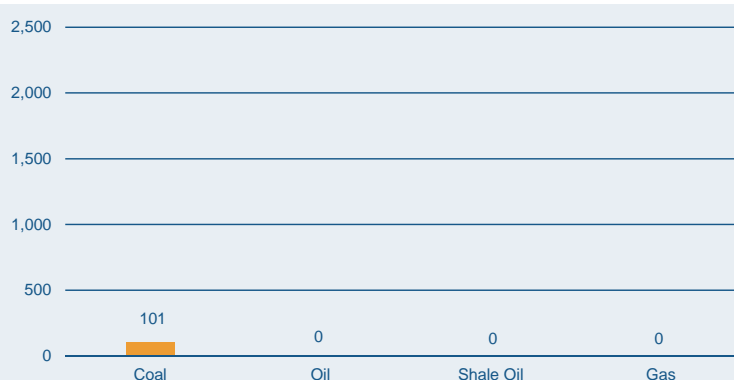
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	53	33	73	-
Energy security	39	4	70	-
Social equity	75	70	75	-
Environmental impact mitigation	42	42	55	-
Contextual performance	58	75	80	-
Political strength	72	71	72	-
Societal strength	62	82	80	+
Economic strength	40	55	74	-
Overall rank	57	43	80	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	46.9	GDP per capita (PPP, USD); GDP Group	5,156 (D)
TPEP / TPEC (net energy importer)	0.51	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.89	CO ₂ emissions (metric tons) per capita	2.33
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	50.0

INDEX COMMENTARY

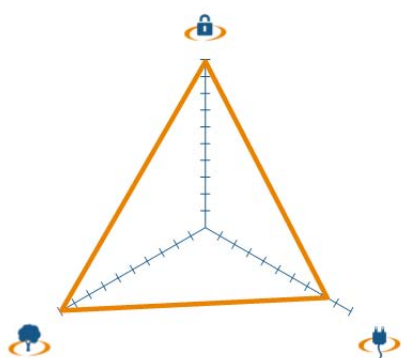
Swaziland experiences a substantial drop by 37 ranks in the Index to rank 80 due to a decrease across the majority of the dimensions. Energy security drops most significantly driven especially by a decrease in the wholesale margin on gasoline and an increase in the 5-year energy consumption trend, which reversed last year's negative growth rate to a positive one. This is however necessary as only 50% of the population have access to electricity, which also leads to Swaziland's weak performance in social equity that further drops by five places. Swaziland underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita, which leads to low scores in this dimension. Small deteriorations since last year are noted across all indicators. Political and societal strength remain constant. Swaziland still struggles with regulatory quality and effectiveness of government. The substantial drop in economic strength is driven by a decrease in macroeconomic strength and very low credit availability.

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 a 300MW coal fired thermal power station utilising clean coal technologies which is expected to supply the country and allows export into the Southern African Power Pool.
- 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 as well as tap into the natural gas market in Mozambique.
- 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.

SWEDEN

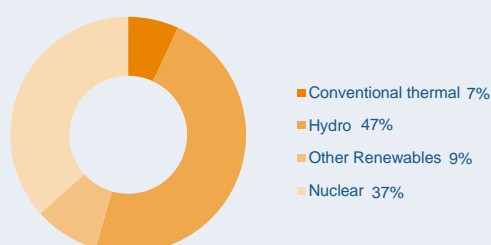
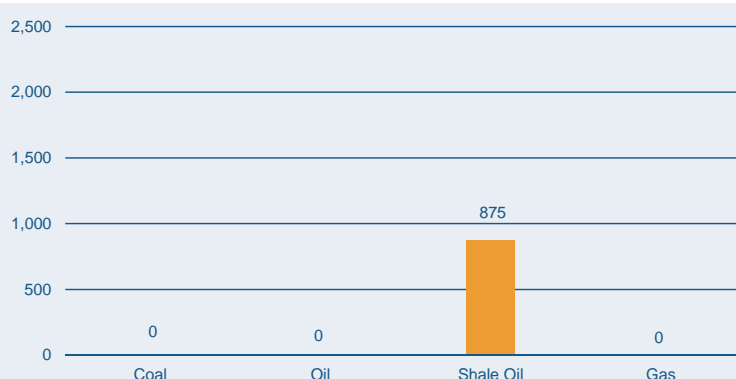
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	7	6	2	+
Energy security	13	9	2	+
Social equity	30	33	16	+
Environmental impact mitigation	2	1	2	-
Contextual performance	6	6	5	+
Political strength	4	4	4	
Societal strength	2	1	1	
Economic strength	26	24	21	+
Overall rank	7	4	1	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	27.3	GDP per capita (PPP, USD); GDP Group	38,171 (A)
TPEP / TPEC (net energy importer)	0.61	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.42	CO ₂ emissions (metric tons) per capita	5.37
Energy affordability (USD per kWh)	0.22	Population with access to electricity (%)	100.0

INDEX COMMENTARY

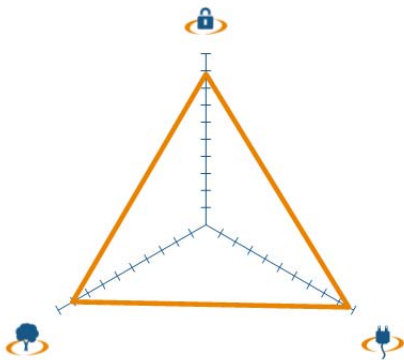
Sweden climbs to the top of the Index from number four in 2011. The jump is due to a substantial increase in energy security, which was driven by an increased wholesale margin on gasoline. Social equity improves markedly due to a relative increase in quality and affordability of electricity supply. Sweden continues to perform very strongly in environmental impact mitigation, which is driven by a very good quality of air and water and low emissions intensity on a per capita level and in electricity and heat generation, however energy intensity is still relatively high. Sweden is among the top performers in all political and societal strength indicators. Its economic strength ranking is a little lower due to 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 satisfying. Improvements have however been made in terms of increasing the share of biofuels, where the EU target to increase the share of biofuels used in transport to 10% by 2020 will be achieved several years in advance (close to 10% already). This is mostly due to blending of ethanol and other biofuels in gasoline and diesel and an increased share of cars running on biogas.
- Sweden has 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. However, 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 ten nuclear reactors which are expected to close around 2025 to meet the future electricity demand. Permit application for building new reactors to replace existing ones have been filed, in line with the governmental decision to allow the replacement of existing reactors at existing sites.
- In addition to finding measures to meet the EU CO₂ reduction and RES targets, energy efficiency needs to be a top priority as targets will be difficult to achieve.

¹ Data for shale gas resources not available

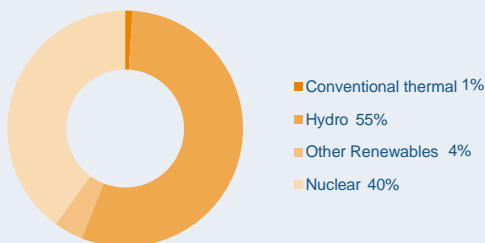
ENERGY SUSTAINABILITY BALANCE



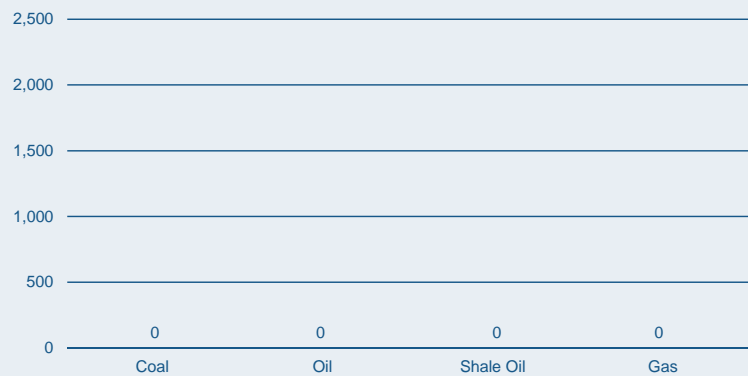
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	1	3	4	-
Energy security	2	15	12	+
Social equity	4	4	4	
Environmental impact mitigation	9	14	10	+
Contextual performance	1	1	1	
Political strength	1	4	5	-
Societal strength	3	3	2	+
Economic strength	11	6	6	
Overall rank	1	3	2	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	27.5	GDP per capita (PPP, USD); GDP Group	41,942 (A)
TPEP / TPEC (net energy importer)	0.49	Energy intensity (million BTU per USD)	0.01
Emission intensity (kg of CO ₂ per USD)	0.32	CO ₂ emissions (metric tons) per capita	5.88
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

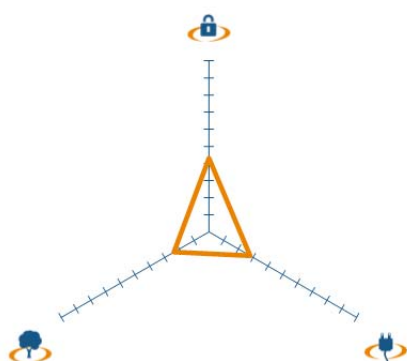
Switzerland rises one place in the Index to second. A slight improvement in energy security is driven by an increased wholesale margin on gasoline, which is tempered through a continued growth in energy consumption that had started to manifest itself in last year's Index. Higher energy and emissions intensity per capita lead to a slight decrease in environmental performance, despite an increase in the air and water quality. Switzerland continues to perform very strongly across all contextual dimensions.

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 fully implemented 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.

SYRIA (ARAB REPUBLIC)

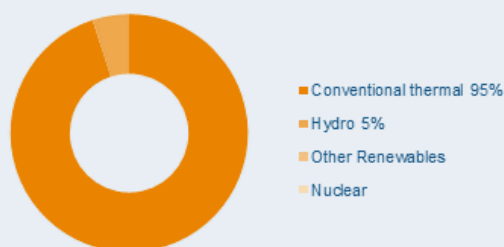
ENERGY SUSTAINABILITY BALANCE



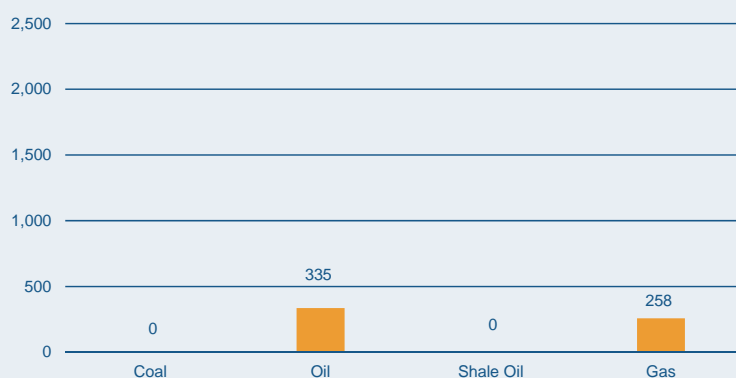
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	60	56	70	-
Energy security	41	19	54	-
Social equity	69	71	68	+
Environmental impact mitigation	59	70	72	-
Contextual performance	81	76	77	-
Political strength	82	83	83	
Societal strength	73	71	73	-
Economic strength	74	57	67	-
Overall rank	69	64	76	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



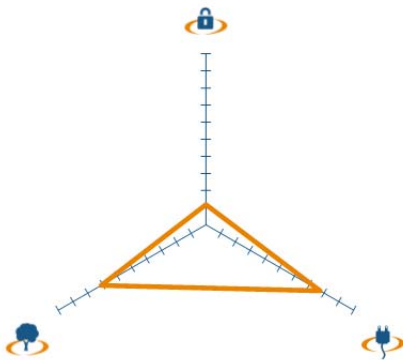
KEY METRICS

Industrial sector (% of total GDP)	27.4	GDP per capita (PPP, USD); GDP Group	5,041 (D)
TPEP / TPEC (net energy exporter)	1.33	Energy intensity (million BTU per USD)	0.05
Emission intensity (kg of CO ₂ per USD)	3.54	CO ₂ emissions (metric tons) per capita	2.95
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	90.0

INDEX COMMENTARY

Syria drops in the Index by 12 places mainly driven by a substantial deterioration of energy security. Energy security overall is supported by a good ratio of energy production to total energy supply and a strong diversity of energy exports. However, the recent substantial drop was driven by a deterioration of several, already weak indicators: low diversity of electricity production, a decrease in the wholesale margin on gasoline and an increase in the 5-year energy consumption growth trend, which turned from a negative into a positive growth rate. Small increases are visible in social equity, but further improvements are still necessary with electricity only provided to 90% of the population. Syria underperforms overall in mitigating its environmental footprint when compared to other countries with a similar level of energy intensity. Performance in contextual dimensions remains low.

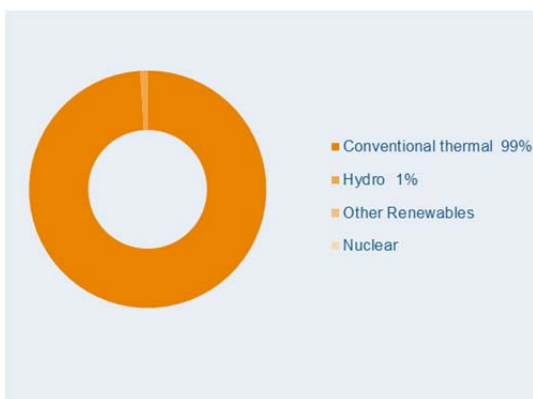
ENERGY SUSTAINABILITY BALANCE



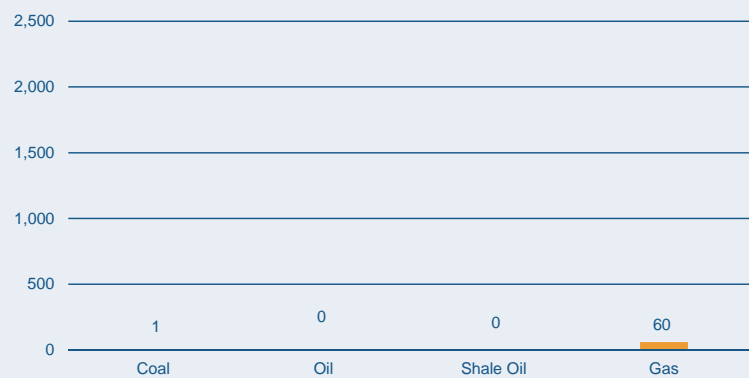
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	45	43	42	+
Energy security	65	73	83	-
Social equity	21	21	22	-
Environmental impact mitigation	58	47	27	+
Contextual performance	17	15	13	+
Political strength	29	28	24	+
Societal strength	25	25	23	+
Economic strength	6	3	3	
Overall rank	35	33	32	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

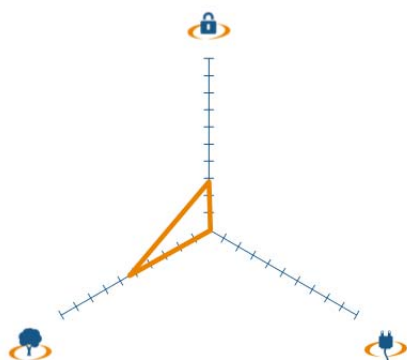
Industrial sector (% of total GDP)	n.a.	GDP per capita (PPP, USD); GDP Group	35,595 (A)
TPEP / TPEC (net energy importer)	0.11	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	2.17	CO ₂ emissions (metric tons) per capita	12.69
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.0

INDEX COMMENTARY

Taiwan rises in the Index by one place to rank 32. A big improvement in environmental performance is driven by Taiwan's high quality of air and water. Despite high emissions intensity per GDP per capita and high CO₂ emissions from electricity and heat generation, Taiwan outperforms other countries with similar energy intensity per capita in mitigating its environmental footprint. Energy security is Taiwan's weakest dimension due to a low ratio of production to total energy supply and a low wholesale margin on gasoline which further decreased over the last year; this was only partly offset by a small increase in Taiwan's weak oil reserve stocks. Performance in social equity and all contextual dimensions remains mostly constant. Taiwan maintains its strong economic position with macroeconomic stability and low cost of living as proportion of household consumption expenditure.

TANZANIA

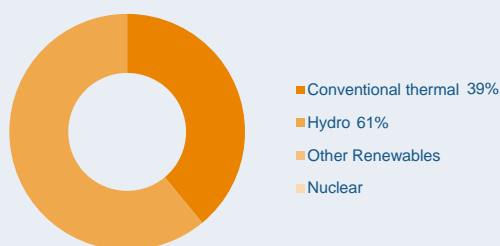
ENERGY SUSTAINABILITY BALANCE



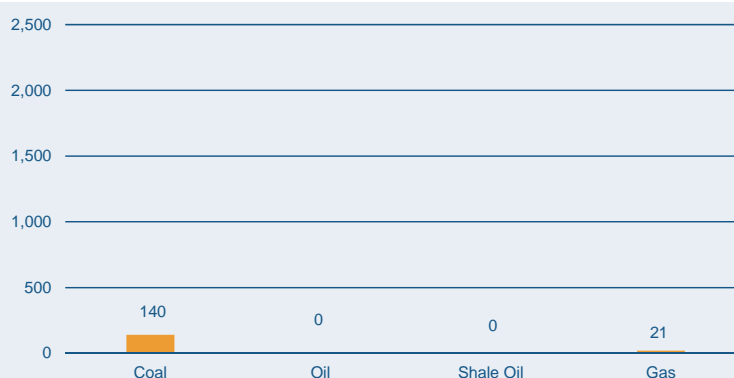
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	78	76	78	-
Energy security	58	56	68	-
Social equity	91	91	93	-
Environmental impact mitigation	51	49	43	+
Contextual performance	72	74	76	-
Political strength	68	65	66	-
Societal strength	78	81	83	-
Economic strength	57	61	70	-
Overall rank	80	79	82	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



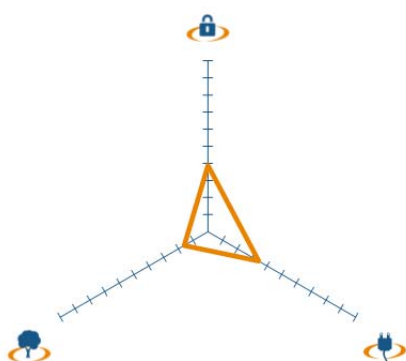
KEY METRICS

Industrial sector (% of total GDP)	24.2	GDP per capita (PPP, USD); GDP Group	1,418 (D)
TPEP / TPEC (net energy importer)	0.43	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.63	CO ₂ emissions (metric tons) per capita	1.41
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	11.5

INDEX COMMENTARY

Tanzania drops three places in the Index due to deteriorations across all dimensions. In the energy security dimension, the country struggles with the ratio of production to total energy supply and with its strong, positive energy consumption growth rate which is however necessary for Tanzania's economic and social development. With only 12% of the population having access to electricity, social equity is Tanzania's weakest dimension (rank 93). An improvement in environmental performance is driven by improvements in the quality of air and water when compared to peer countries, despite higher CO₂ emissions from electricity and heat generation and higher emissions and energy intensity per GDP per capita. Performance in political and societal strength remains at the same level, while economic strength deteriorates mostly due to low credit availability and low macroeconomic stability.

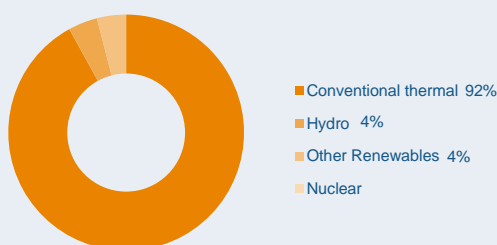
ENERGY SUSTAINABILITY BALANCE



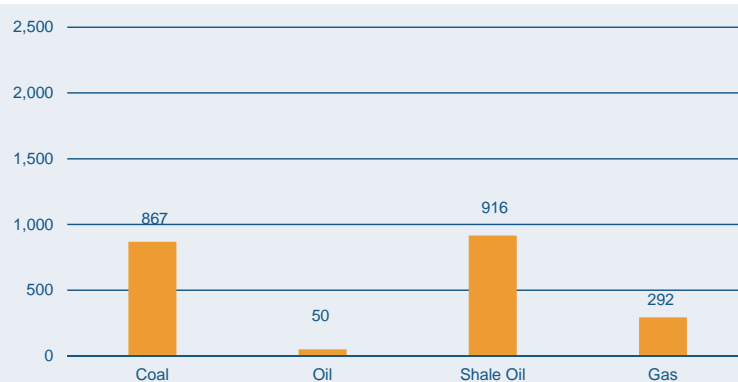
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	82	76	72	+
Energy security	85	67	58	+
Social equity	60	63	62	+
Environmental impact mitigation	67	65	79	-
Contextual performance	33	34	38	-
Political strength	58	56	63	-
Societal strength	52	53	56	-
Economic strength	5	10	4	+
Overall rank	72	67	63	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

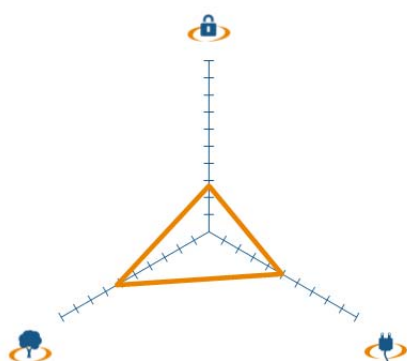
Industrial sector (% of total GDP)	34.0	GDP per capita (PPP, USD); GDP Group	9,222 (C)
TPEP / TPEC (net energy importer)	0.55	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.74	CO ₂ emissions (metric tons) per capita	3.99
Energy affordability (USD per kWh)	0.09	Population with access to electricity (%)	99.3

INDEX COMMENTARY

Thailand rises in the Index by four places to rank 63. An improvement in energy security is driven by a decrease in the energy consumption growth rate and even though absolute oil reserve stocks decrease slightly, they do so less than in other countries. A slight increase in emissions intensity per capita combined with a decreased quality of air and water results in Thailand underperforming in mitigating its environmental footprint compared to peer countries with similar levels of energy intensity per capita. Performance in social equity remains stable. Concerning the contextual performance, a decrease is noted in political and societal strength with the weakest indicators being political stability and health. Thailand's strong economic position which relies on very low costs of living as proportion of household consumption expenditure, further increased due to improved macroeconomic stability.

TRINIDAD & TOBAGO

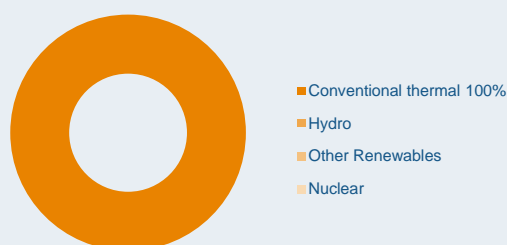
ENERGY SUSTAINABILITY BALANCE



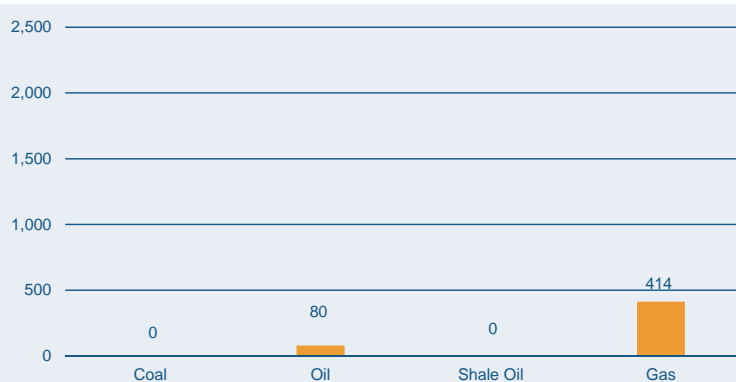
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	59	62	48	+
Energy security	78	86	69	+
Social equity	55	49	48	+
Environmental impact mitigation	35	34	36	-
Contextual performance	44	54	57	-
Political strength	45	44	44	
Societal strength	57	56	60	-
Economic strength	31	69	65	+
Overall rank	55	62	51	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



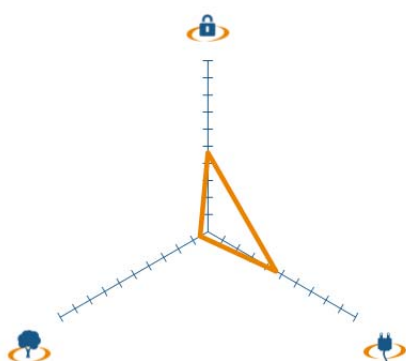
KEY METRICS

Industrial sector (% of total GDP)	58.4	GDP per capita (PPP, USD); GDP Group	19,981 (B)
TPEP / TPEC (net energy exporter)	2.10	Energy intensity (million BTU per USD)	0.07
Emission intensity (kg of CO ₂ per USD)	3.86	CO ₂ emissions (metric tons) per capita	36.65
Energy affordability (USD per kWh)	0.04	Population with access to electricity (%)	99.0

INDEX COMMENTARY

Trinidad & Tobago increases in the Index by 11 ranks due to increased energy security. The rise in energy security was driven by a reduction in the 5-year energy consumption growth rate and an increase in the diversity of electricity production, and is supported by a good ratio of production to total energy supply and a good diversity of energy exports. Weak performance and further deteriorations across all environmental indicators led to a small drop in environmental performance overall. Performance in social equity and the contextual dimensions remains overall stable. Societal strength overall struggles most with its performance in health.

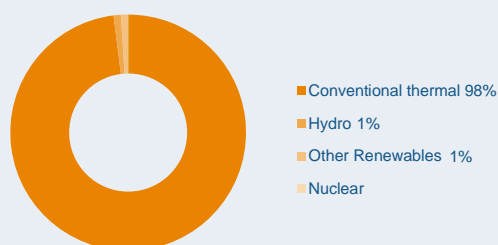
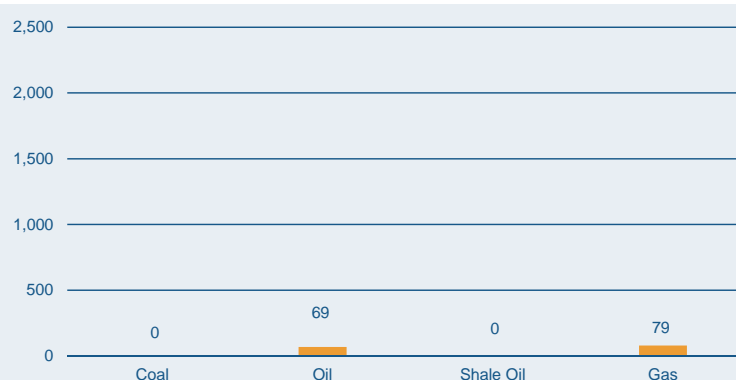
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	54	74	69	+
Energy security	32	60	51	+
Social equity	54	51	51	
Environmental impact mitigation	71	80	89	-
Contextual performance	46	42	42	
Political strength	46	48	48	
Societal strength	41	40	43	-
Economic strength	52	44	44	
Overall rank	52	66	60	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)²

KEY METRICS

Industrial sector (% of total GDP)	34.6	GDP per capita (PPP, USD); GDP Group	9,454 (C)
TPEP / TPEC (net energy importer)	0.86	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.49	CO ₂ emissions (metric tons) per capita	2.18
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	99.5

INDEX COMMENTARY

Tunisia rises six places to rank 60 in the Index. This is caused by a substantial decrease in the environmental performance, now Tunisia's weakest dimension (rank 89), which is driven by higher emissions from electricity and heat generation, higher emissions per capita and a decreased quality of air and water. With very low and further decreasing energy intensity per capita, Tunisia thus underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita. Energy security improves due to stronger oil stocks and a substantial decrease in energy consumption growth, reversing the previously positive growth rate; this is however offset by a decrease in the wholesale margin on gasoline. Tunisia's performance in social equity and all contextual dimensions is fairly steady when compared to last year.

TRENDS AND OUTLOOK

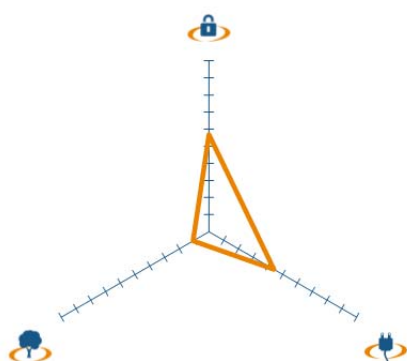
- Over the past few years, Tunisia has made continued efforts to sustain its economic development and improvement the energy sustainability balance. To achieve the latter, policies have been implemented to manage the exploration and production of hydrocarbons which will allow Tunisia to accelerate its 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.
- Going forward policymakers need to focus on: 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.

¹ As noted by the Tunisian WEC member committee available data from national sources might differ from data used to calculate the Energy Sustainability Index.

² Data for shale gas resources not available

TURKEY

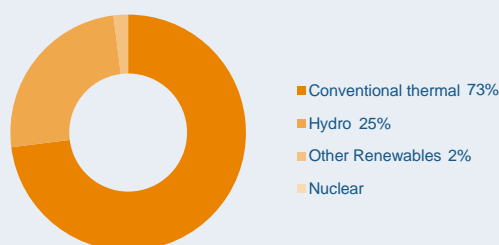
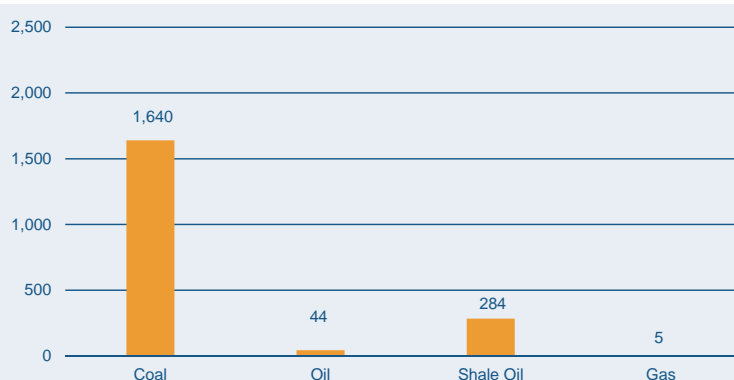
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	58	72	62	+
Energy security	37	68	41	+
Social equity	52	53	53	
Environmental impact mitigation	75	69	84	-
Contextual performance	65	66	66	
Political strength	54	54	53	+
Societal strength	50	48	48	
Economic strength	80	87	85	+
Overall rank	61	75	64	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	28.1	GDP per capita (PPP, USD); GDP Group	13,275 (C)
TPEP / TPEC (net energy importer)	0.30	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.34	CO ₂ emissions (metric tons) per capita	3.47
Energy affordability (USD per kWh)	0.18	Population with access to electricity (%)	100.0

INDEX COMMENTARY

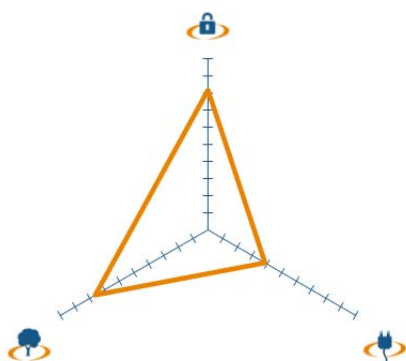
Turkey rises eleven spots up to rank 64 in the Index due to better energy security scores and a constant contextual performance. Improvements in energy security are driven by a decrease in the energy consumption growth rate, increased diversity of electricity production and an increased wholesale margin on gasoline. A deterioration in the quality of air and water led to a stronger environmental impact. With relatively low and decreasing energy intensity per capita, Turkey thus underperforms in mitigating its environmental footprint compared to other countries with similar levels of energy intensity per capita, making environmental impact mitigation one of Turkey's weakest dimensions (rank 84). Performance in social equity, political and societal strength remains mostly stable. Turkey was able to slightly improve its weak economic position (rank 85) due to an increase in macroeconomic stability.

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 supporting the development of domestic resources, such as hydropower and lignites, more strongly, to meet the continuously increasing energy demand.

¹ Data for shale gas resources not available

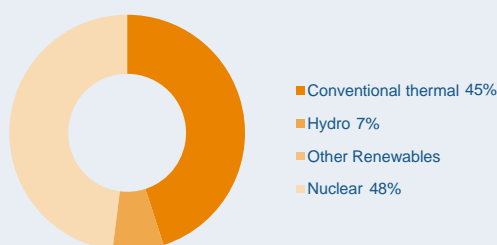
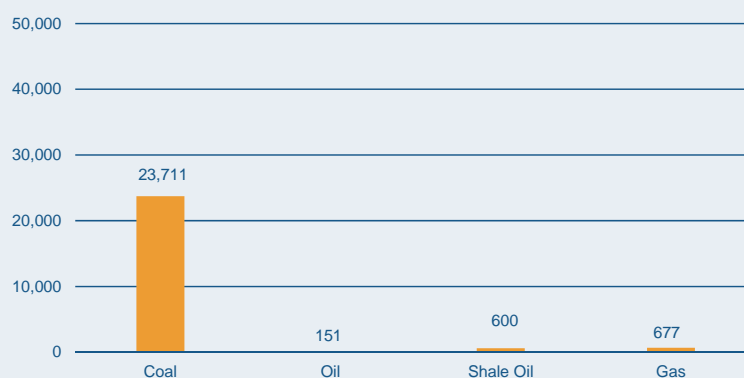
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	34	21	27	-
Energy security	31	8	18	-
Social equity	58	56	58	-
Environmental impact mitigation	23	23	23	
Contextual performance	80	80	82	-
Political strength	70	78	76	+
Societal strength	63	68	68	
Economic strength	86	84	87	-
Overall rank	45	36	39	-

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	34.4	GDP per capita (PPP, USD); GDP Group	6,698 (C)
TPEP / TPEC (net energy importer)	0.66	Energy intensity (million BTU per USD)	0.11
Emission intensity (kg of CO ₂ per USD)	5.73	CO ₂ emissions (metric tons) per capita	5.57
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

Ukraine drops by three places in the Index to rank 39. Environmental performance remains constant as small improvements in energy and emissions intensity per GDP per capita as well as in CO₂ emissions from electricity and heat generation are offset by a deterioration of the quality of air and water. The energy security drops due to a decrease in the wholesale margin on gasoline; however Ukraine is able to reduce its 5-year energy consumption trend greater than peer countries. Ukraine still struggles in all contextual dimensions and was not able to achieve significant improvements. Particularly poor performing indicators are regulatory quality, effectiveness of government, control of corruption; rule of law and for economic strength, cost of living as proportion of household expenditure as well as macroeconomic stability.

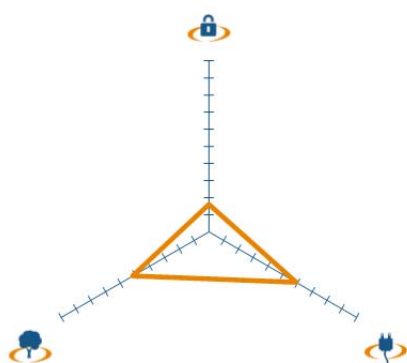
TRENDS AND OUTLOOK

- Ukraine's energy sector faces great challenges, from a high dependence on expensive fossil-fuel imports, e.g., 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 grow the nuclear power capacity.
- Furthermore, there is a need to strengthen energy-efficiency policies, make full use of the country's renewable energy potential, e.g., 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.

¹ Data for shale gas resources not available

UNITED ARAB EMIRATES

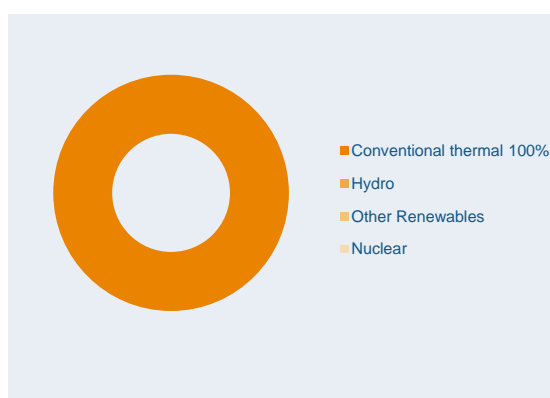
ENERGY SUSTAINABILITY BALANCE



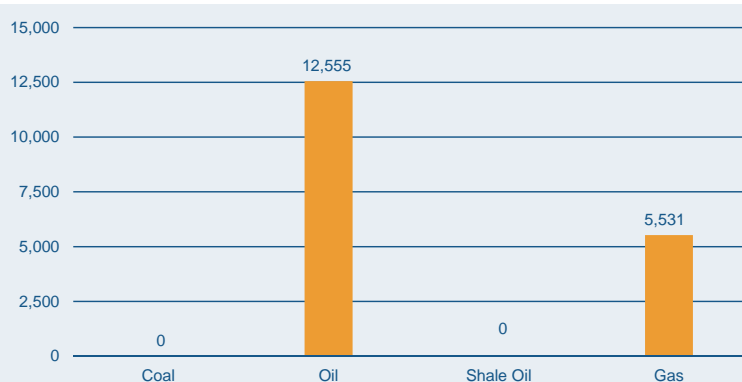
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	65	65	55	+
Energy security	73	80	79	+
Social equity	39	40	39	+
Environmental impact mitigation	64	55	46	+
Contextual performance	26	21	22	-
Political strength	32	31	33	-
Societal strength	31	32	30	+
Economic strength	16	9	10	-
Overall rank	50	49	44	+

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



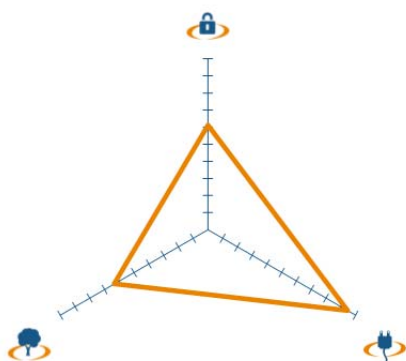
KEY METRICS

Industrial sector (% of total GDP)	53.9	GDP per capita (PPP, USD); GDP Group	46,299 (A)
TPEP / TPEC (net energy exporter)	2.31	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.26	CO ₂ emissions (metric tons) per capita	37.07
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	100.0

INDEX COMMENTARY

The United Arab Emirates enhance their position in the Index by five places up to rank 44. This is driven by improvements in the environmental dimension through better performance across all indicators including lower energy and emissions intensity per capita, cleaner electricity and heat generation and an improved quality of air and water. Performance in social equity, energy security and the contextual dimensions remains relatively constant. After the catch-up in environmental performance, the UAE's weakest dimension is energy security, struggling with high energy consumption growth rates and a lack of diversification in energy exports and in electricity generation.

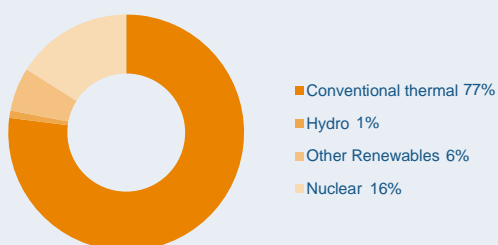
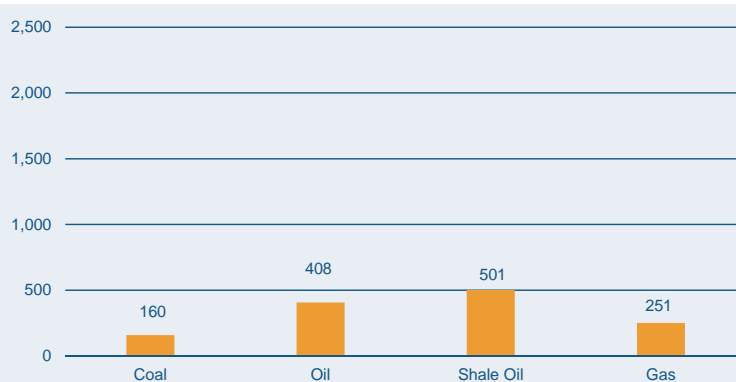
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	25	36	21	+
Energy security	20	58	37	+
Social equity	7	8	6	+
Environmental impact mitigation	69	53	35	+
Contextual performance	18	16	17	-
Political strength	15	20	17	+
Societal strength	20	19	18	+
Economic strength	30	21	31	-
Overall rank	21	28	15	+

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	21.4	GDP per capita (PPP, USD); GDP Group	35,344 (A)
TPEP / TPEC (net energy importer)	0.75	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	1.04	CO ₂ emissions (metric tons) per capita	8.36
Energy affordability (USD per kWh)	0.20	Population with access to electricity (%)	100.0

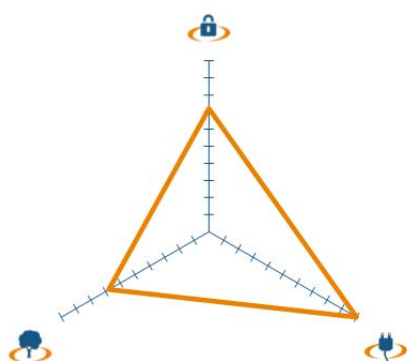
INDEX COMMENTARY

The United Kingdom rises 13 places in the Index up to rank 15 due to an improved energy performance across all dimensions. Energy security scores increase substantially, driven by an increase of the wholesale margin on gasoline and enhanced diversity of electricity production. Improvements in environmental impact mitigation are driven by lower emissions from electricity and heat generation and an improved air and water quality relative to peer countries. Contextual performance remains mostly stable, however economic strength decreases substantially due to less credit availability and lower macroeconomic stability.

¹ Data for shale gas resources not available

UNITED STATES

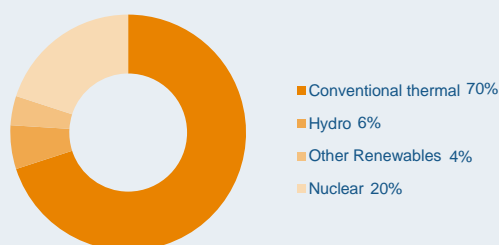
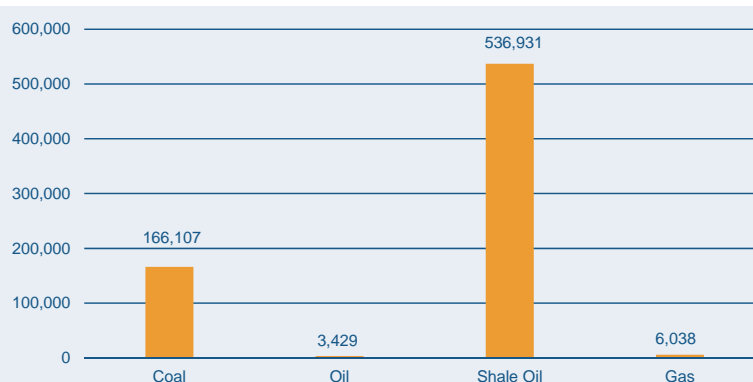
ENERGY SUSTAINABILITY BALANCE



ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	8	15	13	+
Energy security	19	32	27	+
Social equity	1	1	1	
Environmental impact mitigation	30	39	31	+
Contextual performance	14	18	15	+
Political strength	17	23	26	-
Societal strength	16	20	20	
Economic strength	17	18	16	+
Overall rank	9	12	12	

DIVERSITY OF ELECTRICITY GENERATION

FOSSIL FUEL RESOURCES (IN MTOE)¹

KEY METRICS

Industrial sector (% of total GDP)	19.2	GDP per capita (PPP, USD); GDP Group	46,900 (A)
TPEP / TPEC (net energy importer)	0.77	Energy intensity (million BTU per USD)	0.03
Emission intensity (kg of CO ₂ per USD)	1.68	CO ₂ emissions (metric tons) per capita	17.51
Energy affordability (USD per kWh)	0.12	Population with access to electricity (%)	100.0

INDEX COMMENTARY

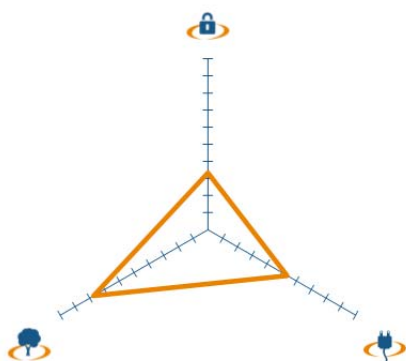
The United States maintains its position in the Index on rank twelve. The country shows relatively constant performance in the contextual dimensions and remains the leader in the social equity dimension. An improvement in energy security is driven by an increased wholesale margin on gasoline and a decrease in energy consumption growth, which may be partly driven by the economic recession. Environmental performance improves due to lower CO₂ emissions from electricity and heat generation; however energy and emissions intensity per capita is very high compared to other countries and slightly increased during the last year.

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 trillion 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 ten years, and lead to increased exports of refined products and possibly natural gas.
- Important energy policy developments in the United States which will impact the countries 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.

¹ Data for shale gas resources not available

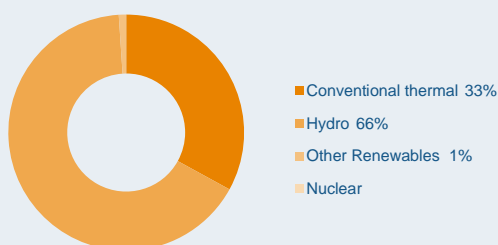
ENERGY SUSTAINABILITY BALANCE



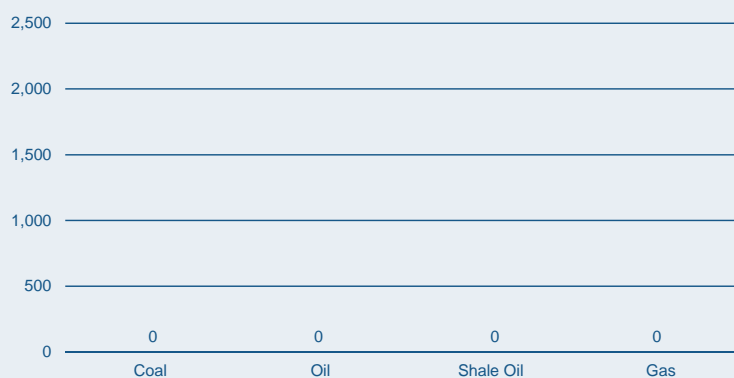
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	28	31	39	-
Energy security	40	50	63	-
Social equity	45	44	44	
Environmental impact mitigation	19	19	22	-
Contextual performance	50	51	42	+
Political strength	41	34	34	
Societal strength	36	34	33	+
Economic strength	69	80	68	+
Overall rank	30	34	36	-

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	21.7	GDP per capita (PPP, USD); GDP Group	14,049 (C)
TPEP / TPEC (net energy importer)	0.33	Energy intensity (million BTU per USD)	0.02
Emission intensity (kg of CO ₂ per USD)	0.81	CO ₂ emissions (metric tons) per capita	2.19
Energy affordability (USD per kWh)	0.16	Population with access to electricity (%)	98.3

INDEX COMMENTARY

Uruguay drops by two places in the Index due to a deterioration of energy security and environmental performance. Weak performance in energy security (rank 63) is driven by a low ratio of production to total energy supply and a low wholesale margin on gasoline. A less diversified electricity production added to the drop in energy security. This development is only partly offset by a decrease of the 5-year energy consumption growth rate, which for the first time reverses the positive growth rates of previous years. Uruguay remains very strong in all environmental indicators; however the quality of air and water decreases slightly and Uruguay experiences a small drop in environmental impact mitigation. Performance in social equity, political and societal strength remains stable. An improvement of Uruguay's weak economic position is driven by an increase in macroeconomic stability; however, the country still struggles with credit availability.

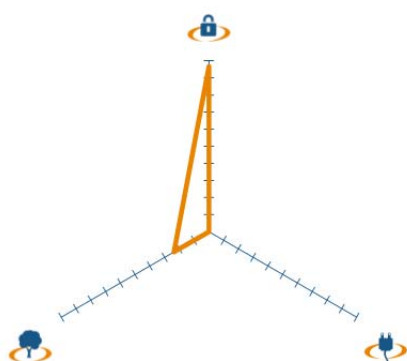
TRENDS AND OUTLOOK

- 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 (including hydro, 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 (currently, the average national power demand is 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 exploration for natural gas and oil. Between 2010 and 2015 USD7 billion are being invested in the energy sector (15% of the annual GDP).

¹ As noted by the Uruguayan WEC member committee available data from national sources might differ from data used to calculate the Energy Sustainability Index. According to national sources the Uruguayan electricity mix includes 30% conventional thermal, 58% hydro, almost 12% other renewables. Similar discrepancies exist for other indicators as well.

ZIMBABWE

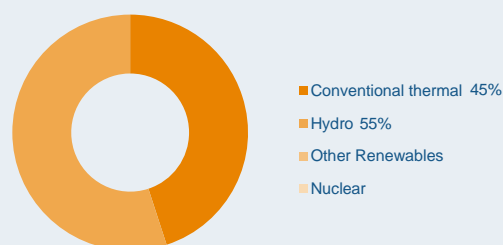
ENERGY SUSTAINABILITY BALANCE



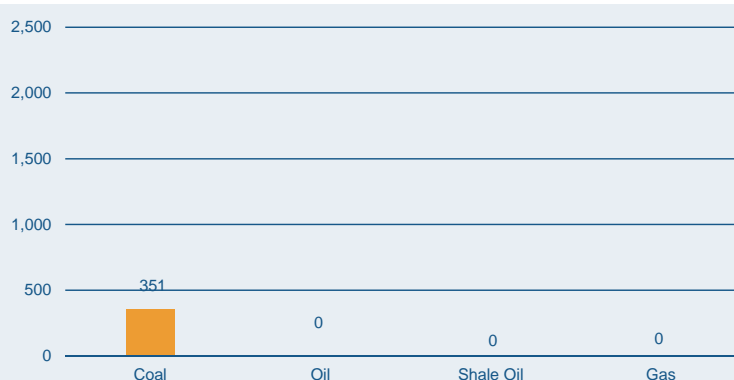
ENERGY SUSTAINABILITY INDEX RANKINGS

	2010	2011	2012	Trend
Energy performance	-	-	58	
Energy security	-	-	4	
Social equity	-	-	94	
Environmental impact mitigation	-	-	71	
Contextual performance	-	-	93	
Political strength	-	-	92	
Societal strength	-	-	92	
Economic strength	-	-	90	
Overall rank	-	-	72	

DIVERSITY OF ELECTRICITY GENERATION



FOSSIL FUEL RESOURCES (IN MTOE)



KEY METRICS

Industrial sector (% of total GDP)	24.6	GDP per capita (PPP, USD); GDP Group	436 (D)
TPEP / TPEC (net energy importer)	0.74	Energy intensity (million BTU per USD)	0.09
Emission intensity (kg of CO ₂ per USD)	5.94	CO ₂ emissions (metric tons) per capita	2.03
Energy affordability (USD per kWh)	n.a.	Population with access to electricity (%)	41.5

INDEX COMMENTARY

Zimbabwe's environmental performance is weak due to a low quality of air and water, high emissions intensity per capita and high CO₂ emissions from heat and electricity generation. Zimbabwe thus underperforms in mitigating its environmental footprint for countries with a similar level of energy intensity per capita. Zimbabwe's ranking in energy security is driven by a good ratio of production to total energy supply, a well-diversified electricity production and a very high wholesale margin on gasoline. However, the expansion of energy consumption necessary for Zimbabwe's economic and social development remains a challenge as we observe a negative 5-year energy consumption growth trend, even though only 49% of its population has access to electricity. Performance across all indicators in the contextual dimensions and social equity is very weak.

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 who regulates and supervises the entire energy sector; 2) amendment of the Electricity Act to promote energy efficiency within 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 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.
- Going forward policymakers should focus to include: 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 (currently more than 30% of our power is lost through inefficiency and obsolete equipment); and 3) develop mechanisms to increase power generation capacity.

Appendix A.

Index rationale, structure and methodology

The Energy Sustainability Index ('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.

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 member countries. These sources include the International Energy Agency, the U.S. Energy Information Administration, the World Bank, the International Monetary Fund, the World Economic Forum and others.

The structure of the Index and the coverage of its 22 indicators are set out in Figure A-1. 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.

Figure A1
Index structure and weighting

Total score	Indicator type	Dimension	Indicators
Country position 100%	1 Energy performance 75%	1 Energy security 25%	1.1.1 Ratio of energy production to consumption 1.1.2 Diversity of electricity generation 1.1.3 Wholesale margin on gasoline 1.1.4 Five year energy consumption growth 1.1.5a Exporters – Diversity of energy exports 1.1.5b Importers – Oil stock reserves 1/5 each
		2 Social equity 25%	1.2.1 Affordability of retail gasoline 1.2.2 Affordability & quality of electricity relative to access 1/2 each
		3 Environmental impact mitigation 25%	1.3.1 Energy intensity per capita per GDP 1.3.2 Emissions intensity per capita per GD 1.3.3 CO2 emissions from electricity & heat generation 1.3.4 Effect of air and water pollution 1/4 each
	2 Contextual performance 25%	1 Political strength 8.3%	2.1.1 Political stability 2.1.2 Regulatory quality 2.1.3 Effectiveness of government 1/3 each
		2 Societal strength 8.3%	2.2.1 Control of corruption 2.2.2 Rule of law 2.2.3 Quality of education 2.2.4 Quality of health 1/4 each
		3 Economic strength 8.3%	2.3.1 Cost of living expenditure 2.3.2 Macro-economic stability 2.3.3 Availability of credit to the private sector 1/3 each

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 2009-2011. Recent world events that could affect the Index's outcomes are not completely captured (for example, turbulence in global nuclear power industry due to Fukushima, or the 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. That noted, repercussions from the financial and economic crisis in 2008 are increasingly becoming visible as we see strong fluctuations in economic performance for several countries. It is possible that the financial crisis had further impacts on countries' energy policies, such as cuts of subsidies due to financial and economic pressures. However, it is difficult to disentangle the origins as well as the effects from individual policy changes.

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 organized in four economic groups:

- Group A: GDP (PPP) per capita greater than USD33,500
- Group B: GDP (PPP) per capita between USD14,300 and USD33,500
- Group C: GDP (PPP) per capita between USD6,000 and USD14,300
- Group D: GDP (PPP) per capita lower than USD6,000

Figures A-2 through A-5 show the rankings of each country within these GDP groups.

Figure A2
Country Ranking for GDP Group A

Rank	Country	Importer / Exporter	Energy security rank	Social equity rank	Environmental impact mitigation rank	2012 Index rank
1	Sweden	I	2	16	2	1
2	Switzerland	I	12	4	10	2
3	Canada	E	1	2	12	3
4	Norway	E	9	10	5	4
5	Finland	I	13	14	6	5
6	Denmark	E	3	28	25	7
7	Japan	I	7	9	24	8
8	France	I	29	8	4	9
9	Austria	I	39	7	11	10
10	Germany	I	11	11	41	11
11	United States	I	27	1	31	12
12	Belgium	I	31	12	15	13
13	Netherlands	I	34	20	20	14
14	United Kingdom	I	37	6	35	15
15	Luxembourg	I	72	5	18	18
16	Australia	E	25	3	73	20
17	Iceland	I	71	21	3	23
18	Korea (Republic)	I	61	25	32	27
19	Ireland	I	57	24	42	30
20	Taiwan, China	I	83	22	27	32
21	Hong Kong, China	I	76	30	49	34
22	Qatar	E	81	15	64	41
23	United Arab Emirates	E	79	39	46	44
24	Kuwait	E	84	27	74	54

Figure A3
Country Ranking for GDP Group B

Rank	Country	Importer / Exporter	Energy security rank	Social equity rank	Environmental impact mitigation rank	2012 Index rank
1	New Zealand	I	16	13	8	6
2	Spain	I	17	19	40	16
3	Slovakia	I	6	35	14	17
4	Hungary	I	10	36	19	19
5	Italy	I	19	26	33	21
6	Slovenia	I	28	41	17	22
7	Croatia	I	14	33	26	24
8	Portugal	I	23	37	38	25
9	Russia	E	8	47	16	26
10	Argentina	E	35	17	30	28
11	Czech Republic	I	15	32	61	29
12	Lithuania	I	53	45	9	31
13	Estonia	I	42	46	50	35
14	Latvia	I	64	50	13	37
15	Greece	I	43	23	76	42
16	Saudi Arabia	E	85	18	59	46
17	Poland	I	50	38	65	47
18	Cyprus	I	91	29	63	49
19	Trinidad & Tobago	E	69	48	36	51
20	Gabon	E	21	78	52	59
21	Israel	I	66	43	92	61
22	Lebanon	I	65	63	85	77
23	Botswana	I	89	74	94	91

Figure A4
Country Ranking for GDP Group C

Rank	Country	Importer / Exporter	Energy security rank	Social equity rank	Environmental impact mitigation rank	2012 Index rank
1	Colombia	E	5	56	34	33
2	Uruguay	I	63	44	22	36
3	Bulgaria	I	40	59	28	38
4	Ukraine	I	18	58	23	39
5	Albania	I	44	61	7	40
6	Kazakhstan	E	38	40	44	43
7	Iran (Islamic Republic)	E	47	31	51	48
8	Mexico	E	45	34	83	50
9	Brazil	I	77	65	21	53
10	Egypt (Arab Republic)	E	33	49	66	55
11	Romania	I	36	42	80	56
12	South Africa	E	78	52	53	57
13	Peru	I	46	67	60	58
14	Tunisia	I	51	51	89	60
15	Macedonia (Republic)	I	56	54	68	62
16	Thailand	I	58	62	79	63
17	Turkey	I	41	53	84	64
18	Serbia	I	67	57	62	66
19	Jordan	I	93	55	67	68
20	China	I	59	69	91	71
21	Algeria	E	75	60	70	78
22	Namibia	I	90	76	57	79
23	Libya	E	55	73	88	88

Figure A5
Country Ranking for GDP Group D

Rank	Country	Importer / Exporter	Energy security rank	Social equity rank	Environmental impact mitigation rank	2012 Index rank
1	Bolivia	E	22	64	45	45
2	Paraguay	E	62	70	1	52
3	Cameroon	E	32	83	54	65
4	Kenya	I	20	86	69	67
5	Congo (Dem. Republic)	E	26	91	47	69
6	Côte d'Ivoire	E	30	85	56	70
7	Zimbabwe	I	4	94	71	72
8	Sri Lanka	I	49	71	82	73
9	Nepal	I	82	92	29	74
10	Philippines	I	52	77	78	75
11	Syria (Arab Republic)	E	54	68	72	76
12	Swaziland	I	70	75	55	80
13	Ghana	I	88	81	39	81
14	Tanzania	I	68	93	43	82
15	Indonesia	E	60	72	90	83
16	Nigeria	E	24	84	81	84
17	Mongolia	E	74	79	75	85
18	Chad	E	48	88	58	86
19	Morocco	I	80	66	87	87
20	Ethiopia	I	94	90	37	89
21	Niger	I	92	87	48	90
22	Pakistan	I	73	80	77	92
23	India	I	87	82	93	93
24	Senegal	I	86	89	86	94

2012 Methodology enhancements

The Index methodology was enhanced in the 2012 Index to better assess the countries' ability to mitigate their environmental impact and to provide social equity.

Changes to Social Equity dimension

The social equity dimension (affordability of energy access) was modified to minimise the effects of scale. In previous versions of the Index, large countries were privileged due to a scale effect (for example, very large populations) as both indicators, the gasoline prices and household electricity expenditure were normalised respectively by aggregate household consumption expenditure and by aggregate expenditure on housing, water, electricity, gas and other fuels. Furthermore, countries that emphasised affordability, but faced challenges with the quality of electricity supply were privileged as the latter was not formally included in the index.

To remove scale effects, the aggregate, individual consumption as well as the electricity expenditure indicator are now scaled by population, thus measuring the indicators on a per capita level. The 'per capita' amendment to Social Equity is in line with the rest of the Index and negates inadvertently privileging larger populations.

In addition, an indicator for "Quality of Electricity supply" is now included in the indicator 1.2.2 which

measures affordability and quality of electricity supply. The indicator is applied after we normalise cost of electricity by access. The new data is available for almost all countries, with the exception of four African countries for which the African average is used as a proxy. This change reduces the instances of countries with poor grid infrastructure capturing anomalously high rankings. Best scores are now obtained for complete, high quality, and affordable access.

Changes to Environmental Impact Mitigation (EIM) dimension

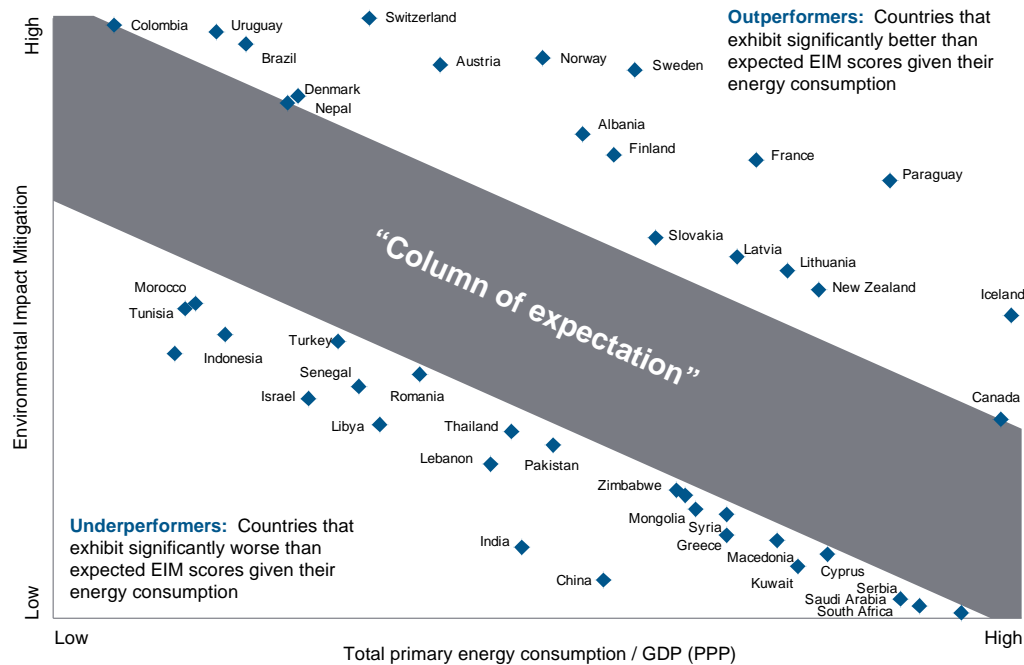
In the 2010 and 2011 Index, countries with very low energy consumption, due to poor energy access and low levels of industrialisation, were privileged in EIM for their comparatively low environmental footprint as measured by carbon emissions and energy intensity per capita. Two main changes were conducted to privilege countries that are able to combine economic and social development with environmental sensitivity.

First, the indicators of energy and emission intensity per capita per GDP PPP (1.3.1. and 1.3.2) were normalised by the percentage of energy access and the industrial sector percentage of total GDP. This provides a better 'apples-to-apples' country comparison as environmental impact mitigation accounts for the 'per capita' consuming energy and the burden of an industrialised nations.

In addition, the calculation of the EIM dimension was modified to identify those countries that out-perform peers for their given level of energy

Figure A6

Regression-based projections of environmental impact mitigation (EIM) scores identify under- and outperformers



consumption. After the environmental impact was assessed with the regular weighting system, this preliminary score is now regressed against the total primary energy consumption per capita per GDP. This regression allows estimating a projected environmental impact value for the sample of countries based on their energy consumption per capita per GDP. The final EIM score is then refined as the deviation from the expected and the actual environmental impact value. Countries that outperform against their estimate on EIM given their energy consumption are likely to be making concentrated efforts to mitigate their environmental impact, and vice-versa for underperformers. Figure A-6 presents the 'column of expectation' based on the 2012 regression trend as well as the out- and underperformers for the 2012 Index.

Rankings for previous years were calculated with the new methodology to allow for a comparison in performance between the years (see Figures A-7 and A-8).

Figure A-7

2011 Country ranking for the overall Index and energy dimensions

Rank	2011 Overall index ranking	2011 Energy security ranking	2011 Social equity ranking	2011 Environmental impact mitigation ranking
1	Canada	Canada	United States	Sweden
2	Finland	Russia	Canada	Iceland
3	Switzerland	Côte d'Ivoire	Australia	France
4	Sweden	Swaziland	Switzerland	Norway
5	Norway	Denmark	Luxembourg	Lithuania
6	New Zealand	Colombia	Japan	Finland
7	France	Finland	Austria	New Zealand
8	Denmark	Ukraine	United Kingdom	Paraguay
9	Austria	Sweden	Belgium	Latvia
10	Germany	Gabon	France	Tajikistan
11	Japan	Croatia	Norway	Russia
12	United States	Argentina	Germany	Canada
13	Luxembourg	Germany	New Zealand	Luxembourg
14	Iceland	Egypt (Arab Republic)	Finland	Switzerland
15	Spain	Switzerland	Qatar	Albania
16	Netherlands	Japan	Greece	Brazil
17	Croatia	Cameroon	Spain	Slovakia
18	Belgium	Nigeria	Saudi Arabia	Austria
19	Argentina	Syria (Arab Republic)	Iceland	Uruguay
20	Slovakia	Hungary	Argentina	Slovenia
21	Hungary	Norway	Taiwan, China	Kazakhstan
22	Lithuania	Latvia	Netherlands	Hungary
23	Latvia	Kenya	Italy	Ukraine
24	Australia	Tajikistan	Ireland	Belgium
25	Slovenia	Bulgaria	Korea (Republic)	Nepal
26	Czech Republic	Albania	Denmark	Croatia
27	Russia	Spain	Czech Republic	Argentina
28	United Kingdom	Slovakia	Cyprus	Denmark
29	Portugal	France	Hong Kong, China	Estonia
30	Kazakhstan	Congo (Dem. Republic)	Iran (Islamic Republic)	Serbia
31	Italy	Philippines	Kuwait	Netherlands
32	Colombia	United States	Croatia	Czech Republic
33	Taiwan, China	New Zealand	Sweden	Colombia
34	Uruguay	Kazakhstan	Mexico	Trinidad & Tobago
35	Hong Kong, China	Serbia	Slovakia	Korea (Republic)
36	Ukraine	Lithuania	Portugal	Romania
37	Korea (Republic)	Austria	Kazakhstan	Japan
38	Estonia	Czech Republic	Poland	Ghana
39	Ireland	Portugal	Hungary	United States
40	Bulgaria	Sri Lanka	United Arab Emirates	Portugal
41	Albania	Slovenia	Slovenia	Ireland
42	Romania	Australia	Israel	Swaziland
43	Swaziland	Macedonia (Republic)	Romania	Bulgaria
44	Serbia	Lebanon	Uruguay	Germany
45	Brazil	China	Lithuania	Peru
46	Mexico	Romania	Estonia	Spain
47	Saudi Arabia	Indonesia	Egypt (Arab Republic)	Taiwan, China
48	Qatar	Peru	Russia	Italy
49	UAE	Italy	Trinidad & Tobago	Tanzania
50	Egypt (Arab Republic)	Uruguay	Latvia	Iran (Islamic Republic)
51	Cyprus	Mexico	Tunisia	Congo (Dem. Republic)
52	Greece	Israel	South Africa	Philippines
53	Poland	Netherlands	Turkey	United Kingdom
54	Tajikistan	Paraguay	Jordan	Kenya
55	South Africa	Iceland	Algeria	United Arab Emirates
56	Paraguay	Tanzania	Ukraine	Saudi Arabia
57	Philippines	Poland	Serbia	South Africa
58	Macedonia Rep.	United Kingdom	Macedonia (Republic)	Macedonia (Republic)
59	Peru	South Africa	Colombia	Cyprus
60	Kuwait	Tunisia	Bulgaria	Hong Kong, China
61	Israel	Belgium	Indonesia	Sri Lanka
62	Trinidad & Tobago	Brazil	Lebanon	Cameroon
63	Iran (Islamic Republic)	Greece	Thailand	Poland
64	Syria (Arab Republic)	Pakistan	Libya	Mexico
65	Cameroon	Algeria	Brazil	Thailand
66	Tunisia	Hong Kong, China	Morocco	Ethiopia
67	Thailand	Thailand	Albania	Jordan
68	Sri Lanka	Turkey	Peru	Kuwait
69	Kenya	Estonia	Paraguay	Turkey
70	Jordan	Libya	Swaziland	Syria (Arab Republic)
71	China	Iran (Islamic Republic)	Syria (Arab Republic)	Pakistan
72	Lebanon	Mongolia	China	Australia
73	Gabon	Taiwan, China	Botswana	Namibia
74	Côte d'Ivoire	Niger	Sri Lanka	Egypt (Arab Republic)
75	Turkey	Namibia	Namibia	Qatar
76	Indonesia	Nepal	Philippines	Morocco
77	Congo (Dem. Republic)	Morocco	Gabon	Côte d'Ivoire
78	Nepal	Senegal	Mongolia	Mongolia
79	Tanzania	Ghana	Pakistan	Gabon
80	Ghana	United Arab Emirates	Ghana	Tunisia
81	Namibia	Luxembourg	Cameroon	Niger
82	Morocco	Jordan	Nigeria	Lebanon
83	Nigeria	Korea (Republic)	Tajikistan	Greece
84	Algeria	India	India	Algeria
85	Mongolia	Saudi Arabia	Côte d'Ivoire	Senegal
86	Libya	Trinidad & Tobago	Kenya	India
87	Botswana	Botswana	Senegal	China
88	Pakistan	Ireland	Niger	Nigeria
89	India	Ethiopia	Congo (Dem. Republic)	Israel
90	Niger	Cyprus	Nepal	Indonesia
91	Senegal	Qatar	Tanzania	Botswana
92	Ethiopia	Kuwait	Ethiopia	Libya

Figure A-8

2010 Country ranking for the overall Index and energy dimensions

Rank	2010 Overall index ranking	2010 Energy security ranking	2010 Social equity ranking	2010 Environmental impact mitigation ranking
1	Switzerland	Canada	United States	Iceland
2	Canada	Switzerland	Canada	Sweden
3	Norway	Denmark	Australia	France
4	Finland	Slovenia	Switzerland	Norway
5	New Zealand	Japan	Luxembourg	Estonia
6	France	Finland	France	Lithuania
7	Sweden	Norway	United Kingdom	Latvia
8	Denmark	Russia	Norway	Tajikistan
9	United States	Cameroon	Austria	Switzerland
10	Austria	Germany	Greece	Slovakia
11	Japan	Netherlands	Belgium	New Zealand
12	Belgium	Portugal	Japan	Luxembourg
13	Netherlands	Sweden	New Zealand	Canada
14	Slovenia	Czech Republic	Germany	Russia
15	Iceland	Slovakia	Finland	Finland
16	Luxembourg	Nigeria	Iceland	Albania
17	Slovakia	New Zealand	Qatar	Brazil
18	Germany	Colombia	Spain	Austria
19	Portugal	United States	Argentina	Uruguay
20	Australia	United Kingdom	Saudi Arabia	Kazakhstan
21	United Kingdom	France	Denmark	Nepal
22	Czech Republic	Argentina	Taiwan, China	Egypt (Arab Republic)
23	Estonia	Macedonia (Republic)	Italy	Ukraine
24	Argentina	Hungary	Netherlands	Hungary
25	Hungary	Belgium	Iran (Islamic Republic)	Croatia
26	Spain	Poland	Czech Republic	Belgium
27	Lithuania	Spain	Ireland	Argentina
28	Ireland	Romania	Cyprus	Slovenia
29	Russia	Indonesia	Croatia	Denmark
30	Uruguay	Austria	Sweden	United States
31	Latvia	Ukraine	Korea (Republic)	Paraguay
32	Hong Kong, China	Tunisia	Hong Kong, China	Ireland
33	Italy	Egypt (Arab Republic)	Kuwait	Colombia
34	Korea (Republic)	Iran (Islamic Republic)	Portugal	Kenya
35	Taiwan, China	Kenya	Slovakia	Trinidad & Tobago
36	Egypt (Arab Republic)	Australia	Slovenia	Peru
37	Colombia	Turkey	Hungary	Bulgaria
38	Qatar	Paraguay	Poland	Portugal
39	Iran (Islamic Republic)	Swaziland	United Arab Emirates	Japan
40	Croatia	Uruguay	Israel	Iran (Islamic Republic)
41	Romania	Syria (Arab Republic)	Kazakhstan	Philippines
42	Saudi Arabia	Côte d'Ivoire	Mexico	Swaziland
43	Macedonia (Republic)	Lithuania	Lebanon	Macedonia (Republic)
44	Greece	Italy	Romania	Namibia
45	Ukraine	South Africa	Uruguay	Netherlands
46	South Africa	Estonia	Lithuania	Czech Republic
47	Poland	Tajikistan	Estonia	Jordan
48	Cyprus	Mexico	South Africa	Korea (Republic)
49	Kazakhstan	Iceland	Jordan	Hong Kong, China
50	UAE	Greece	Latvia	Romania
51	Bulgaria	Congo (Dem. Republic)	Egypt (Arab Republic)	Tanzania
52	Tunisia	Libya	Turkey	Congo (Dem. Rep.)
53	Mexico	Bulgaria	Russia	Ghana
54	Kuwait	Albania	Tunisia	Cyprus
55	Trinidad & Tobago	Latvia	Trinidad & Tobago	Sri Lanka
56	Brazil	Algeria	Libya	Serbia
57	Swaziland	India	Macedonia (Republic)	Italy
58	Albania	Tanzania	Ukraine	Taiwan, China
59	Paraguay	Philippines	Serbia	Syria (Arab Republic)
60	Jordan	Ghana	Thailand	South Africa
61	Turkey	Sri Lanka	Colombia	Saudi Arabia
62	Tajikistan	Qatar	Algeria	Spain
63	Peru	Korea (Republic)	Bulgaria	Germany
64	Philippines	Ireland	Brazil	United Arab Emirates
65	Kenya	Taiwan, China	Morocco	Côte d'Ivoire
66	Cameroon	Saudi Arabia	Indonesia	Australia
67	Lebanon	Pakistan	Paraguay	Thailand
68	Namibia	Lebanon	Peru	Pakistan
69	Syria (Arab Republic)	Peru	Syria (Arab Republic)	United Kingdom
70	Sri Lanka	Kazakhstan	Sri Lanka	Morocco
71	Indonesia	China	Botswana	Tunisia
72	Thailand	Kuwait	China	Mongolia
73	Israel	United Arab Emirates	Namibia	Mexico
74	Nepal	Luxembourg	Philippines	Kuwait
75	Libya	Nepal	Swaziland	Turkey
76	Ghana	Croatia	Albania	Qatar
77	Nigeria	Hong Kong, China	Côte d'Ivoire	Lebanon
78	China	Trinidad & Tobago	Pakistan	Cameroon
79	Algeria	Brazil	Ghana	Poland
80	Tanzania	Niger	India	China
81	Côte d'Ivoire	Israel	Mongolia	Niger
82	Serbia	Namibia	Nigeria	Algeria
83	Congo (Dem. Republic)	Mongolia	Cameroon	Nigeria
84	India	Jordan	Senegal	Senegal
85	Morocco	Thailand	Tajikistan	Ethiopia
86	Botswana	Senegal	Niger	Greece
87	Pakistan	Ethiopia	Kenya	India
88	Mongolia	Morocco	Congo (Dem. Republic)	Indonesia
89	Senegal	Cyprus	Ethiopia	Botswana
90	Niger	Botswana	Nepal	Libya
91	Ethiopia	Serbia	Tanzania	Israel

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Bulgaria	Jordan	Serbia
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Canada	Kenya	Slovenia
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