Time to get real

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

World Energy Trilemma

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New Zealand, February 2014

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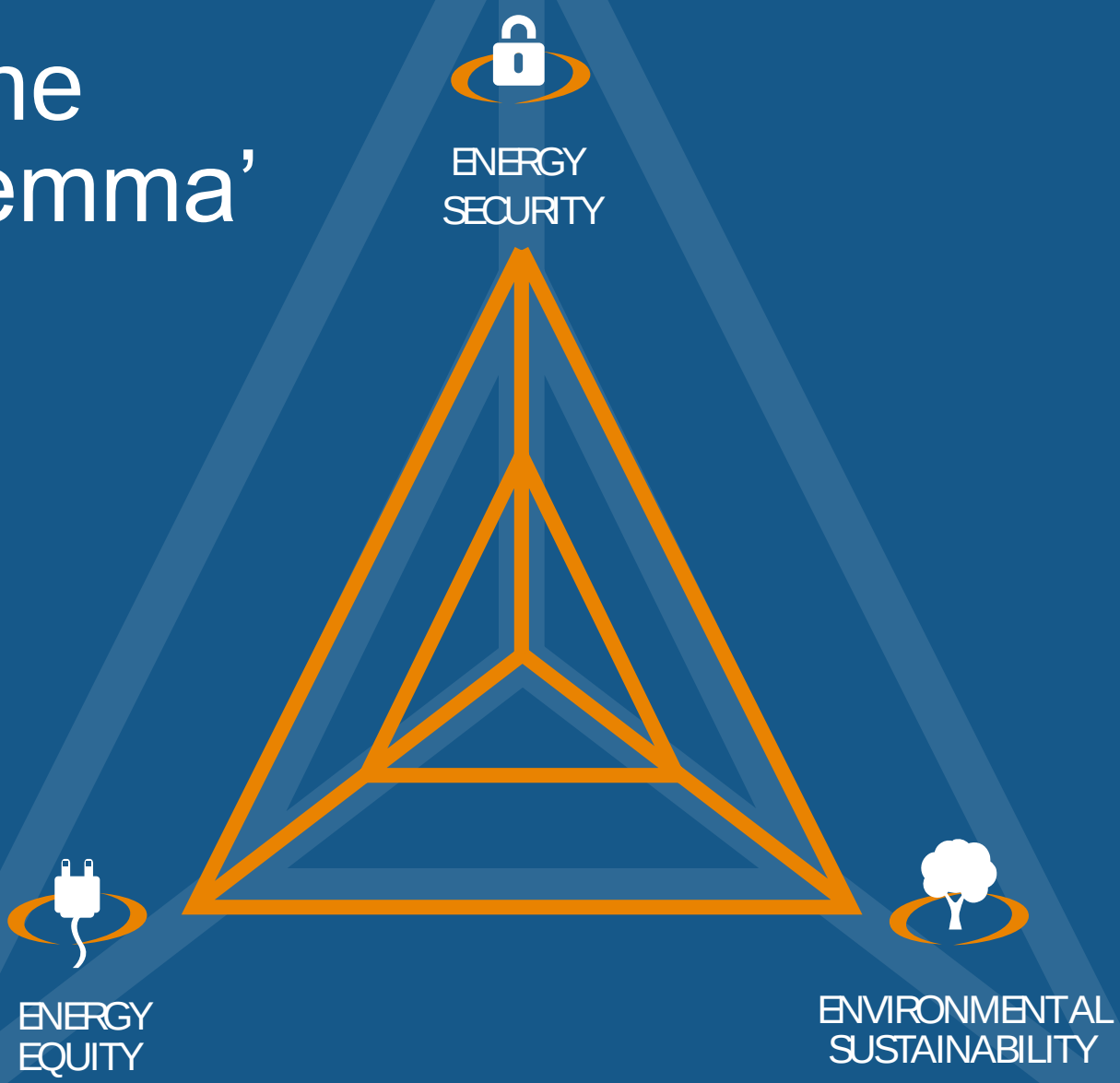
The World Energy Trilemma

Balancing the ‘Energy Trilemma’



World Energy Trilemma report

Energy Sustainability Index

Policy review and analysis (deep dives)

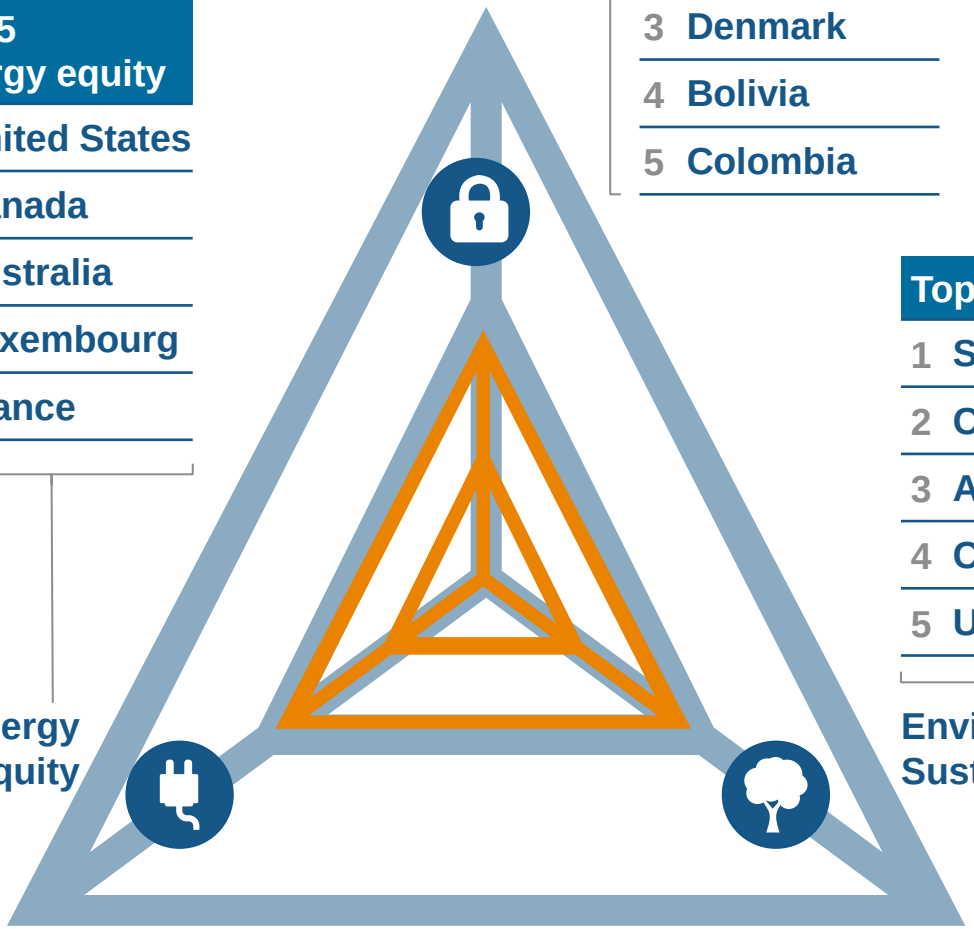
Call for increased dialogue

- 2012 report **views of 40 senior energy executives**
- 2013 report **response of governments, multilateral organisations and development banks**
- Culminating in **Agenda for Change**

Energy Sustainability Index

5 Top Energy sustainability index

1	Switzerland
2	Denmark
3	Sweden
4	Austria
5	United Kingdom



Top 5 Energy security

Energy security

1	Canada
2	Russia
3	Denmark
4	Bolivia
5	Colombia

Top 5 Energy equity

1	United States
2	Canada
3	Australia
4	Luxembourg
5	France

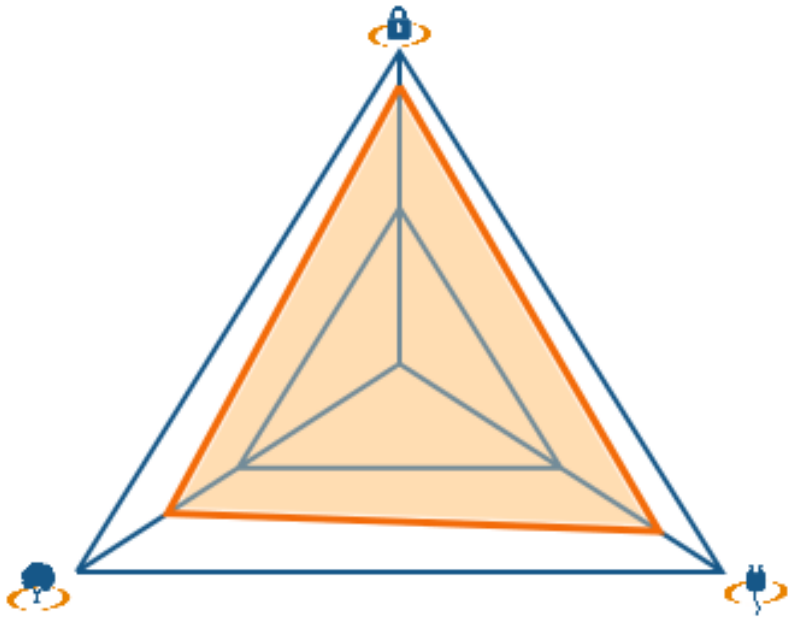
Energy equity

Top 5

1	Switzerland
2	Costa Rica
3	Albania
4	Colombia
5	Uruguay

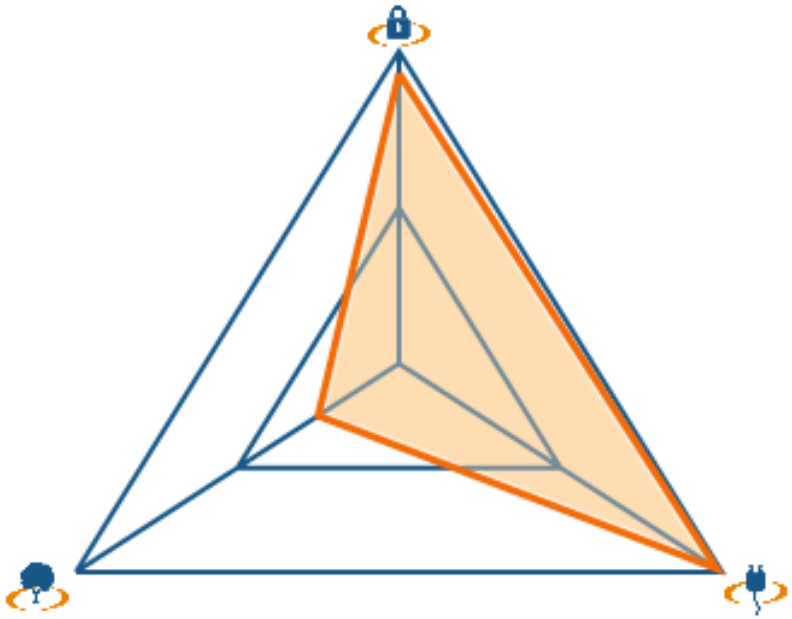
Environmental Sustainability

New Zealand on Rank 8



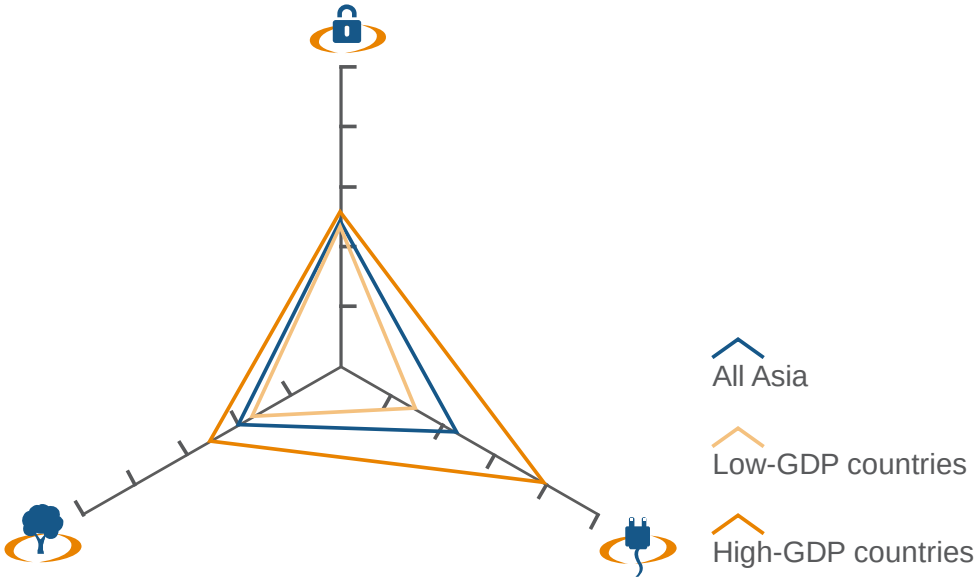
	2011	2012	2013	Trend	Score
Energy security	20	19	15	↑	A
Energy equity	15	18	26	↓	A
Environmental sustainability	40	36	37	↓	B
Overall rank and score	**9**	**7**	**8**	↓	**AAB**

Australia on Rank 14



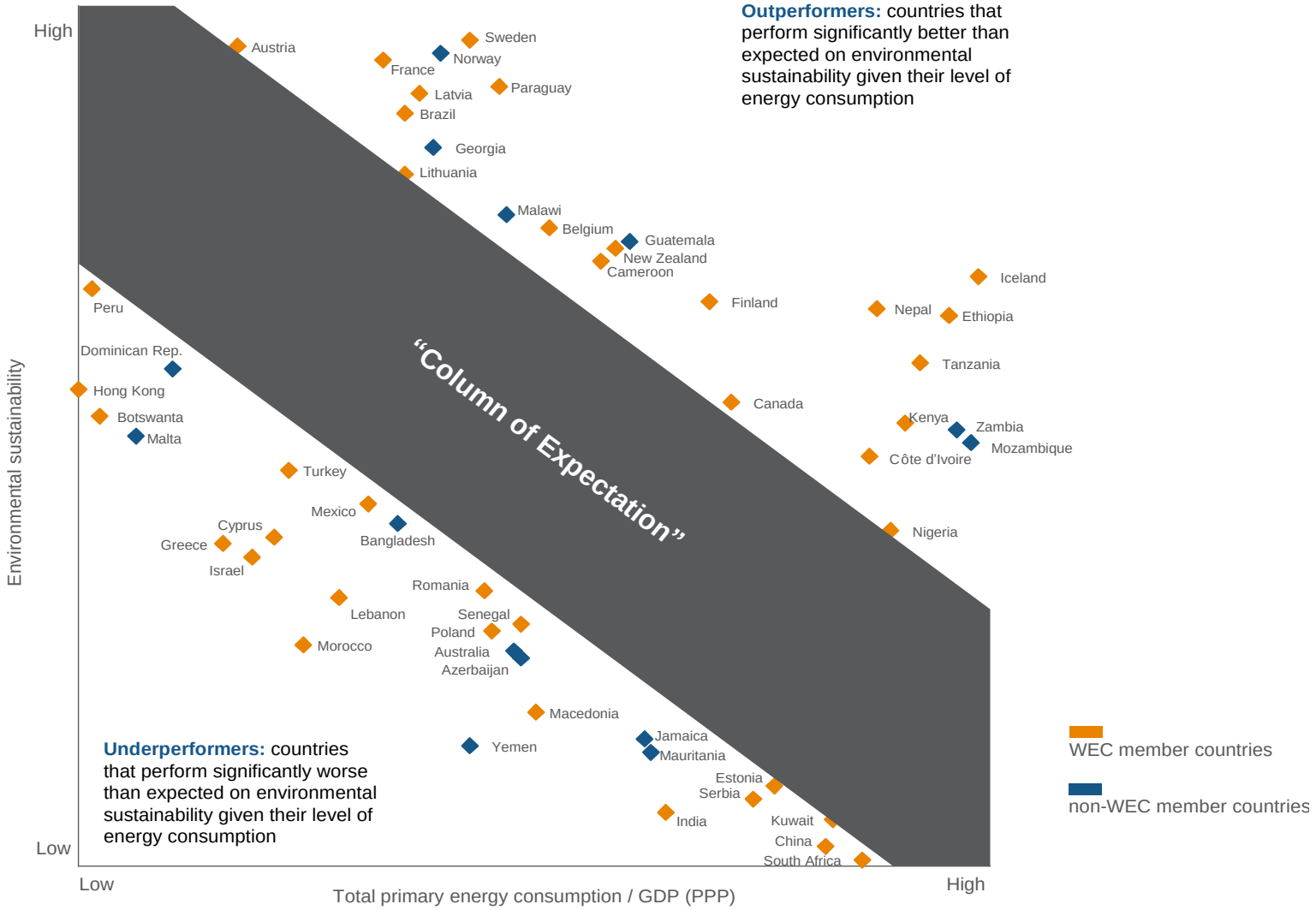
	2011	2012	2013	Trend	Score
Energy security	14	14	10	↑	A
Energy equity	3	3	3	→	A
Environmental sustainability	101	99	97	↑	D
Overall rank and score	**15**	**15**	**14**	↑	**AAD**

Energy sustainability balance Asia



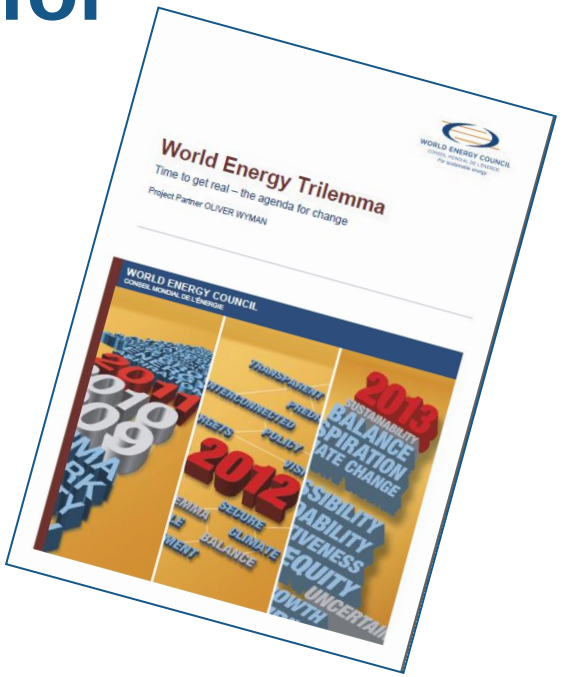
Low-GDP countries	High-GDP countries
Armenia	Australia
Azerbaijan	Hong Kong, China
Bangladesh	Japan
Cambodia	Korea (Rep.)
China	Malaysia
Georgia	New Zealand
India	Singapore
Indonesia	Taiwan, China
Kazakhstan	
Mongolia	
Nepal	
Pakistan	
Philippines	
Sri Lanka	
Tajikistan	
Thailand	
Vietnam	

Outperformers and underperformers



Lessons for public and private stakeholders

"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."



Recommendation 1:
Coherent and predictable energy policy

1. Predictable, long-term, accessible and transparent policy
2. Consistent, clear and simple regulations
3. Think regionally

Recommendation 2:
Market conditions for long-term investments

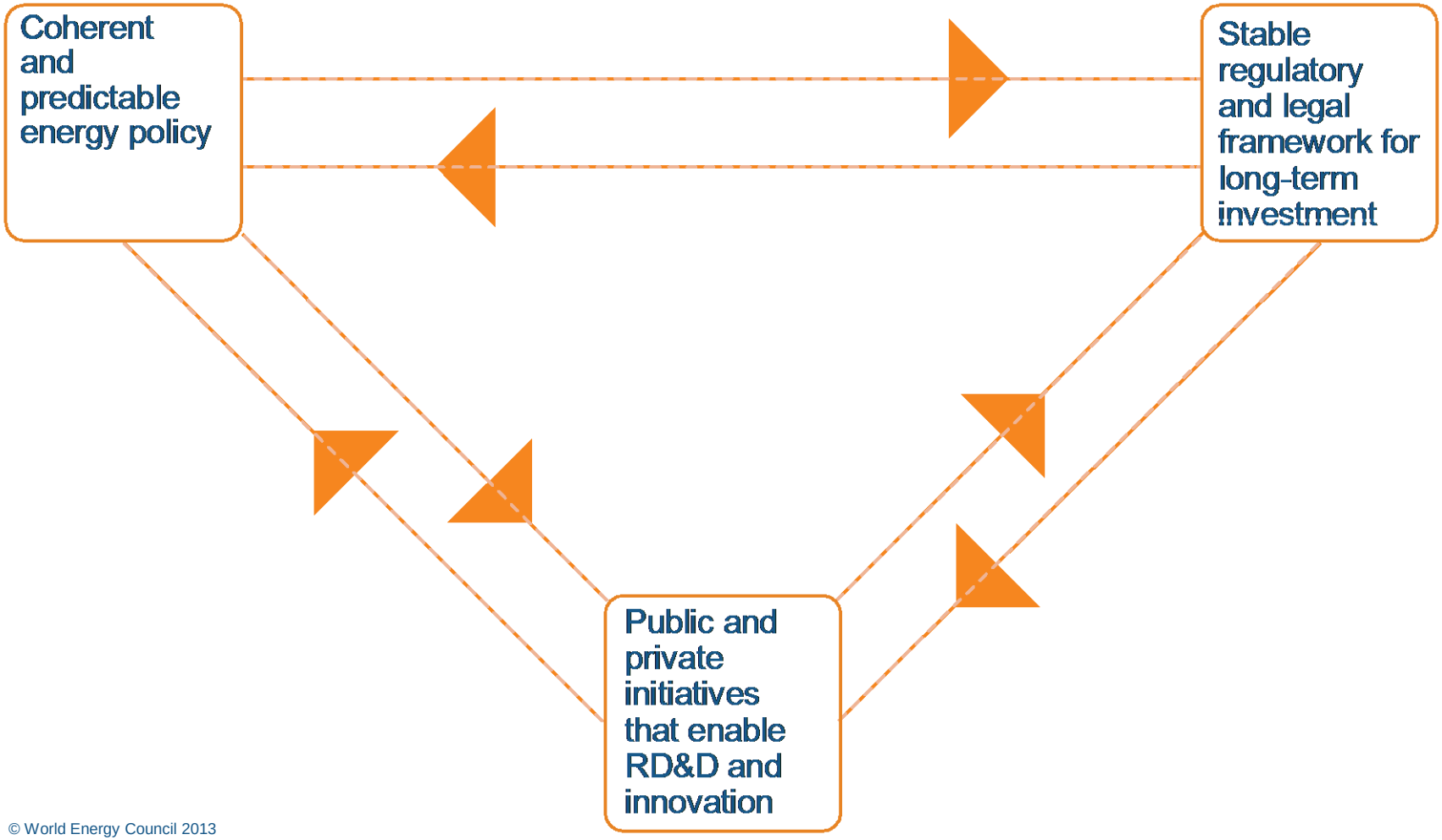
1. Investment framework and political stability
2. Market-based pricing instruments for emission trading
3. Careful application of subsidies

Recommendation 3:

Public and private initiatives on R&D in all areas of energy technology

1. Goal-driven vs. prescriptive policies
2. Technology-neutral frameworks
3. Strong intellectual property rights

Clear vision with a mix of energy sources and technologies



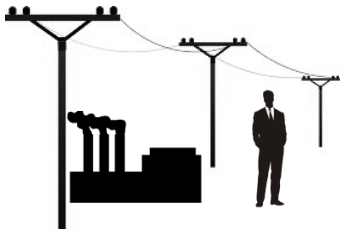
Increasing policy complexity

1. Lack of global consensus on target profile of future energy system
2. Dynamics of changing energy supply and demand
3. Inherent difficulties in translating policy into effective regulations

Help from energy industry

1. Greater dialogue, sharing knowledge and experiences
2. Better risk alignment
3. Economic development on a new path to energy sustainability

Recommendation 1
Industry role



Industry

Inform and engage public

General Public

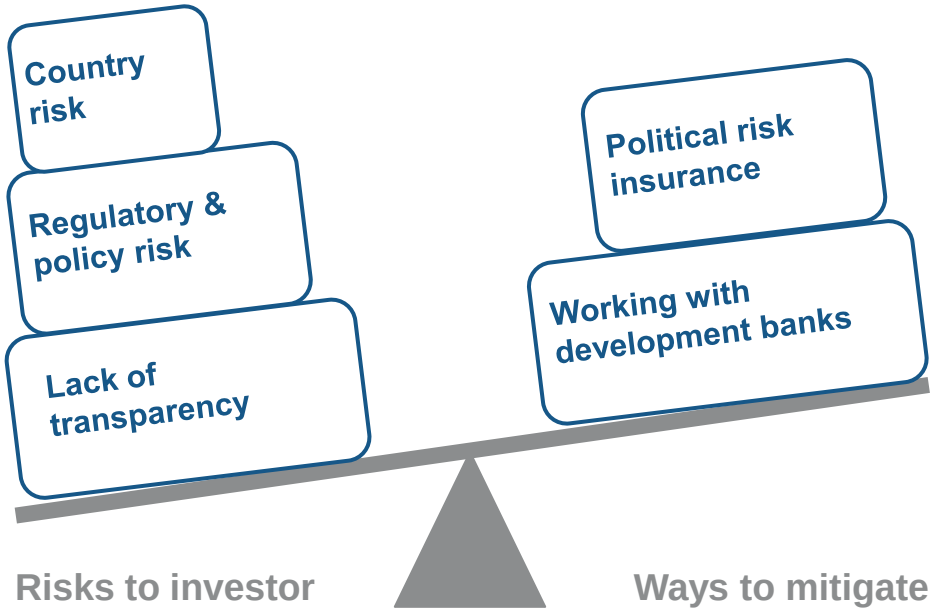
Politically achievability?

Help policymakers through energy / technology expertise

Government

Recommendation 2:
Better risk alignment

Policymakers agree it is their role to reduce political and regulatory risk…



…but call on industry to be less risk averse

Energy and infrastructure investments

Industry lead role in energy technology development and reducing costs

More collaboration to align their long-term research plans and goals

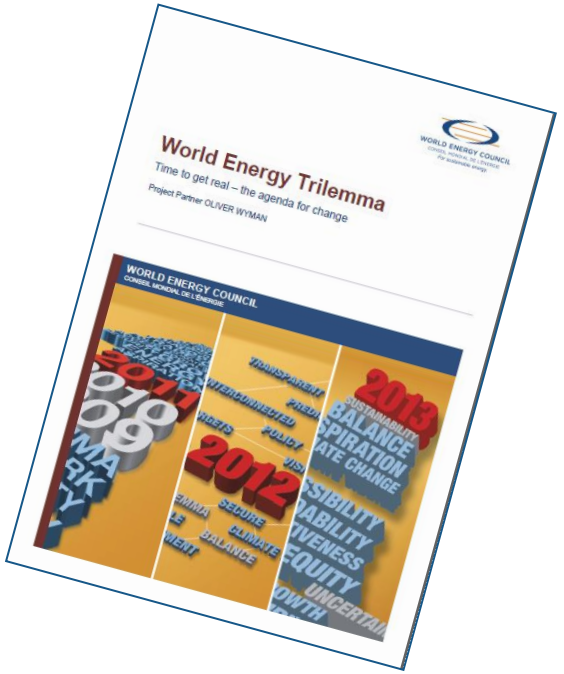
Recommendation 3:
New path to sustainability for developing countries

Support to government in four areas:

1. Policy and regulatory frameworks
2. Investment in “technically good projects”
3. Local human capital development
4. Local adaptation of proven technology

- 41 countries, 46 policymakers, 26 governments, 2.5 billion people
- 22 countries, 45 executives, 44 companies, US$2 trillion of revenue
- 18 representatives of international organisations

“We can’t use the old paradigms if we really want to make changes”



10-POINT AGENDA FOR CHANGE

The World Energy Council's World Energy Trilemma 2012–2013 research programme captured the insights of more than 100 global energy leaders and led to the identification of a 10-point agenda to address three broad policy areas.

Cumulative investment needs vary but the numbers are in the trillions (USD)

$37

USD Trillion

- Cumulative investment of US$37 trillion is needed in the world's energy supply system until 2035 (New Policies Scenario, IEA 2012)

$4

USD Trillion

- Cumulative additional investments of US$ 3.8 trillion to 2035 for efficient end-use technologies (New Policies Scenario, IEA 2012)

$24

USD Trillion

- To reach the UN's Sustainable Energy for All goals – universal access to modern energy services, doubling global rate of improvement of energy efficiency, and doubling the share of renewable energy in global mix – by 2030 cumulative investment between US$ 20 and US$ 24 trillion is needed – a doubling or tripling of current levels

$26

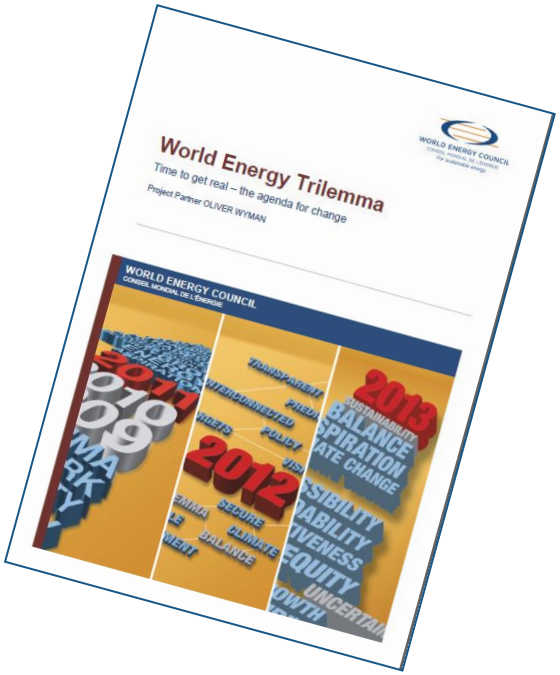
USD Trillion

- According to WEC's World Energy Scenarios to 2050 it will take between US$ 19.3 and US$ 26.7 trillion cumulative global investments in electricity infrastructure alone between now and 2050

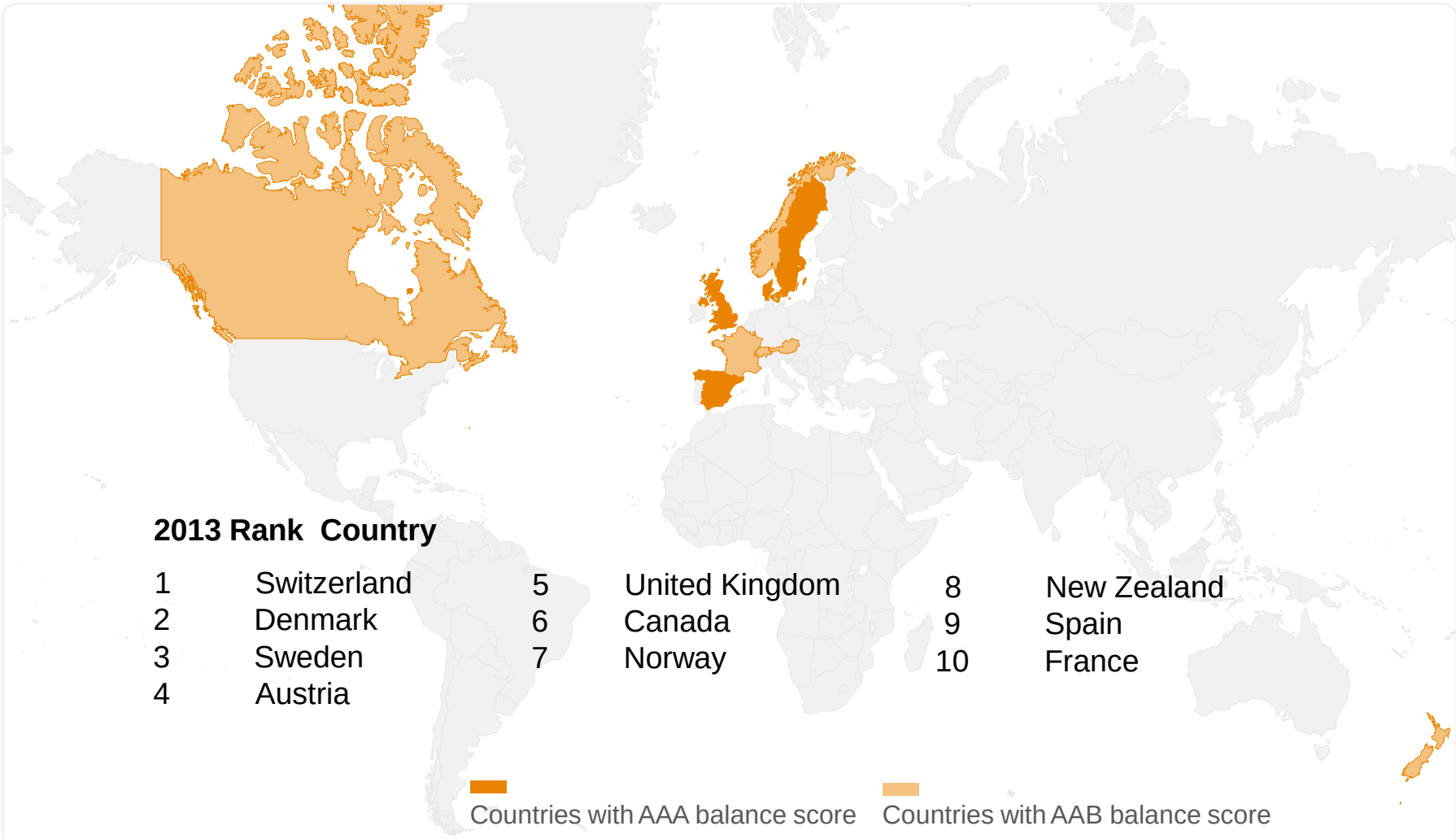
Increase engagement with the financial community

1. Ensure potential investors have knowledge of opportunities
2. Develop risk management mechanisms to stimulate energy investments
3. Explore how policy and regulatory barriers inhibiting investment may be overcome

"Sustainable energy is not only an opportunity to transform societies and grow economies, but also a necessity – a prerequisite to meet growing energy demand and reduce the carbon footprint."



Conclusions



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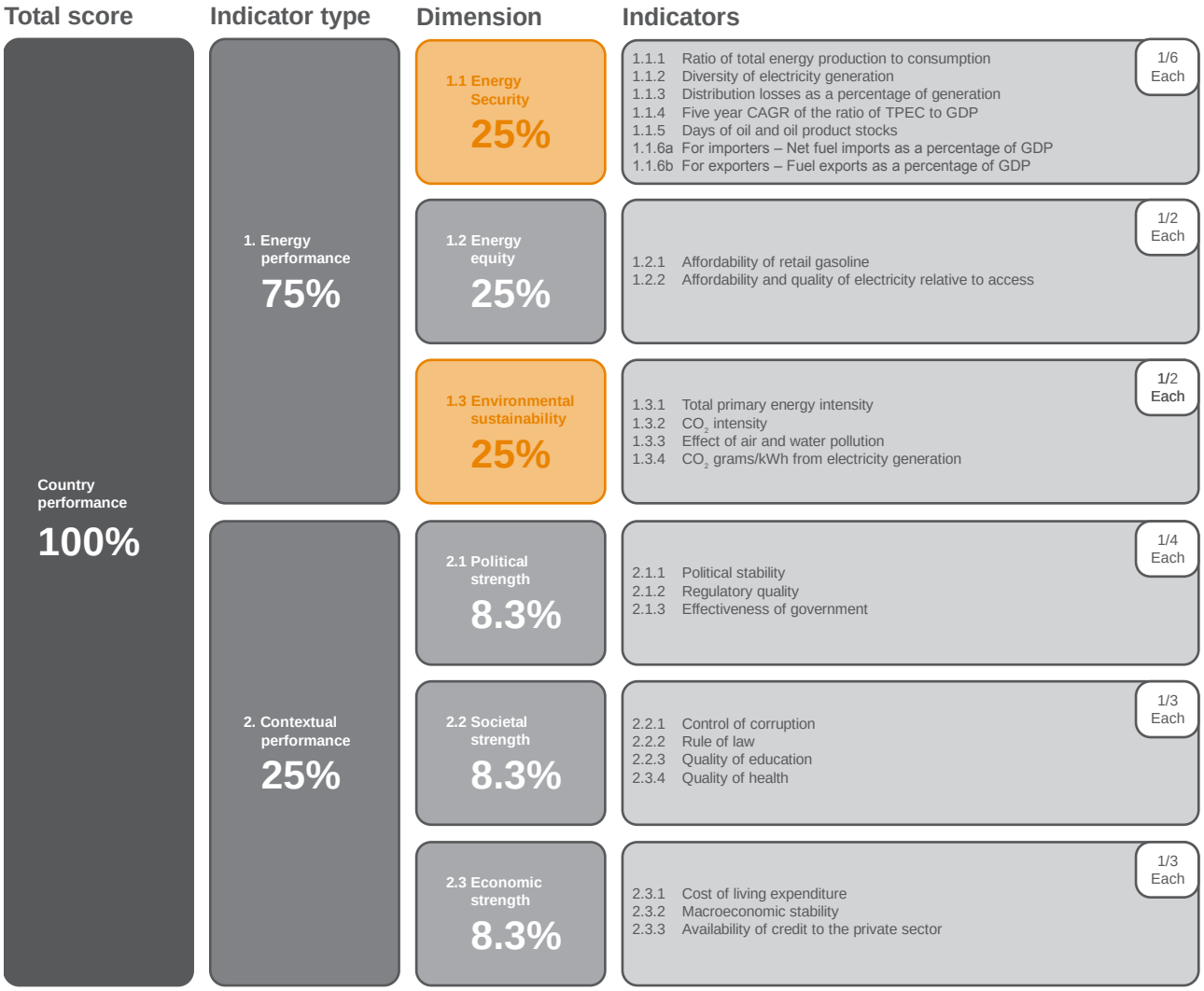
Energy Sustainability Index structure



Five profiles of the energy trilemma highlight common challenges

	Illustrative members	Key strengths	Core Challenges
Pack Leaders	Switzerland, Denmark, **NZ**	Overall performance and balance	Ensuring achievement of 2020 climate targets
Fossil-fuelled	United Arab Emirates, Malaysia, Saudi Arabia	Affordability and security of energy	Energy and emission intensity challenges
Highly-industrialised	India, Mexico	Energy security and strong GDP growth	Rapid industrial growth and impacts
Hydro-powered	Brazil, Colombia	Use of renewables leads to low emissions and higher electrification rates	Improve energy access and affordability
Back of the Pack	Zimbabwe, Nicaragua	Not yet locked in to fossil fuel heavy development path	Investment challenges

An opportunity for developing countries