

Fostering Effective Energy Transition



Role of the World Economic Forum



The World Economic Forum is the International Organization for Public-Private Cooperation. Our mission is to improve the state of the world.

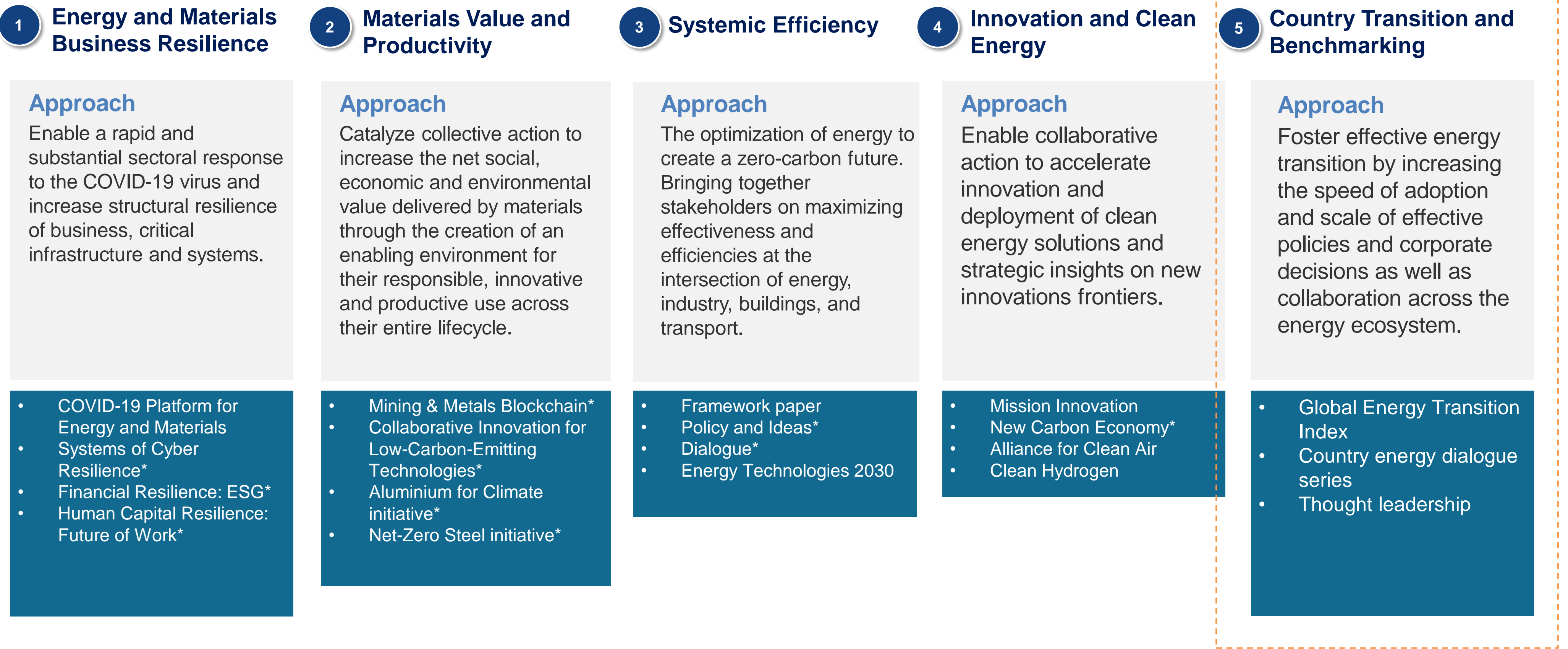
Our purpose is to bring together stakeholders from all sectors of society to shape the future.

Governments, businesses or civil society alone cannot sustainably address the economic, technological, environmental and social challenges of an increasingly complex, interdependent and fast-transforming world. Instead, they need to work together via a trusted global platform for informed collaboration and cooperation.

Over the past 50 years, the World Economic Forum has earned the trust to build and curate impartial and independent platforms.



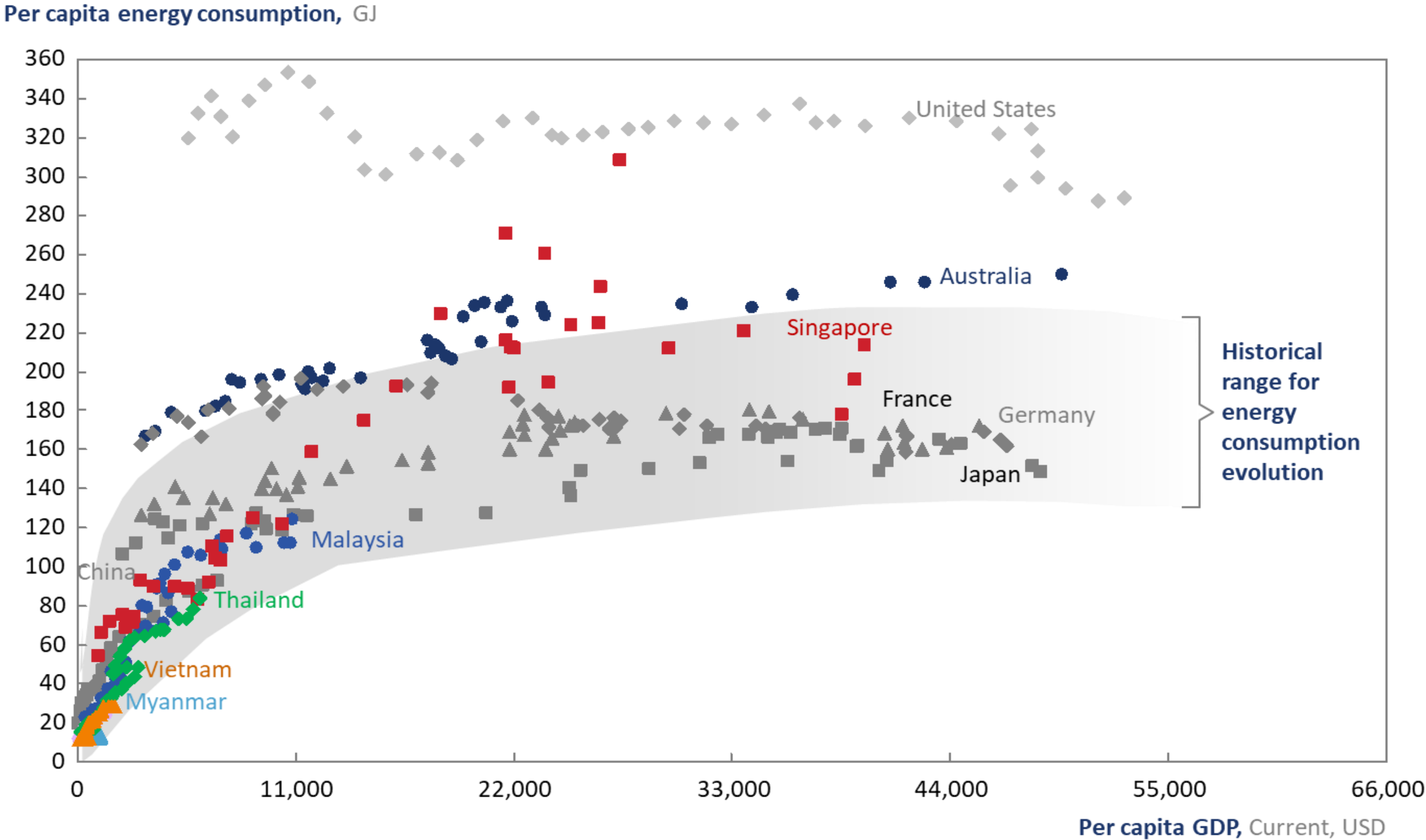
Shaping the Future of Energy and Materials: Portfolio of initiatives



- Linked to our Platform
- [Mission Possible Platform](#)
 - [Global Battery Alliance](#)

Defining the Energy Transition

Historically per capita energy demand increases with income levels at a diminishing rate as seen across countries



SOURCE: McKinsey; Worldbank, data from 1970-2013 except from Myanmar (2000-2014) and Vietnam (1985-2013)

Climate change is challenging business as usual, demanding urgent action and already changing policy and business – but the world is not on track

Climate change likely to have extreme impacts on the world with interconnected and hard to predict effects



More Extreme and frequent natural disasters (i.e. floods, droughts, hurricanes)



Disrupted ecosystems, food supply and distribution chains



Impact in air quality from increasing air pollution – correlated with GHG

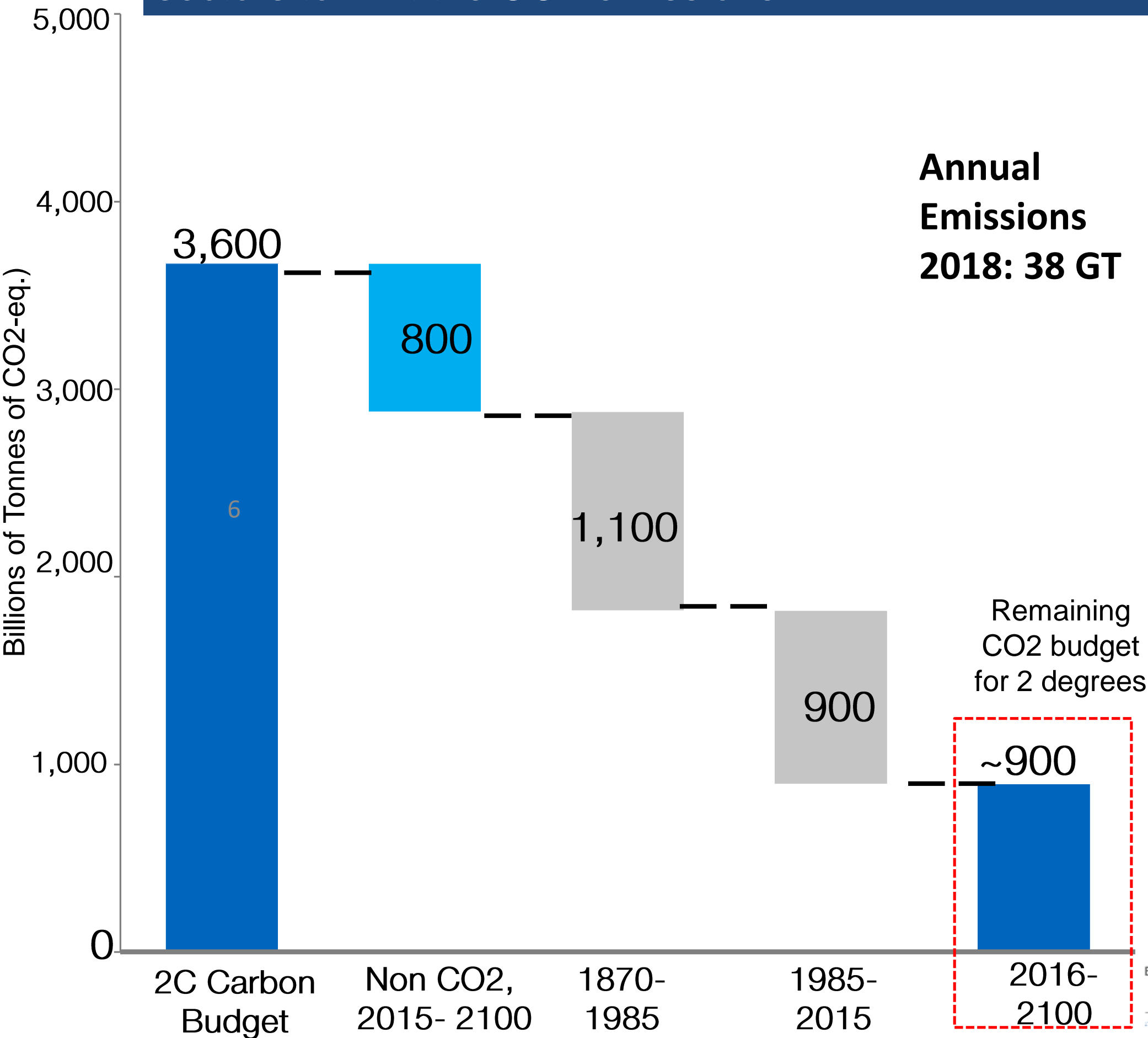


Increasing clean water-related stress while sea levels are rising



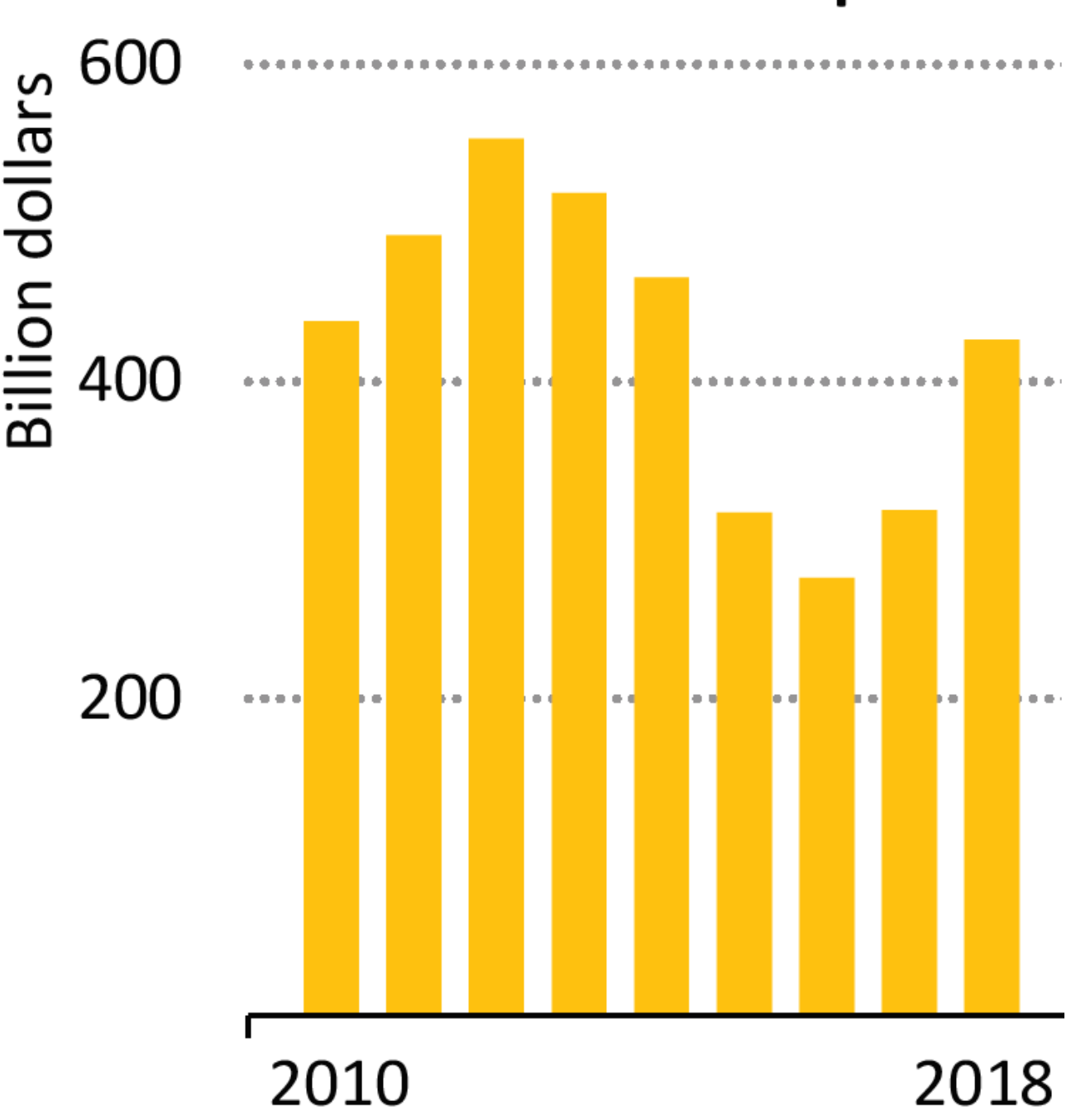
Younger generations are getting increasingly worried and demand forceful action

... requiring transformative action across different sectors to limit the CO2 emissions



Fossil fuel subsidies remain high, while affordability is an obstacle for reforms to phase them out

Global Fossil Fuel Consumption Subsidies



Public backlash against fuel price rationalization and subsidy removal across countries

France Suspends Fuel Tax Increase That Spurred Violent Protests

December 4, 2018

Sharp Rise in Petrol Prices Sparks Protests Across Iran

November 16, 2019

India Opposition Block Roads, Offices Shut in Fuel Price Protests

September 10, 2018

Clashes Erupt in Ecuador Fuel Price Protests

October 8, 2019

Haiti Suspends Fuel Price Hike After Deadly Protests

July 8, 2018

Brazil Fuel Protests: Temer Cuts Diesel Price in Bid to End Strike

May 28, 2018

Egypt Lowers Fuel Prices After Protests

October 4, 2019

Tunisia: Protests After Raising Fuel Prices for Sixth Time

April 3, 2019

Violent Protests in Zimbabwe After Major Hike in Petrol Prices

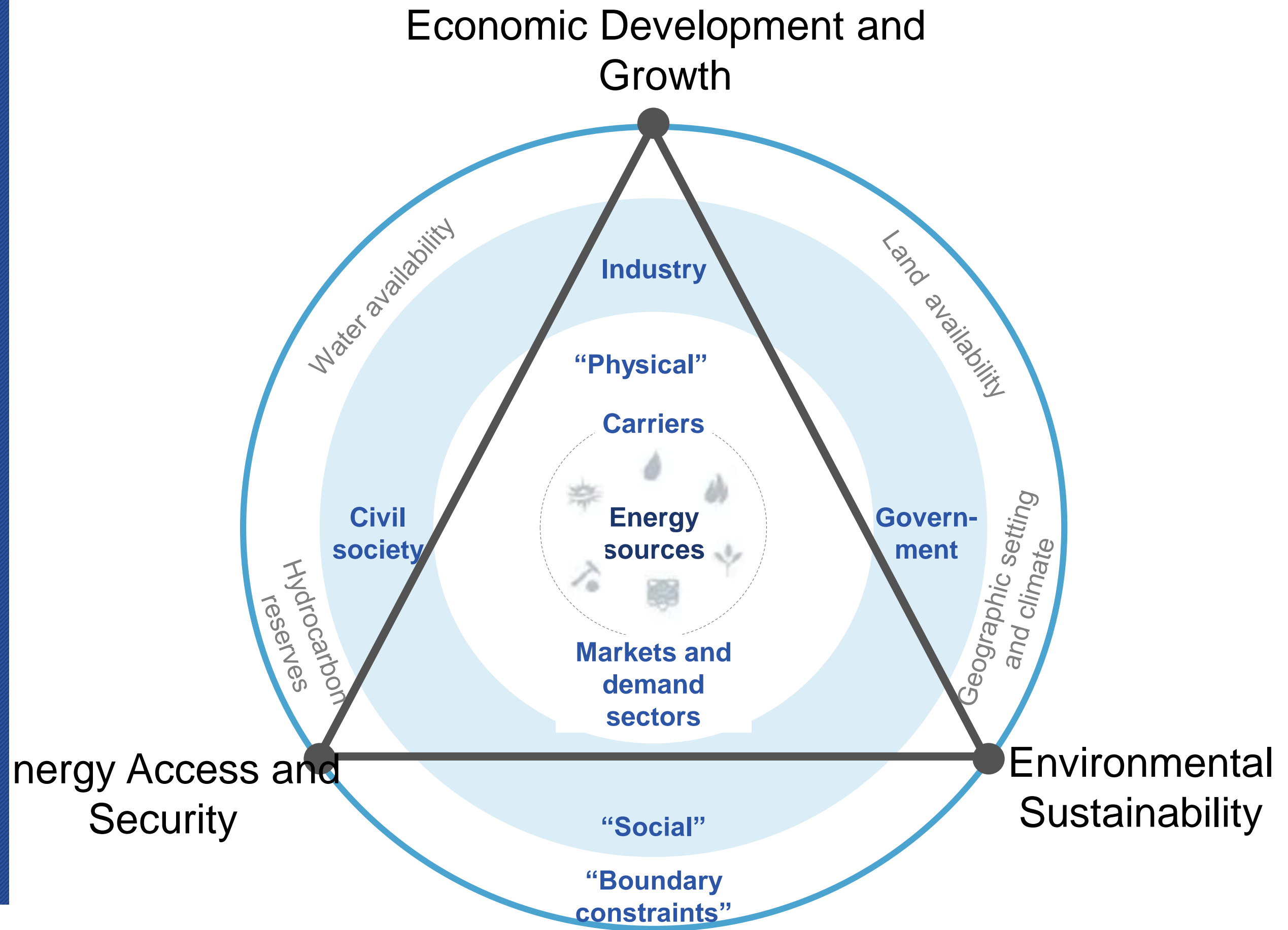
January 16, 2019

Planned Fuel Protests Could Disrupt SA's Election Next Week

April 30, 2019

Narrative for Energy Transition

The objective of the energy system is to deliver across the three corners of the energy triangle, under consideration of country-specific constraints



Energy Transition Index (ETI) Framework

Energy system benchmarking at World Economic Forum

ENERGY ARCHITECTURE PERFORMANCE INDEX

ENERGY TRANSITION INDEX (ETI)

2012

2013

2014

2015

2016

2017

2018

2019

2020



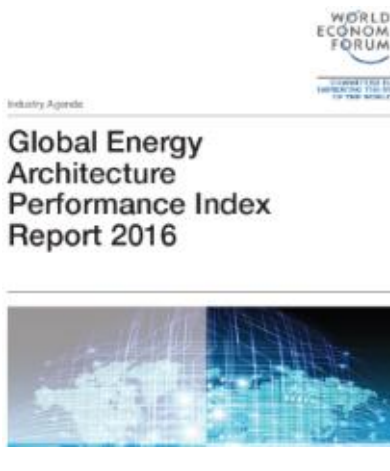
Launch of Energy Architecture Performance Index



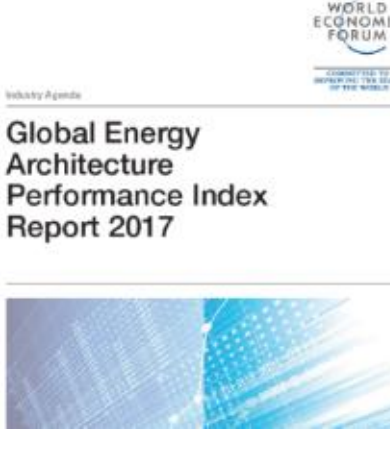
Case studies on challenges for key regions



Energy reforms in major energy consuming economies



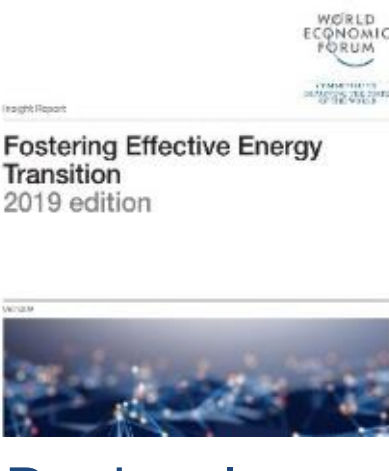
Deep dive on “Energy Access and Security”



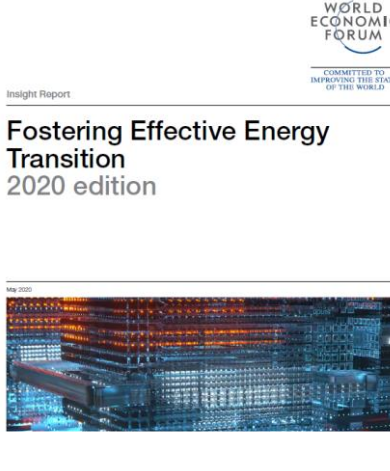
Deep dive on “Energy Sector Governance”



Revised methodology element, launched Energy Transition Index



Regional energy transition challenges focus, coverage on speed and complexity



Imperatives for Energy Transition post COVID-19

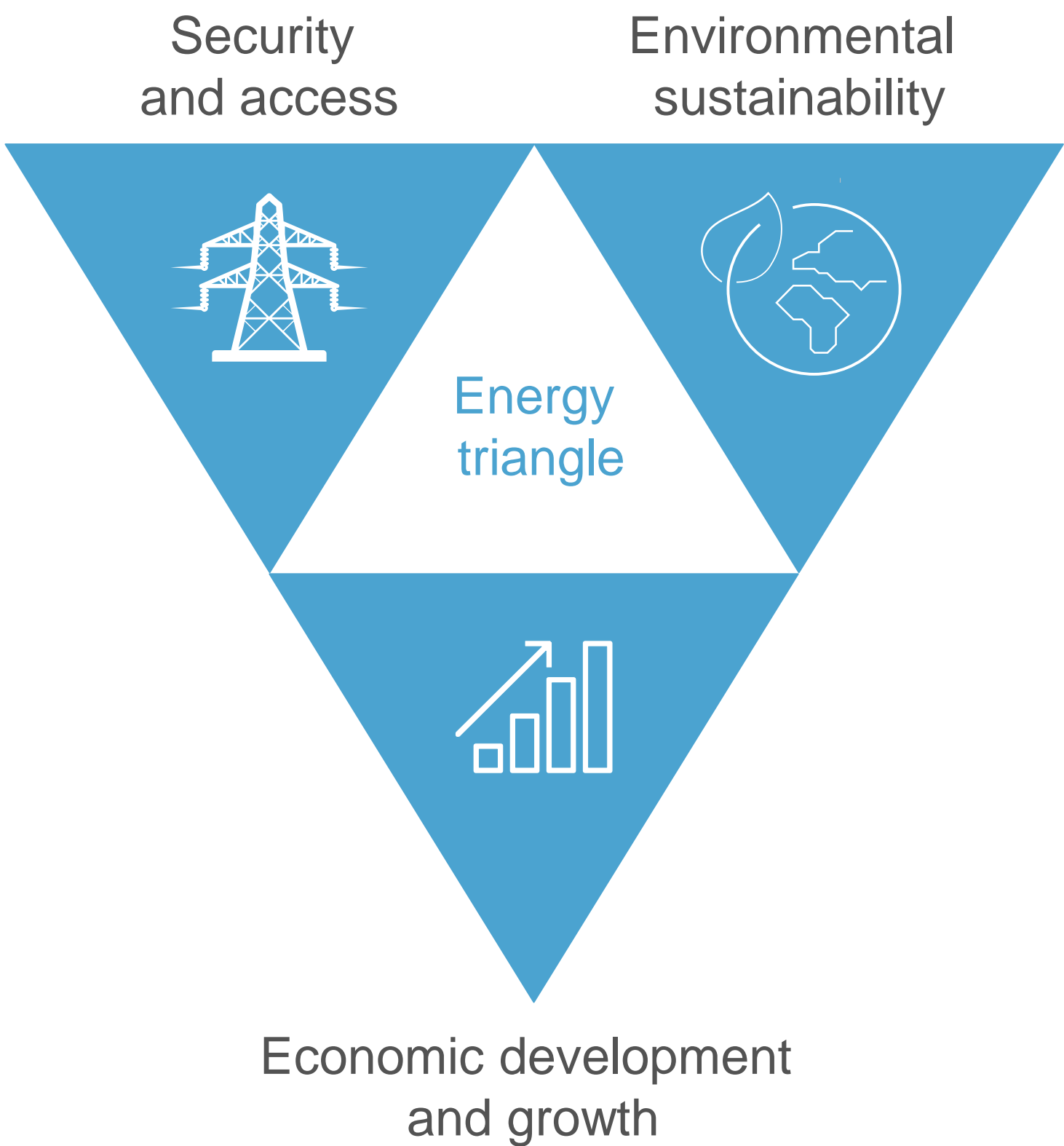
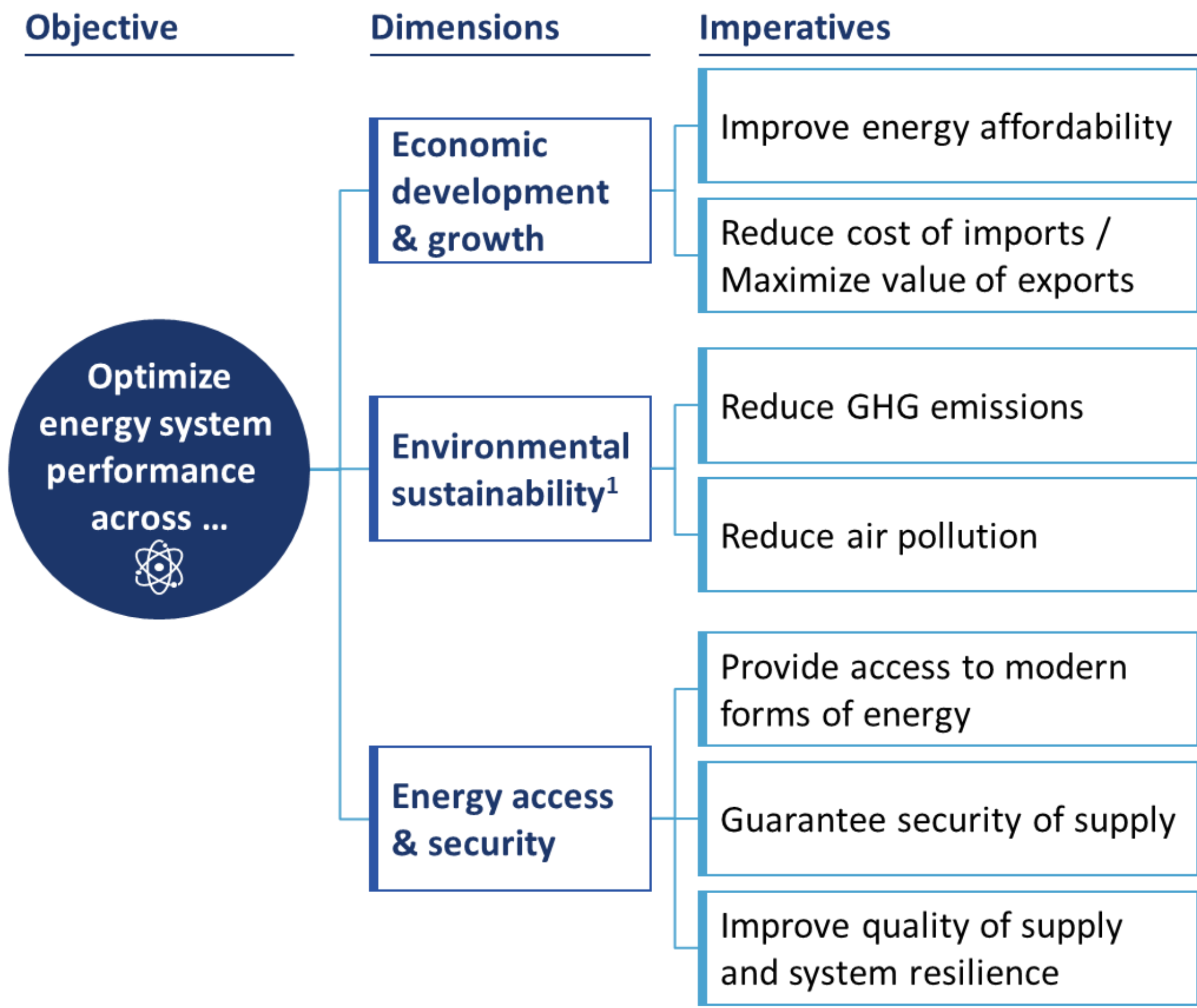
115 Countries

90% Of global population

93% Of global Total primary energy supply

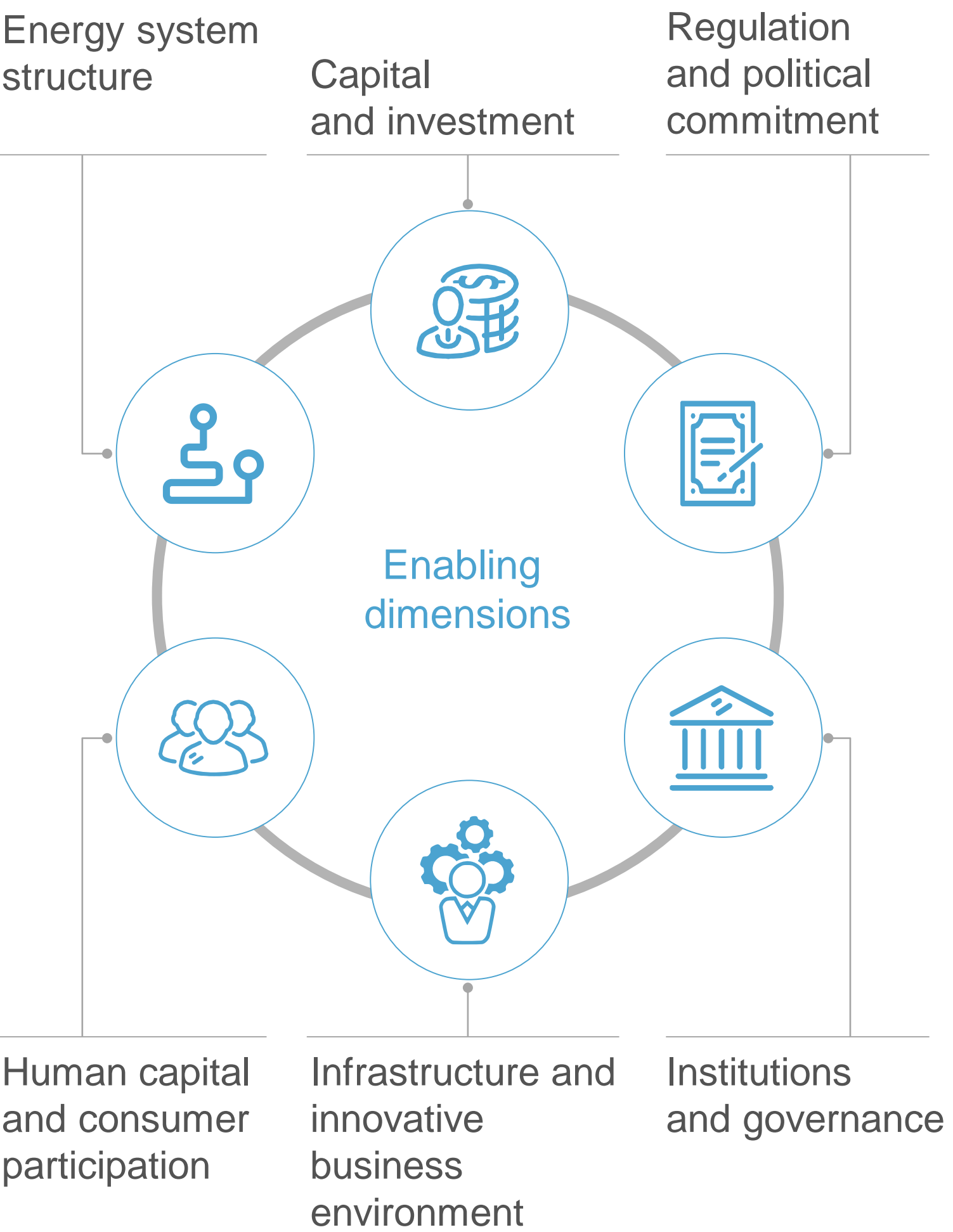
98% Of global GDP (nominal)

ETI Framework (1/2) – System Performance



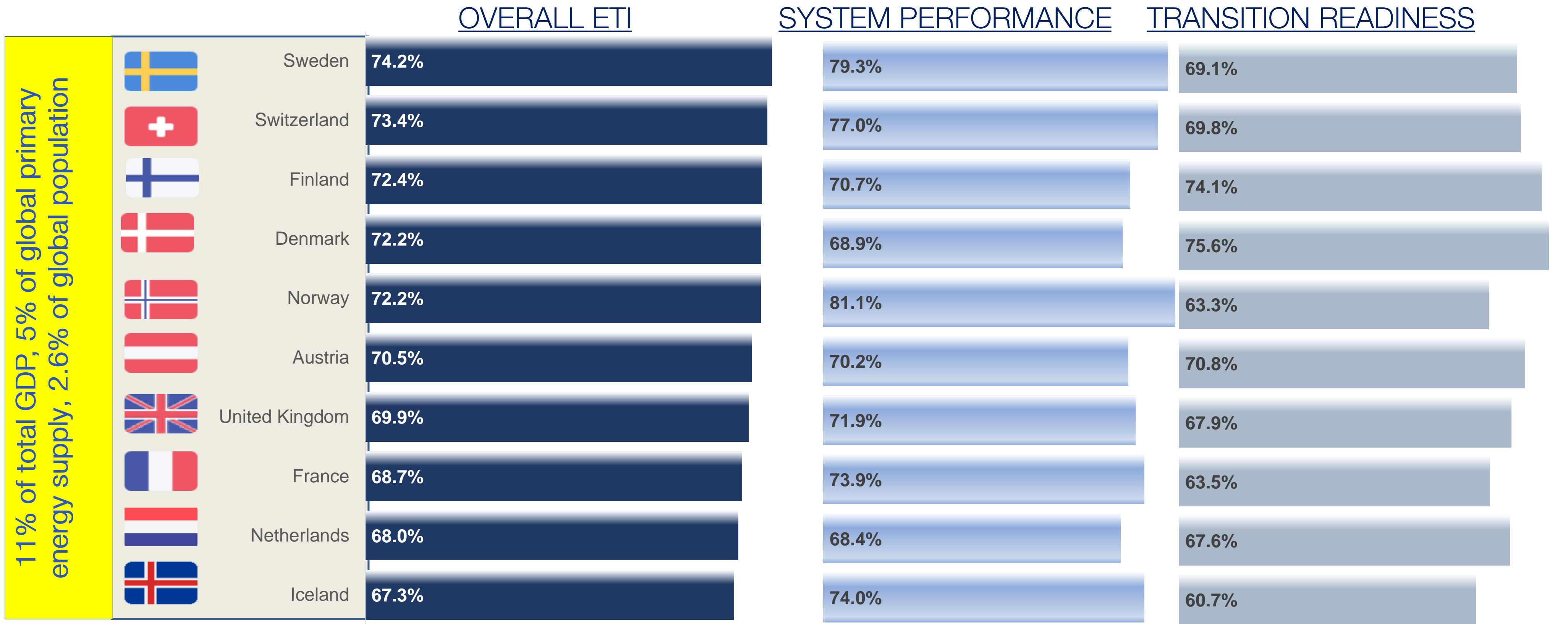
ETI Framework (2/2) – Transition Readiness

Readiness Dimension	Key levers
Regulatory framework	<ul style="list-style-type: none">Regulatory stability and commitmentPolicy and regulatory support
Enabling business environment	<ul style="list-style-type: none">Manageable riskIncreased transparencyEase of doing business
Capital and investment	<ul style="list-style-type: none">Access to capitalInvestment in energy efficiencyInvestment in renewables
Innovation and infrastructure	<ul style="list-style-type: none">Trade logisticsTransportation infrastructureInnovative Business Environment
Human capital and consumer participation	<ul style="list-style-type: none">Skilled workforceQuality of education
Energy System Structure	<ul style="list-style-type: none">Economic structurePath dependency from legacy infrastructure

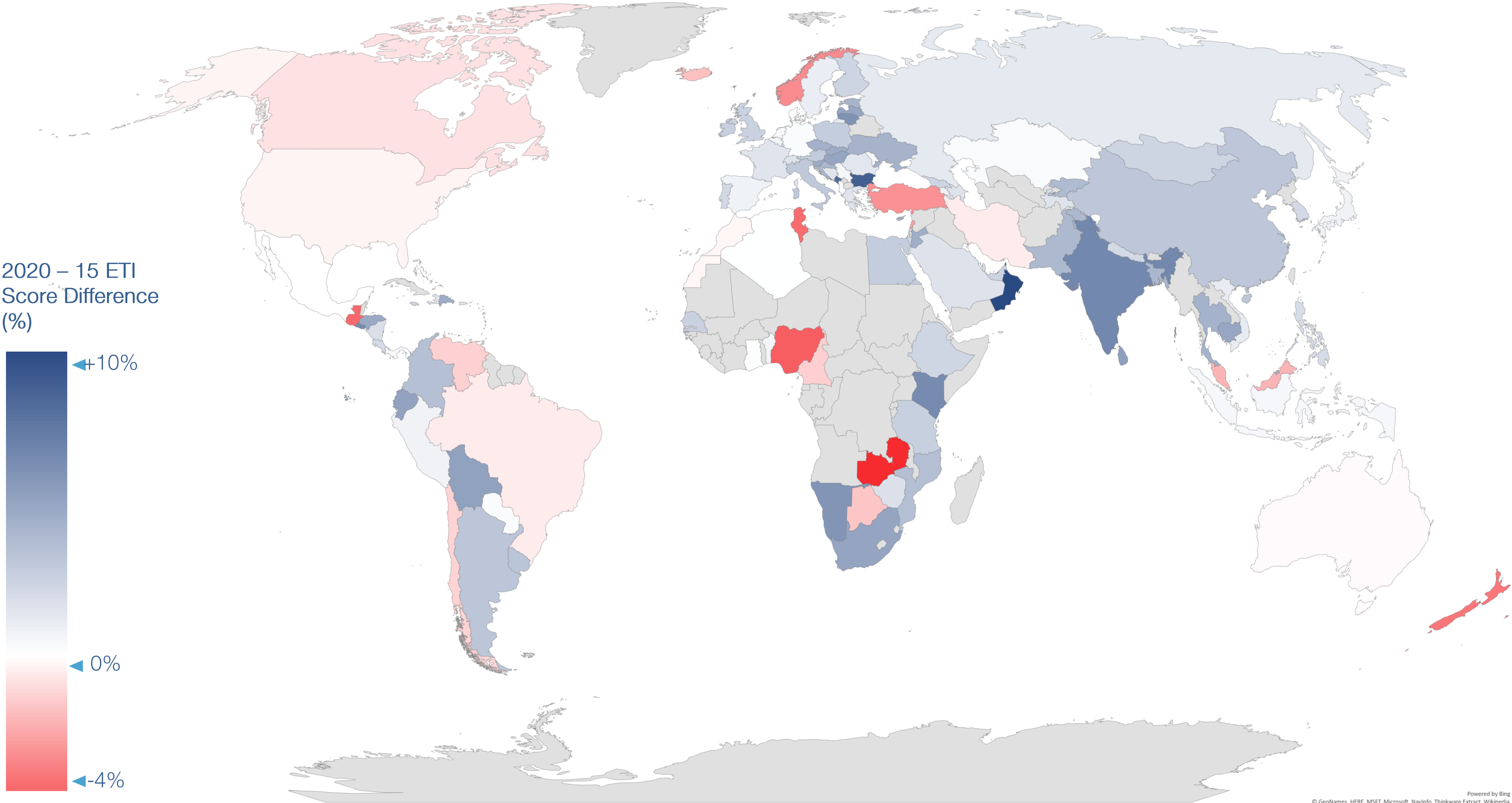


Global highlights from ETI 2020

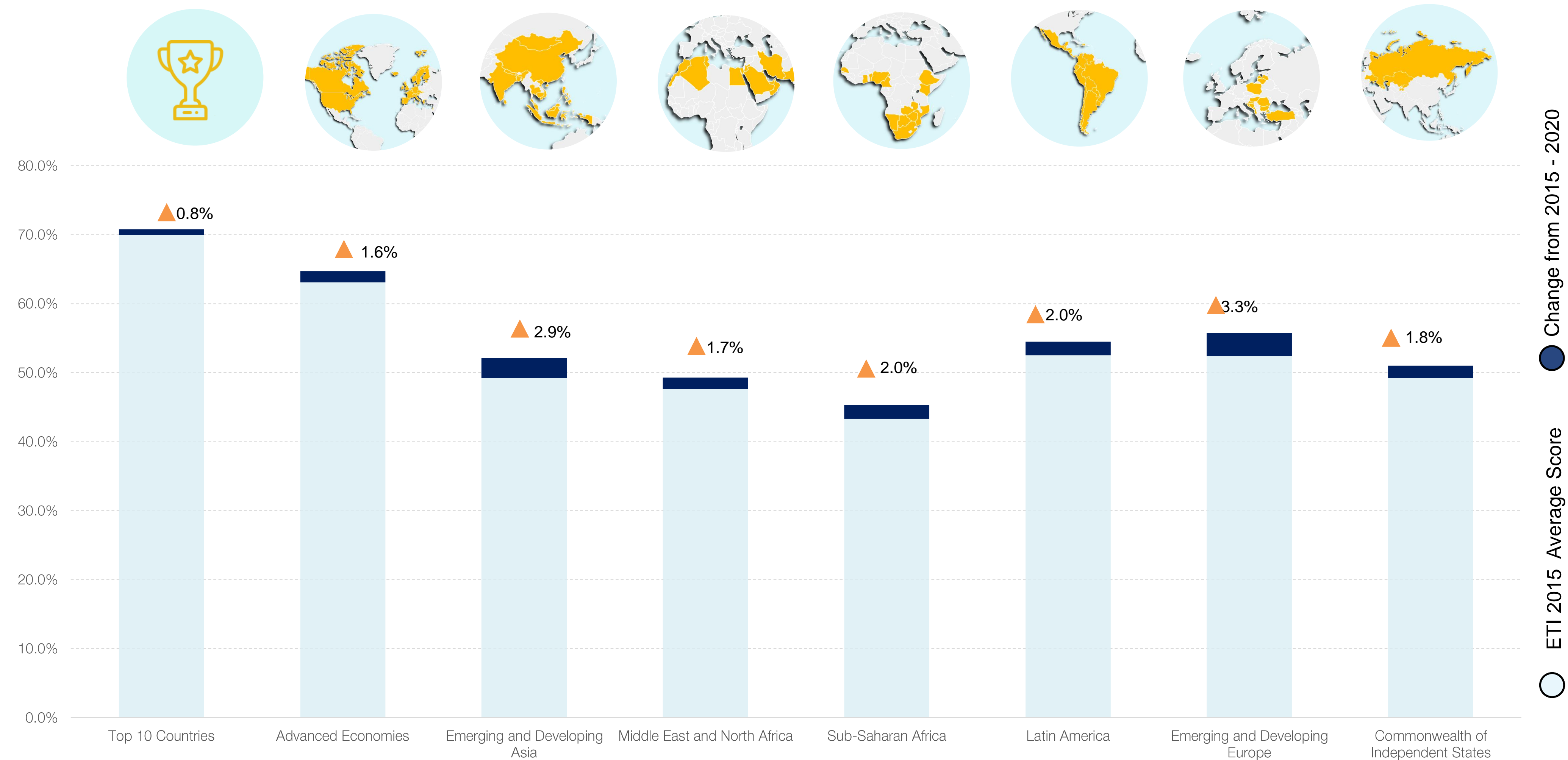
ETI 2020: Top Ranking Countries



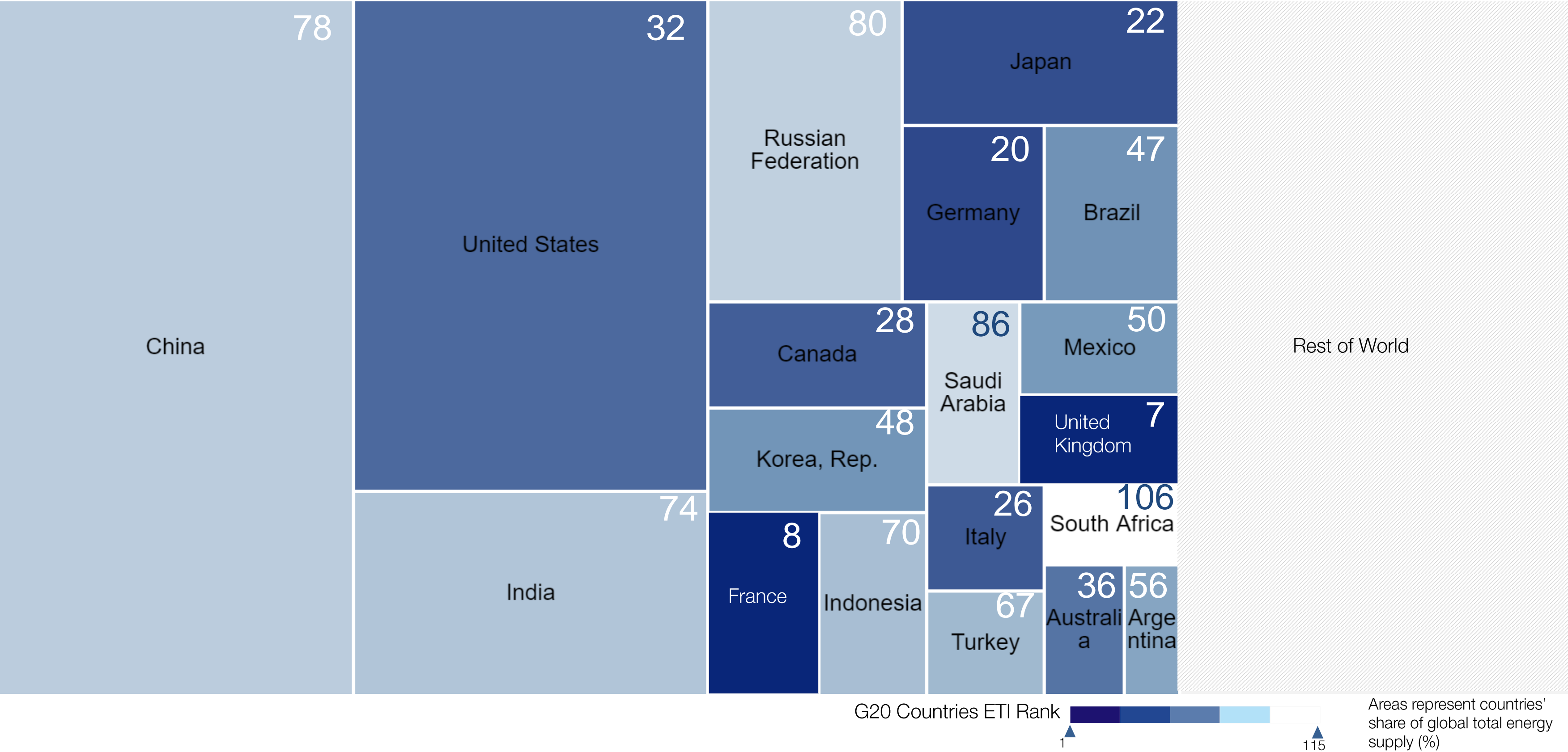
ETI Score Difference: 2015 to 2020



ETI 2020: Gap between top 10 countries and the rest decreasing



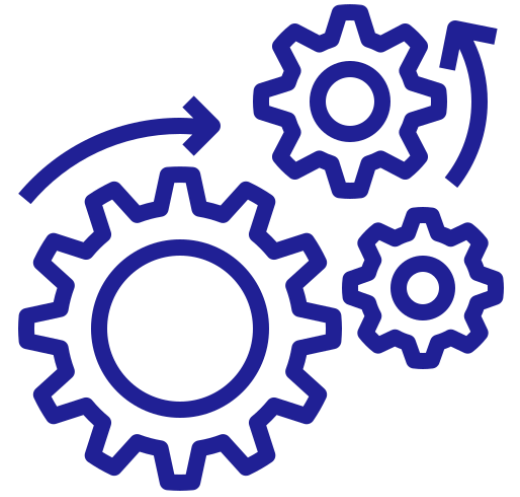
ETI 2020: Diverse trajectories among largest economies



ETI 2020: Key energy transition enablers and opportunities

Better performing / fast improving countries are likely to have...

- Strong political commitment: Rapid evolution in policy landscape, gradual implementation of carbon pricing mechanisms
- Better access to capital: Emergence of new asset classes and financial instruments, mainstreaming of ESG metrics
- Improving energy intensity through automation, digitalization, and energy efficient alternatives



Next wave of transformative progress can be unlocked through...

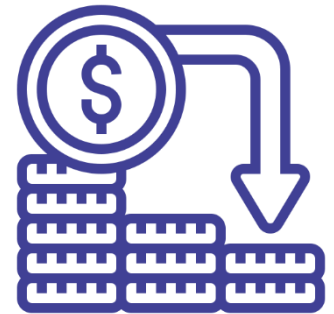
- Pursuing breakthrough innovative solutions for large scale impact (as opposed to incremental progress)
- Decouple economic growth from energy consumption through diversification to high value add and economically complex sectors
- Broaden scope of net zero targets to include small and medium sized organizations, in hard to abate sectors, with less end-consumer facing business models
- Mobilize public engagement through access to easily relatable information on carbon footprints



ETI 2020: Other key insights



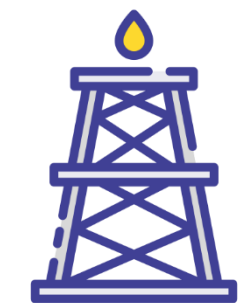
Gap between scores of net energy importing and exporting countries is widening



82% of the countries improving on the ETI targeted energy subsidies reduction



Household electricity tariffs are significant share of household final consumption expenditure, especially in developed countries



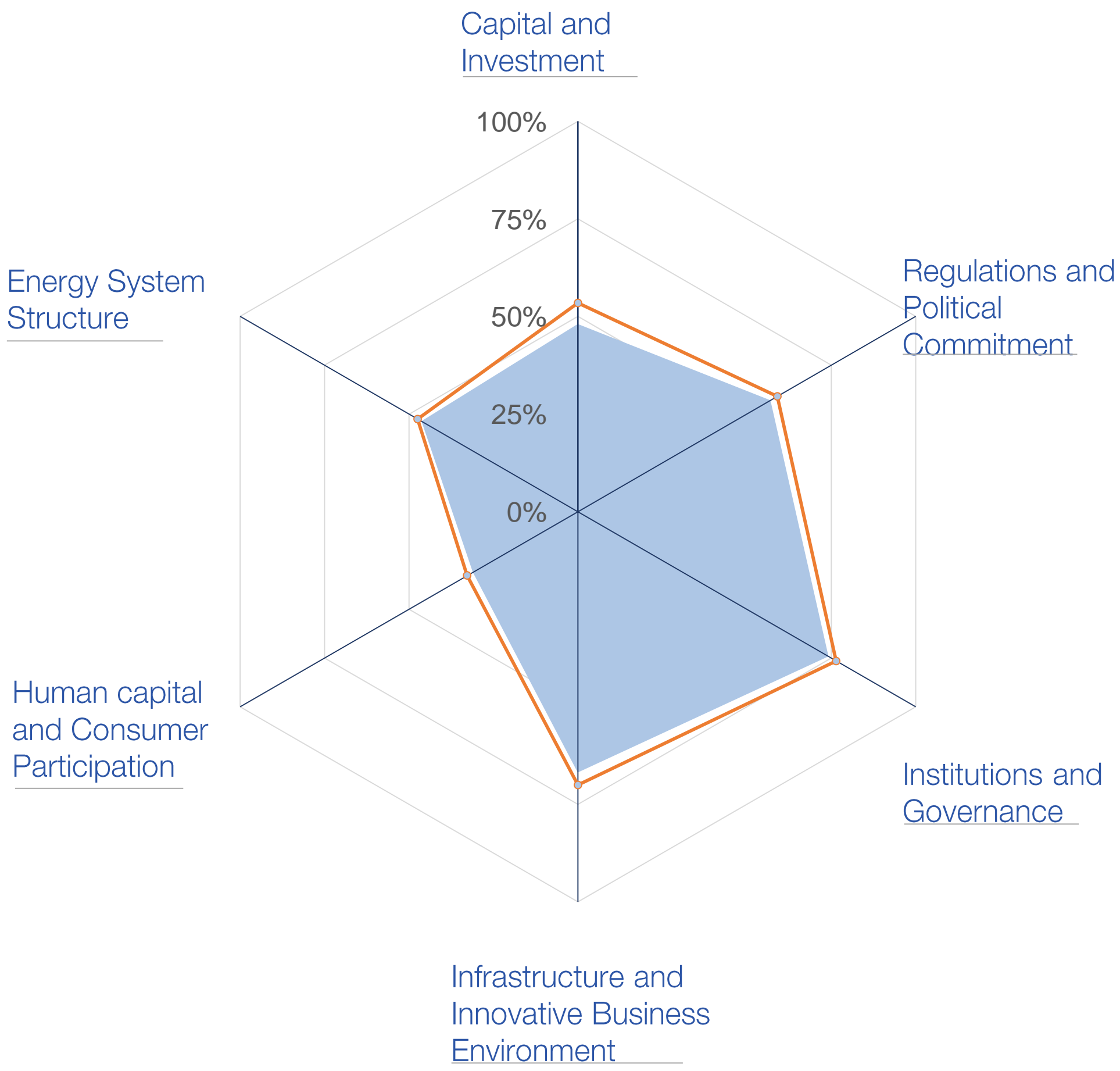
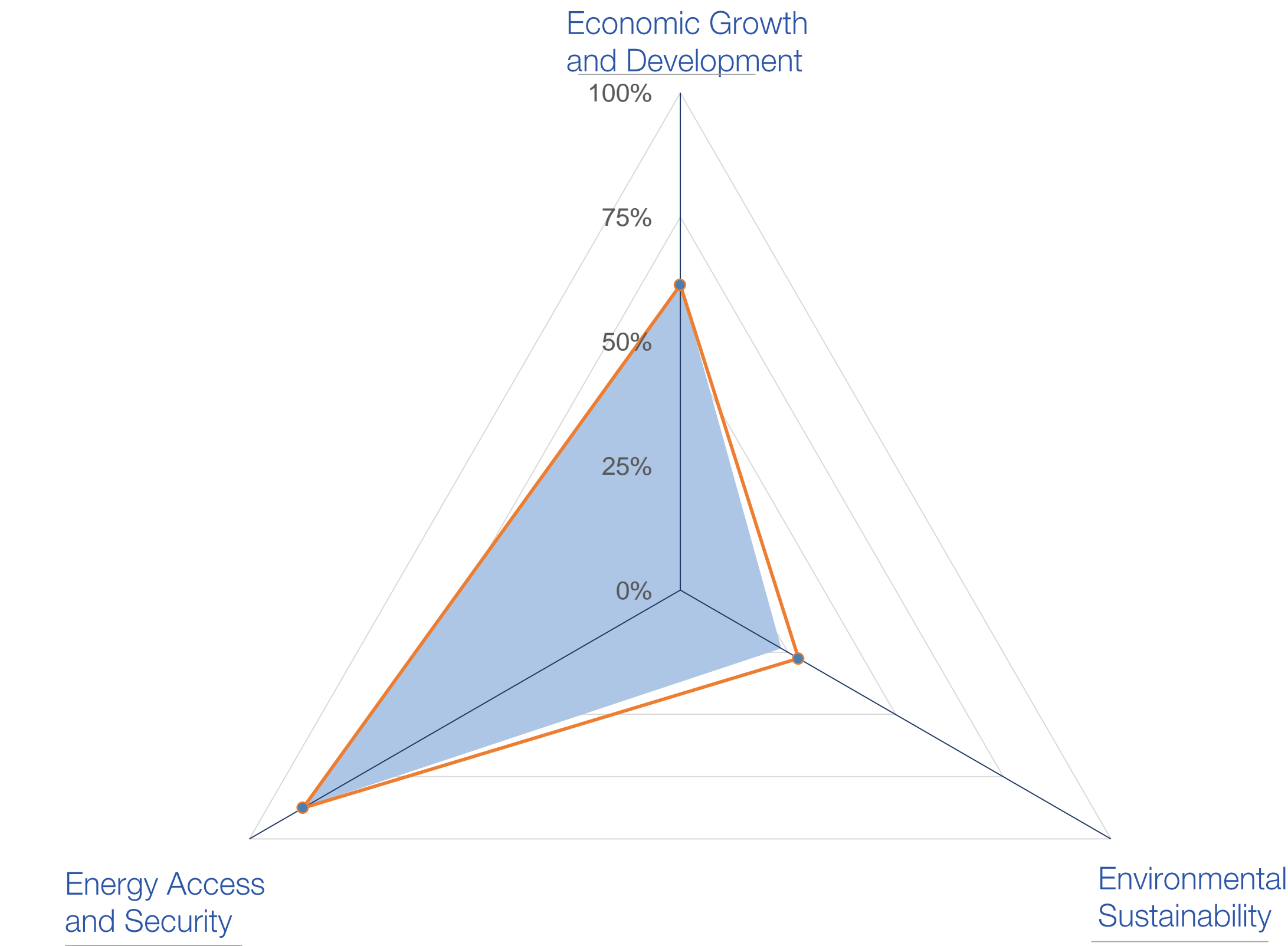
Natural gas emerging as a key fuel in energy transition, methane emissions are an emerging concern



Need for energy access 2.0: access to diverse forms of energy, for household, community, and industrial applications

ETI 2020 highlights for South Korea

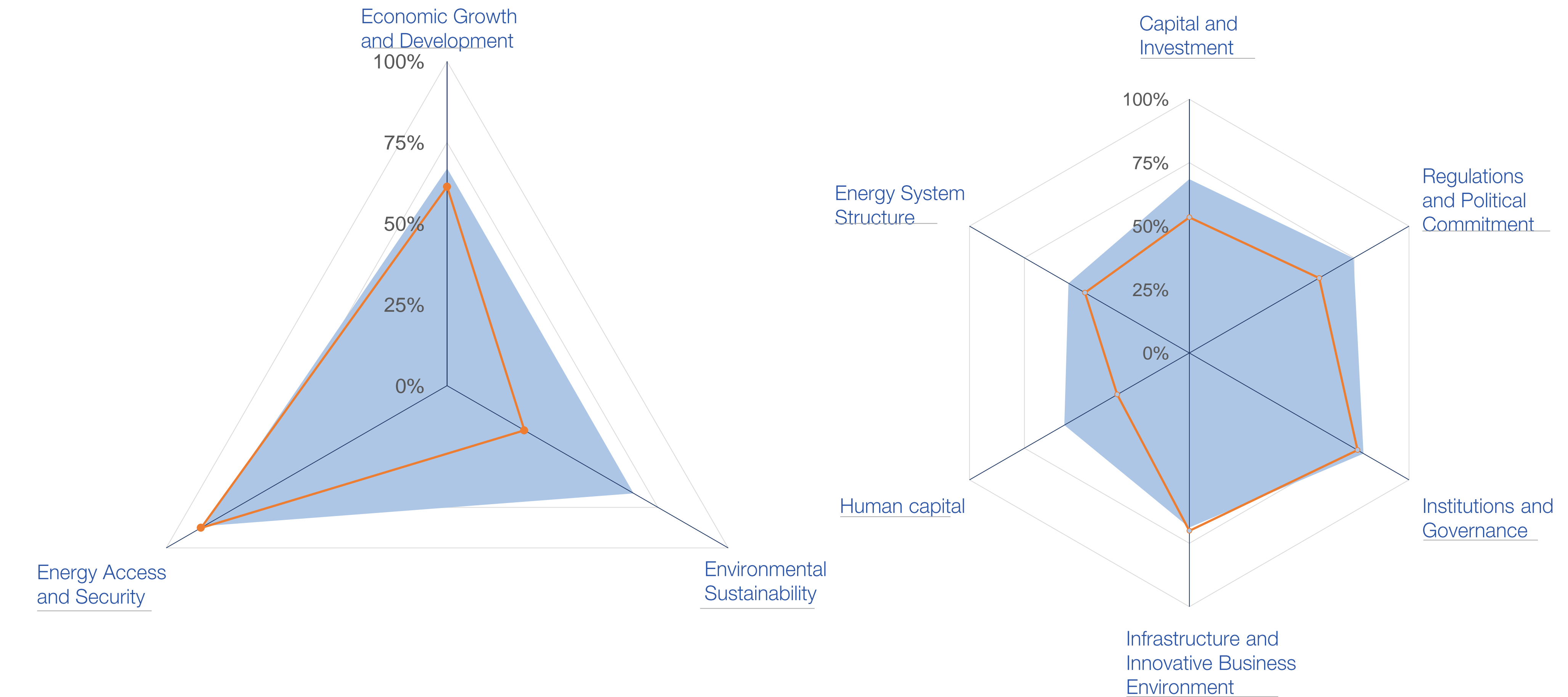
Rep. of Korea (ETI 2020 vs. ETI 2015*)



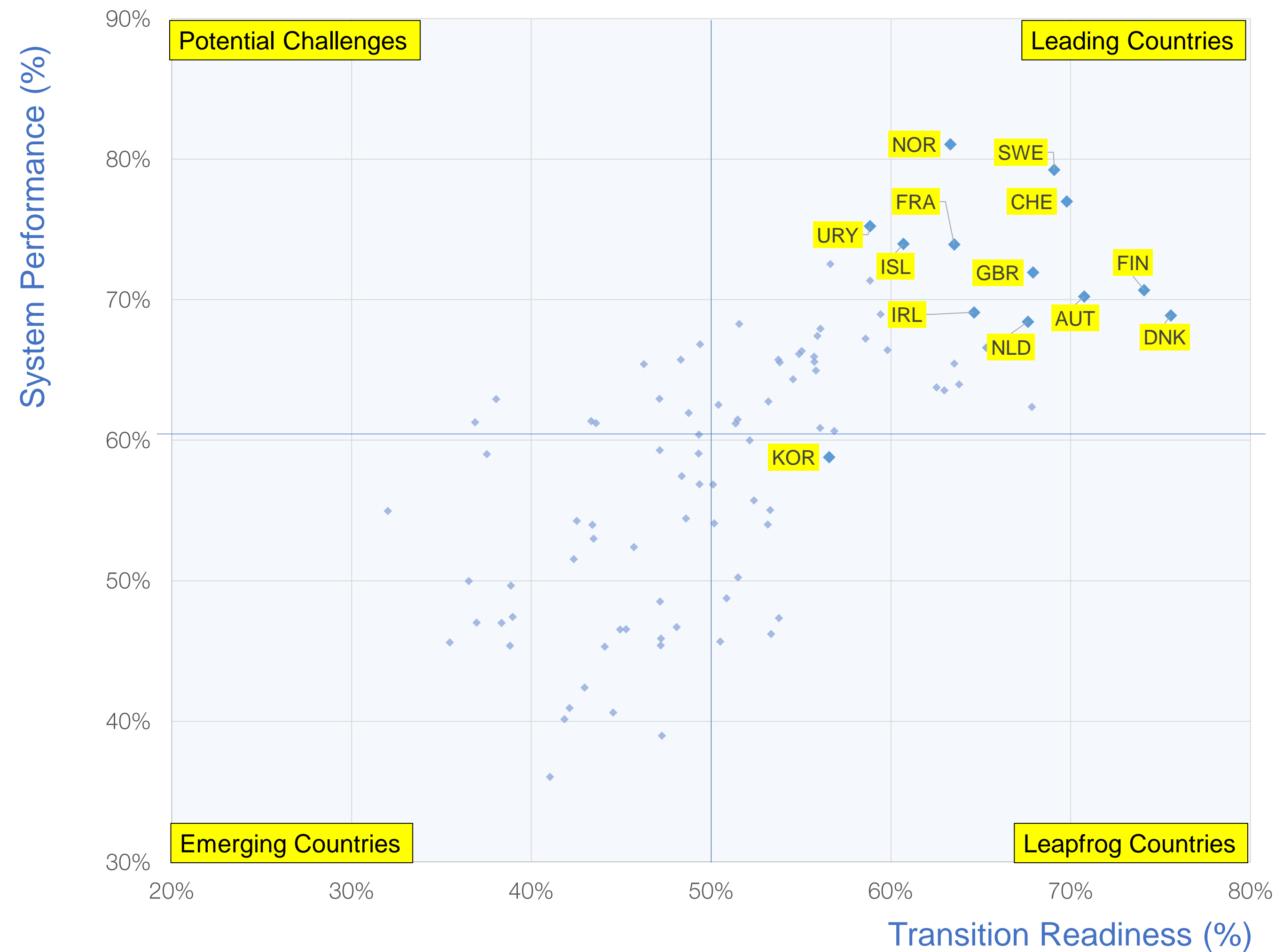
2020 2015

*ETI and dimension scores for years prior to 2018 were back-casted

Rep. of Korea and Top 10 percentile countries (ETI 2020)

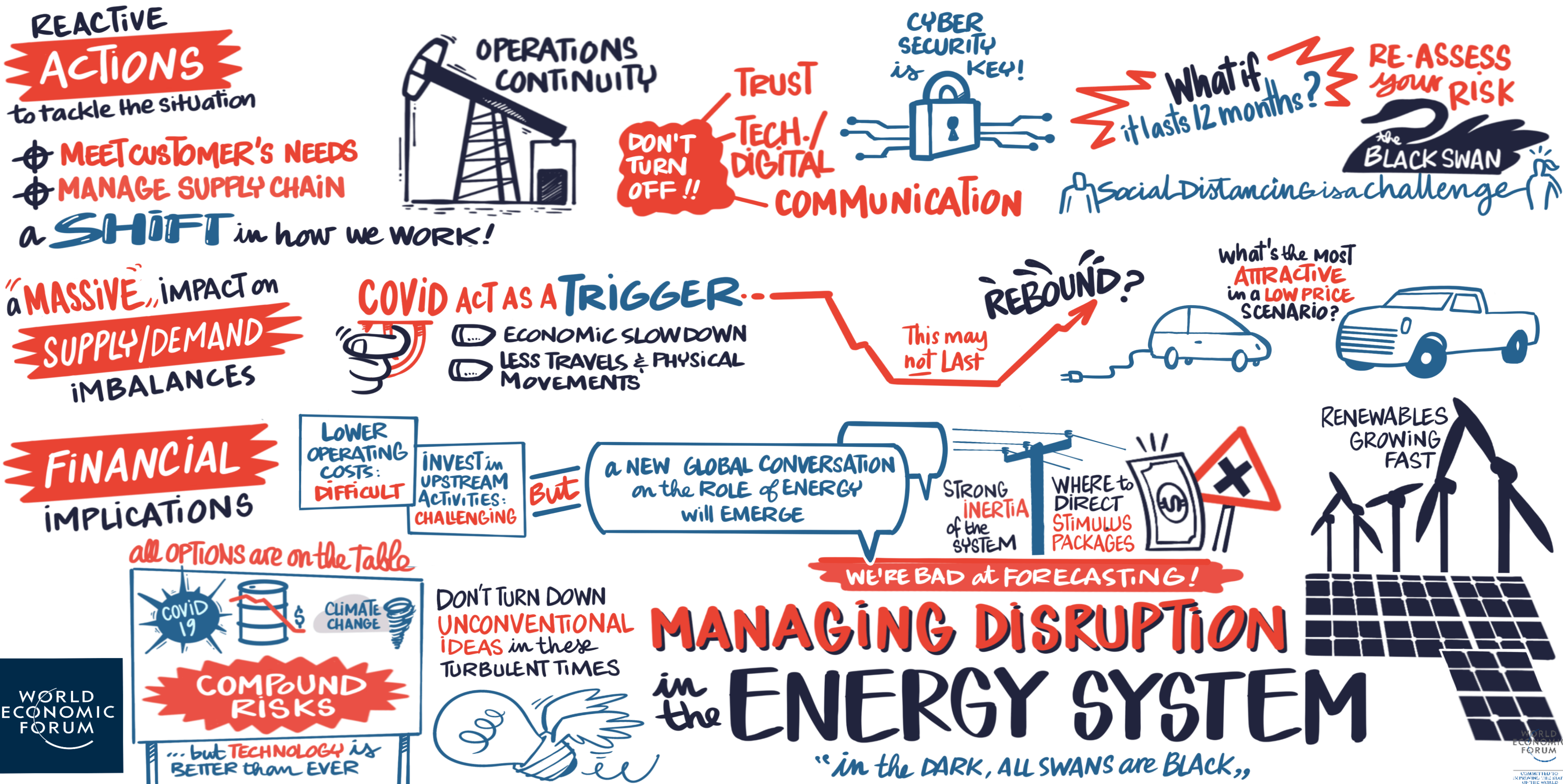


Rep. of Korea and Top 10 percentile countries (ETI 2020)









- Countries with better readiness are more likely to have higher system performance
- Rep. of Korea positioned in the “Leapfrog Countries” category, with above average score on transition readiness
- Imperatives for effective energy transition for Rep. of Korea include
 - System performance: Energy Intensity, carbon intensity of energy mix, diversification of import counterparts
 - Transition readiness: Strengthen energy transition targets and climate change commitments, prioritizing energy efficiency, and skilling workers for low carbon sector jobs.

How will COVID-19 impact energy transition



How will COVID-19 impact energy transition

		OPPORTUNITIES	CHALLENGES
	Economic Growth	Economic stimulus measures with green strings attached	Loss of jobs from production cuts and industrial slowdown
	Affordability	Energy prices are low due to demand erosion	Governments are increasing fuel taxes to finance fiscal stimulus
	Investments	Public investment in infrastructure development to accelerate recovery	Low risk appetite and higher cost of capital in private investments
	Renewable energy	Share of renewable energy in electricity mix is at an all time high in multiple countries	Supply chain issues to affect renewable energy projects, delays in construction
	Emissions	Unprecedented decline in emissions, air quality at all time high in many cities	Few countries are relaxing emission control and energy intensity targets
	Consumer Aptitude	Increase in remote work arrangements, decline in air travel	Less use of public transportation and ride sharing to minimize risk of infection

Appendix

Indicators + Data Partners

Criteria for selecting indicators

Output variables

Measuring output oriented observational data or best available proxy

Reliability

Sourced from renowned institutions

Reusability

Maintain same data partners on regular basis, for annual updates

Completeness

Adequate global and temporal coverage

Quality

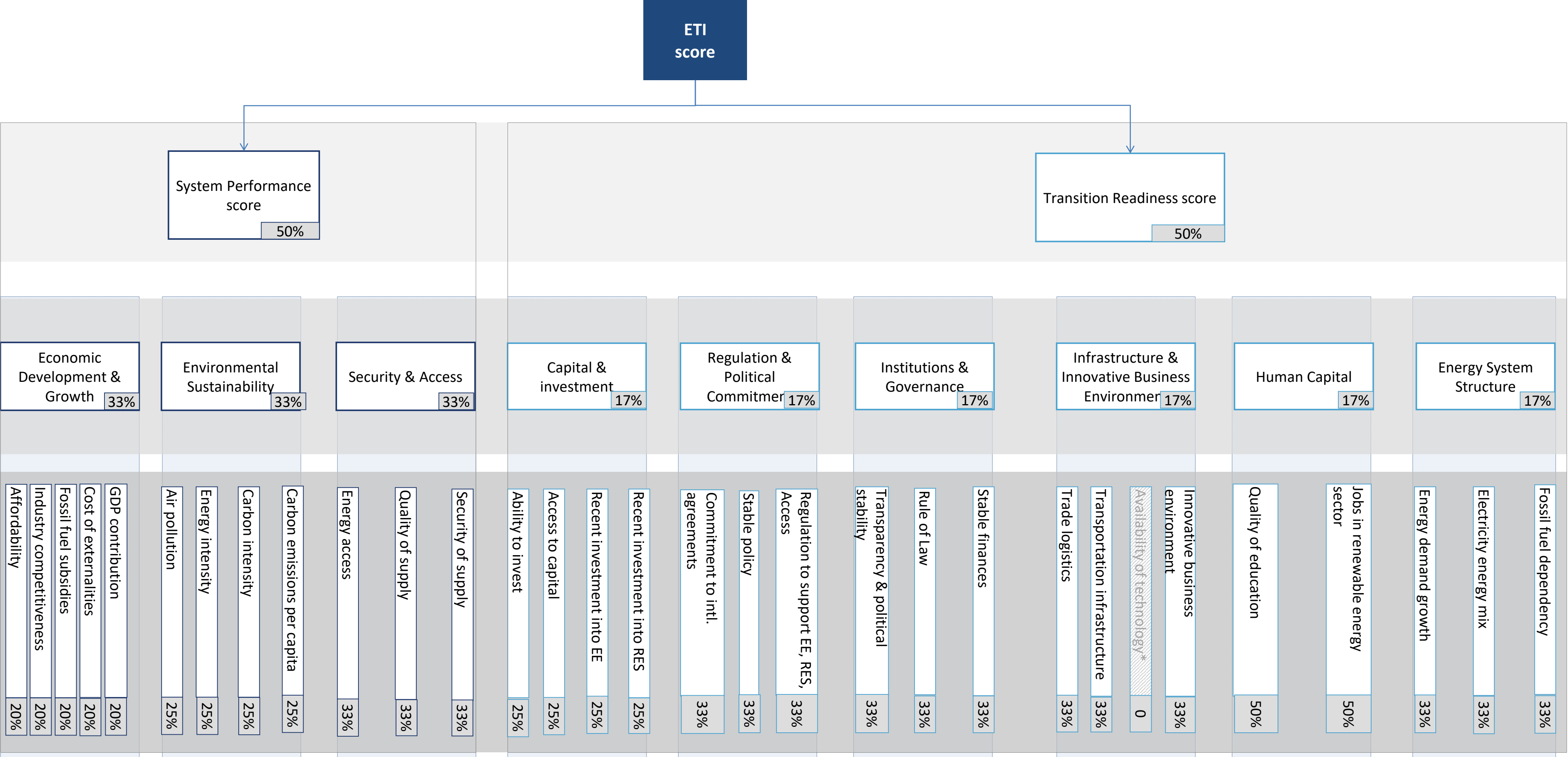
Represents best available measures, given constraints

Data Sources



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IMPROVING THE STATE
OF THE WORLD

Energy Transition Index - Indicators




Monitoring Energy Transitions

ETI Framework

Level 1


Global comparison



Global comparison among peers

Level 2

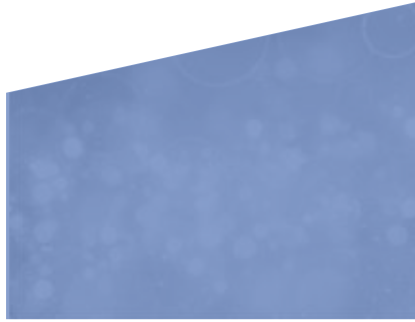
Global indicator benchmark



Identification of Major Challenges and opportunities

Level 3


Country-specific diagnostics



Sector specific breakdown of key challenges

Level 4


Performance forecasts and improvement measures



Assessment of BAU trajectory

Level 5

Transition implications



Specific facts supporting business and policy decisions