## EAPI 2015 in Numbers

# EAPI 2015 World Map







# Table of Rankings

	Country	EAPI	<b>M</b>	Score	$\mathbf{\Theta}$
8	Switzerland	0.80	0.71	0.79	0.89
2	Norway	0.79	0.68	0.73	0.00
3	France	0.77	0.62	0.81	0.88
4	New Zealand	0.76	0.62	0.77	0.90
5	Spain	0.76	0.70	0.72	0.87
6	Sweden	0.76	0.59	0.79	0.89
7	Denmark	0.75	0.71	0.67	0.88
8	Austria	0.75	0.64	0.73	0.89
9	Colombia	0.74	0.75	0.61	0.84
10	Portugal	0.73	0.61	0.71	0.86
ð	Costa Rica	0.72	0.69	0.69	0.77
12	United Kingdom	0.72	0.60	0.66	0.89
13	Albania	0.72	0.71	0.74	0.70
14	Slovenia	0.71	0.56	0.70	0.88
15	Uruguay	0.71	0.68	0.67	0.80
16	Ireland	0.71	0.66	0.66	0.81
17	Finland	0.71	0.54	0.70	0.87
18	Hungary	0.71	0.57	0.71	0.83
19	Germany	0.71	0.60	0.65	0.87
20	Latvia	0.70	0.60	0.69	0.82
21	Croatia	0.70	0.64	0.63	0.83
22	Paraguay	0.70	0.67	0.79	0.63
23	Brazil	0.70	0.56	0.71	0.82
24	Belgium	0.69	0.50	0.74	0.85
25	Canada	0.69	0.59	0.61	0.89
26	Netherlands	0.69	0.53	0.66	0.88
27	Romania	0.69	0.65	0.63	0.79
28	Iceland	0.69	0.38	0.90	0.79
29	Luxembourg	0.69	0.70	0.62	0.75
30	Slovak Republic	0.69	0.50	0.73	0.83
31	Peru	0.68	0.79	0.55	0.71
32	Japan	0.67	0.58	0.60	0.83
33	Azerbaijan	0.67	0.59	0.62	0.80
34	Chile	0.67	0.65	0.55	0.82
35	Congo. Rep.	0.67	0.71	0.74	0.55
36	Czech Republic	0.67	0.52	0.60	0.88
37	United States	0.66	0.59	0.51	0.89
38	Australia Duccion Ecdoration	0.00	0.60	0.45	0.87
39	Russian Federation	0.00	0.00	0.09	0.60
	Crosso	0.05	0.50	0.00	0.72
41	Beland	0.05	0.57	0.57	0.01
	Italy	0.05	0.04	0.52	0.73
	Singaporo	0.05	0.40	0.05	0.04
45	leraol	0.05	0.59	0.50	0.79
46	Fl Salvaor	0.05	0.01	0.55	0.00
47	Argentina	0.64	0.64	0.55	0.73
48	Georgia	0.64	0.04	0.00	0.70
49	Tajikistan	0.64	0.40	0.87	0.64
50	Armenia	0.64	0.44	0.76	0.72
51	Panama	0.63	0.66	0.57	0.67
52	Bulgaria	0.63	0.54	0.61	0.75
53	Korea. Rep.	0.63	0.56	0.51	0.82
54	Turkev	0.63	0.54	0.53	0.81
55	Mexico	0.62	0.57	0.54	0.75
56	Estonia	0.62	0.53	0.54	0.78
57	Ecuador	0.61	0.56	0.59	0.69
58	Kazakhstan	0.61	0.56	0.50	0.79
59	Philippines	0.60	0.55	0.60	0.65
60	Thailand	0.60	0.49	0.52	0.78
61	Tunisia	0.59	0.47	0.50	0.80
62	Dominican Republic	0.59	0.61	0.51	0.65
63	Namibia	0.59	0.58	0.66	0.53
Ad	vanced Emerging and	d	Latin A	America	

Country	EAPI	<b>M</b>		$\odot$
64 Cyprus	0.59	0.58	0.53	0.65
65 Algeria	0.59	0.43	0.56	0.76
66 South Africa	0.58	0.59	0.51	0.65
67 Malta	0.58	0.62	0.51	0.62
🚳 Sri Lanka	0.58	0.58	0.56	0.58
Morocco	0.57	0.49	0.48	0.76
70 Cameroon	0.56	0.46	0.82	0.41
71 Serbia	0.56	0.48	0.47	0.74
72 Guatemala	0.56	0.46	0.61	0.61
<sup>73</sup> Ukraine	0.56	0.33	0.56	0.79
Brunel Darussalam	0.56	0.48	0.42	0.78
	0.55	0.41	0.54	0.09
Vietnam	0.54	0.43	0.54	0.68
8 Uzhekistan	0.54	0.37	0.57	0.67
O200103tain     O200103tain     O200103tain	0.54	0.40	0.78	0.44
<ul> <li>Malavsia</li> </ul>	0.54	0.33	0.45	0.83
al Qatar	0.54	0.46	0.35	0.80
82 Nicaragua	0.54	0.46	0.61	0.54
8 Macedonia, FYR	0.54	0.52	0.36	0.74
😣 Bolivia	0.53	0.44	0.47	0.70
85 Venezuela	0.53	0.32	0.58	0.70
86 Belarus	0.53	0.32	0.60	0.68
87 Kyrgyz Republic	0.53	0.25	0.72	0.63
88 Zambia	0.53	0.44	0.84	0.32
89 China, People's Rep.	0.53	0.46	0.40	0.71
Irinidad and Iobago	0.52	0.41	0.46	0.69
I Gnana	0.52	0.45	0.64	0.48
Turkmenisten	0.52	0.47	0.30	0.74
	0.52	0.32	0.40	0.68
s India	0.51	0.50	0.42	0.61
Syrian Arab Republic	0.50	0.35	0.45	0.69
97 Jamaica	0.50	0.34	0.52	0.64
Honduras	0.50	0.41	0.53	0.55
🥺 Botswana	0.50	0.64	0.37	0.48
Onited Arab Emirates	0.49	0.47	0.21	0.80
0 Oman	0.49	0.37	0.30	0.81
Bosnia and Herzegovina	0.49	0.46	0.29	0.72
103 Mozambique	0.49	0.33	0.87	0.27
W Senegal	0.49	0.48	0.50	0.50
Equat Arch Dop	0.49	0.39	0.71	0.30
W Egypt, Arab hep.	0.40	0.33	0.43	0.09
. lordan	0.40	0.34	0.10	0.66
Eritrea	0.47	0.46	0.57	0.38
	0.47	0.32	0.81	0.28
11 Pakistan	0.47	0.44	0.44	0.52
10 Saudi Arabia	0.47	0.39	0.19	0.82
1 Bahrain	0.46	0.23	0.41	0.75
114 Nigeria	0.46	0.44	0.60	0.34
116 Lebanon	0.46	0.46	0.40	0.52
116 Bangladesh	0.45	0.52	0.39	0.44
117 Nepal	0.45	0.40	0.62	0.33
<sup>110</sup> Iran, Islamic Rep.	0.44	0.31	0.25	0.77
	0.44	0.44	0.67	0.22
	0.44	0.43	0.57	0.32
Pethiopia	0.43	0.34	0.49	0.32
	0.42	0.31	0.73	0.22
12 Mongolia	0.41	0.36	0.27	0.60
128 Yemen	0.40	0.48	0.32	0.39

Emerging and Sub-Saharan Africa

📶 Economic growth and development 🚯 Environmental sustainability 🚱 Energy access and security 🕒 Global EAPI ranking 0.80 EAPI score

## Key findings from the EAPI 2015

## **New Energy Architecture Report Series**

#### Economic growth and development

Despite substantial policy efforts worldwide, progress in improving the energy intensity of economies is lagging - especially in emerging economies.

Strong performance on the EAPI's energy intensity indicator is one of the principle differentiators for countries' overall performance on the economic growth and development sub-index. Energy intensity is a function of energy efficiency, as well as the underlying structure of an economy (with the latter being the dominating factor). Thus, economies dominated by low value-added, high energy-intensity activities score lowest on this indicator. The sample average for gross domestic product (GDP) produced per unit of energy use for advanced economies is \$9.64 (score of 0.61), compared to \$6.71 (score of 0.39) for emerging and developing economies, and \$5.80 for the BRICs: Brazil, Russia, India and China (score of 0.32). Governments serious about energy intensity need to address both energy efficiency (the "numerator" of the energy intensity equation) and economic fundamentals (the "denominator") through the shift to a post-industrial economy that requires free trade flows, skilled labour and increased flows of investments.

#### Environmental sustainability

#### While advanced economies are gradually moving to a less carbon-intensive energy architecture, for many countries the future is less promising.

Despite some progress on the environmental sustainability sub-index for many economies, much more needs to be done for the world to move to a low-carbon energy system. For over one-third of countries on the EAPI (34%), the share of non-carbon sources (including nuclear and biomass) in total primary energy supply remains lower than 10%. For top performers, the share is closer to 40%. Varying efforts to address rising greenhouse gas emissions are particularly visible within the indicator on carbon dioxide (CO<sub>2</sub>) emissions from the electricity sector: the average emissions for BRICs is 531 grams (g) of CO<sub>2</sub> per kilowatt hour (kWh) of electricity produced, compared to 394g for advanced economies. Air pollution remains a challenge in emerging and developing economies as levels of air pollutants increase in conjunction with growing industrialization and urbanization; these countries score 0.57 for levels of PM10<sup>i</sup>, compared to 0.92 for advanced economies.



## Energy access and security

#### Import dependence is growing across many energy systems, but this is being addressed through increased supply diversity.

Of the 125 countries on the EAPI, 67% are net energy importers. The top performers on the energy access and security sub-index demonstrate that import dependence can be addressed both through diversity in the energy mix, and in the number of energy trading partners. This can help mitigate energy supply disruption risks – a point further underlined by recent geopolitical insecurity. Performance on this sub-index also highlights the number of nations struggling to supply their citizens with basic energy needs. Twenty countries provide less than 60% of their citizens with access to electricity, and more than half the population in 29 countries on the EAPI still use solid fuels for cooking - a major challenge to address as the world embarks on the UN's Decade of Sustainable Energy for All 2014-2024.

Since 2011, the World Economic Forum has been working on the New Energy Architecture initiative in collaboration with Accenture to better understand the changes underway in the global energy system, and how to enable the transition to a more affordable, sustainable and secure energy architecture. A core part of this work has been the development of the Energy Architecture Performance Index which provides a tool for policy makers to evaluate change the energy system across the three dimensions of the energy triangle: economic growth and development, environmental sustainability and energy access and security.



## Global Energy Architecture Performance Index Report 2014

The second edition of the Global Energy Architecture Performance Index benchmarked and ranked 124 countries globally on how well their energy system delivers across the three dimensions of the energy triangle, whilst providing in-depth analysis across different regions.



#### Global Energy Architecture Performance Index Report 2013

The first edition of the Global Energy Architecture Performance Index benchmarked and ranked 105 countries globally on how well their energy system delivers economic growth and development, environmental sustainability, and energy security and access.



#### New Energy Architecture: Enabling an effective transition (2012)

The way energy is produced, distributed and consumed around the world is currently undergoing fundamental change of almost unprecedented proportion. This report looks into pathways to creating a more effective transition towards a New Energy Architecture.

### Acknowledgements

The New Energy Architecture initiative is conducted under the World Economic Forum's Energy Industry Partnership in collaboration with Accenture, with support from the team responsible for the Global Competitiveness Report and key business, government and civil society constituents from the energy sector. The team would like to thank the Chief Expert Advisors involved in this year's edition of the report – David Morgan, Professor of International Relations and Director of the Laboratory on International Law and Regulation at UC San Diego, Morgan Bazilian, Lead Energy Specialist, World Bank and Eirik Wærness, Chief Economist, Statoil. We would also like to thank the International Energy Agency, the World Bank, the World Trade Organisation and the German Federal Enterprise for International Cooperation as data contributors.

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#### About the World Economic Forum

The World Economic Forum is an international institution committed to improving the state of the world through public-private cooperation in the spirit of global citizenship. It engages with business, political, academic and other leaders of society to shape global, regional and industry agendas. Incorporated as a not-for-profit foundation in 1971 and headquartered in Geneva, Switzerland, the Forum is independent, impartial and not tied to any interests. It cooperates closely with all leading international organizations.



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# **Global Energy** Architecture **Performance Index** Report 2015

Prepared in collaboration with Accenture

December 2014



## About the Energy Architecture Performance Index

The Energy Architecture Performance Index (EAPI) provides a tool for decision-makers to holistically benchmark nations' energy systems. The EAPI aims to support governments and other stakeholders along the energy value chain in identifying the relative performance of elements of their energy systems, in order for best practices to be diffused more widely and poor practices targeted.

The EAPI is a composite index that focuses on tracking specific indicators to measure the energy system performance of 125 countries. At its core are 18 indicators defined across each side of the energy triangle: economic growth and development, environmental sustainability, and energy access and security. The EAPI provides a transparent and easily comparable set of measures that can help track progress and open new perspectives on the specific challenges faced by individual countries in each region. The full methodology behind the EAPI is available online at http:// wef.ch/eapimethodology.



Economic growth and develop	oment
This sub-index measures the extent t	o which

or detracts from economic growth

#### Environmental sustainability

This sub-index measures the environmental impact of energy supply and consumption



Energy access and security

This sub-index measures the extent to which an energy supply is secure accessible and diversified