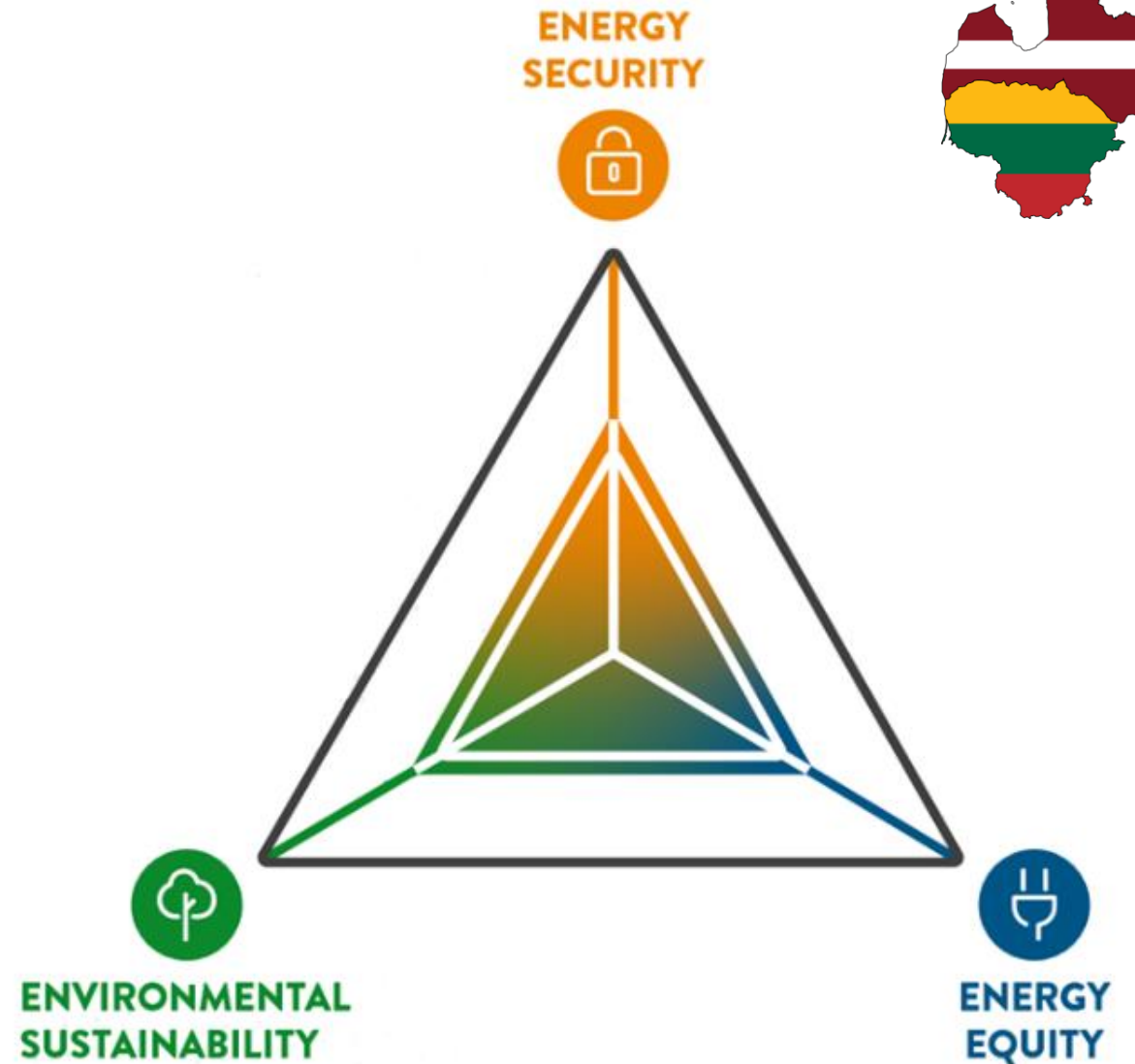


Baltic Trilemma Index as a Lighthouse for Smooth Energy Transition

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SMILTĀNS Edgars, MANDMAA Priit,
TUMILO Robertas, KURSĪTE Raimonda,
TIHONOVA-ZĀĢERE Santa

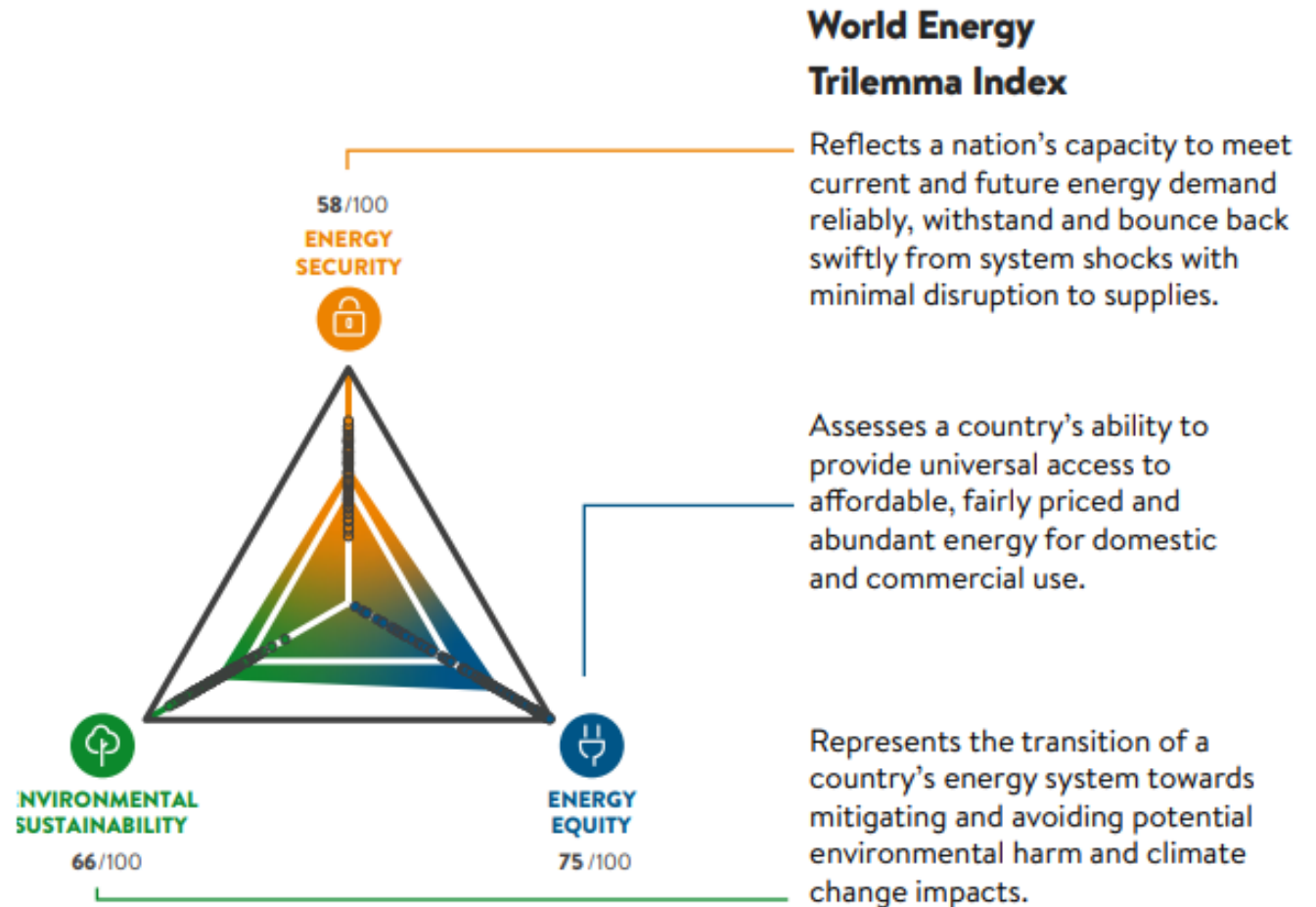


Content

1. World Energy Council (WEC) Energy Trilemma
2. Topicality and Problem
3. WEC Methodology
4. Adjustment of WEC Trilemma Methodology (Baltic Context)
5. Conclusion

World Energy Council (WEC) Energy Trilemma

- WEC *Energy Trilemma Index tool* ranks 127 countries on their energy system performance through 3 dimensions
- The goal is to provide insights into a country's relative energy system effectiveness

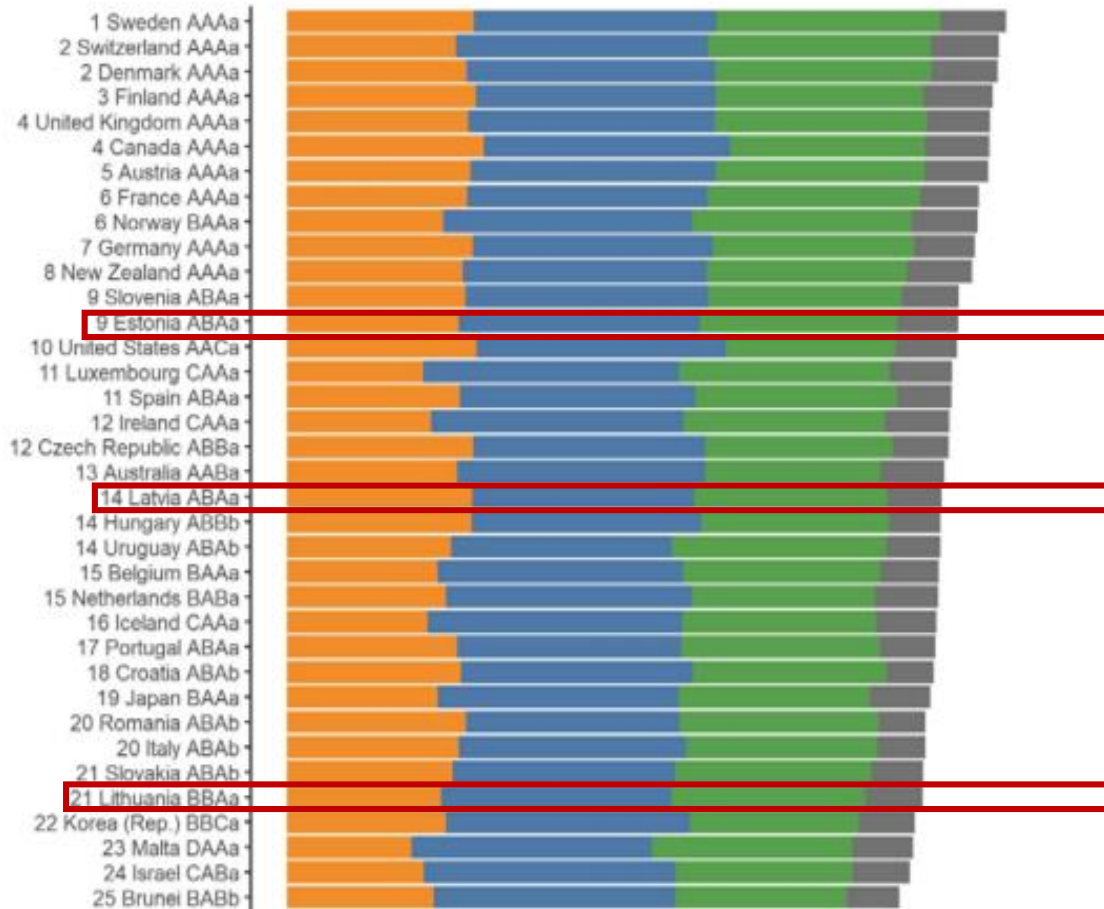


World Energy Trilemma index, 2022. Source:
<https://www.worldenergy.org/publications/entry/world-energy-trilemma-index-2022>

2022 World energy trilemma index

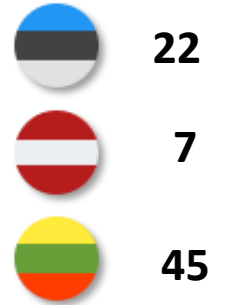


2022 WORLD ENERGY TRILEMMA INDEX




Energy security

Rank	Country	Energy Security Score
1	Canada	76.9
2	United States	74.1
3	Finland	73.8
4	Sweden	73.1
5	Czech Republic	72.9




Energy equity

Rank	Country	Energy Equity Score
1	Luxembourg	100
2	Qatar	99.9
3	Kuwait	99.8
3	UAE	99.8
4	Oman	99.6
4	Iceland	99.6
5	Bahrain	99.5




Environmental sustainability

Rank	Country	Sustainability Score
1	Sweden	87.5
2	Switzerland	87.1
3	Norway	85.8
4	Denmark	84.7
5	Uruguay	84.0



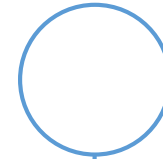
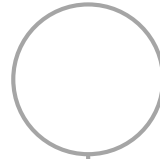
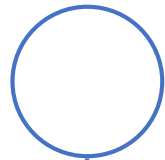
World Energy Trilemma index, 2022. Source: <https://www.worldenergy.org/publications/entry/world-energy-trilemma-index-2022>

Topicality and Problem

Without disclosing original methodology of Energy Trilemma Index, this research **reviews *status quo* of the Baltic Energy Trilemma.**

Research **provides guide for the policy makers - highlight challenges and opportunities for improvements in meeting energy goals**

Latvia, Lithuania and Estonia usually are compared to each other, however, in many aspects of development we fail to miss looking at Baltics as one region, to reach larger goals together.

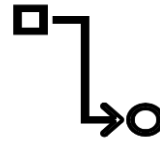


WEC methodology and adjustment to the Baltics

Original WEC

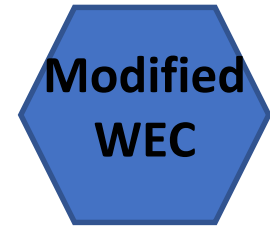
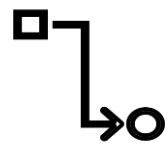
		A1 SECURITY OF SUPPLY AND DEMAND		A2 RESILIENCE OF ENERGY SYSTEMS				
ENERGY SECURITY	A1a	6%	A2a	6%	A2c	6%	D1 MACROECONOMIC	
	Diversity of primary energy supply		Diversity of electricity generation					
	A1b	6%	A2b	6%				
	Import independence		Energy storage		System stability and recovery capacity			
ENERGY EQUITY	B1 ENERGY ACCESS		B2 QUALITY ENERGY ACCESS		B3 ENERGY AFFORDABILITY			
	B1a	6%	B2a	6%	B3a	3%	B3c	3%
	Access to electricity				Electricity prices		Natural gas prices	
	B1b	6%			B3b	3%	B3d	3%
	Access to clean cooking		Access to "modern" energy		Gasoline and diesel prices		Affordability of electricity for residents	
ENVIRONMENTAL SUSTAINABILITY	C1 RESOURCE PRODUCTIVITY		C2 DECARBONISATION		C3 EMISSIONS AND POLLUTION			
	C1a	5%	C2b	5%	C3a	2%		
					CO ₂ intensity			
					C3b	2%		
					CO ₂ per capita			
	Final energy intensity		Trend of GHG emissions from energy		C3c	1%		
				CH ₄ emissions from energy per ktce				
C1b	5%	C2a	5%	C3d	5%			
Efficiency of power generation and T&D		Low carbon electricity generation		PM _{2.5} mean annual exposure				

Modified WEC



		A1 SECURITY OF SUPPLY AND DEMAND		A2 RESILIENCE OF ENERGY SYSTEMS								
ENERGY SECURITY	A1a	6%	A2a	6%	A2c	6%	D1 MACROECONOMIC					
	Diversity of primary energy supply		Diversity of electricity generation									
	A1b	6%	A2b	6%								
	Import independence		Energy storage		System stability and recovery capacity							
ENERGY EQUITY	B1 ENERGY ACCESS		B2 QUALITY ENERGY ACCESS		B3 ENERGY AFFORDABILITY							
	B1a	6%	B1b	2%	B2a	6%	B3a	3%	B3c	3%		
	Access to electricity		Price of new connection				Electricity prices		Natural gas prices			
	B1c	1%	B1d	1%	B1e	1%			B3b	3%	B3d	4%
	Number of public charging stations versus number of EV		Disposal of charging stations		Off grid solutions		Access to "modern" energy		Gasoline and diesel prices		Affordability of electricity for residents	
ENVIRONMENTAL SUSTAINABILITY	C1 RESOURCE PRODUCTIVITY		C2 DECARBONISATION		C3 EMISSIONS AND POLLUTION							
	C1a	5%	C2b	5%	C3a	2%						
					CO ₂ intensity							
					C3b	2%						
					CO ₂ per capita							
	Final energy intensity		Trend of GHG emissions from energy		C3c	1%						
				CH ₄ emissions from energy per ktce								
C1b	5%	C2a	5%	C3d	3%	C3e	2%					
Efficiency of power generation and T&D		Low carbon electricity generation		PM _{2.5} mean annual exposure		PM ₁₀ mean annual exposure						

WEC methodology and adjustment to the Baltics



ENERGY SECURITY

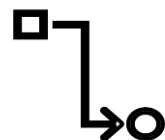
A1 SECURITY OF SUPPLY AND DEMAND		A2 RESILIENCE OF ENERGY SYSTEMS	
A1a	6%	A2a	6%
Diversity of primary energy supply		Diversity of electricity generation	
A1b	6%	A2b	6%
Import independence		Energy storage	
			A2c 6%
			System stability and recovery capacity

ENERGY SECURITY

A1 SECURITY OF SUPPLY AND DEMAND		A2 RESILIENCE OF ENERGY SYSTEMS	
A1a	6%	A2a	6%
Diversity of primary energy supply		Diversity of electricity generation	
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Import independence		Energy storage	
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WEC methodology and adjustment to the Baltics

Original
WEC



Modified
WEC

B1 ENERGY ACCESS		B2 QUALITY ENERGY ACCESS		B3 ENERGY AFFORDABILITY	
B1a	6%	B2a	6%	B3a	3%
Access to electricity		Access to "modern" energy		B3c	3%
B1b	6%		B3b	3%	B3d
Access to clean cooking			Gasoline and diesel prices		Affordability of electricity for residents

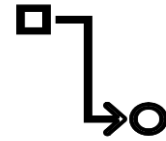
B1 ENERGY ACCESS			B2 QUALITY ENERGY ACCESS		B3 ENERGY AFFORDABILITY		
B1a	6%	B1b	2%	B2a	6%	B3a	3%
Access to electricity		Price of new connection		Access to "modern" energy		B3c	3%
B1c	1%	B1d	1%		B1e	1%	B3b
Number of public charging stations versus number of EV		Disposal of charging stations		Off grid solutions		B3d	4%
						Gasoline and diesel prices	Affordability of electricity for residents

ENERGY
EQUITY

ENERGY
EQUITY

WEC methodology and adjustment to the Baltics

Original
WEC



Modified
WEC

C1 RESOURCE PRODUCTIVITY		C2 DECARBONISATION		C3 EMISSIONS AND POLLUTION	
C1a	5%	C2b	5%	C3a	2%
Final energy intensity		Trend of GHG emissions from energy		CO ₂ intensity	
				C3b	2%
				CO ₂ per capita	
C3c	1%				
C1b	5%	C2a	5%	C3d	5%
Efficiency of power generation and T&D		Low carbon electricity generation		PM _{2.5} mean annual exposure	

C1 RESOURCE PRODUCTIVITY		C2 DECARBONISATION		C3 EMISSIONS AND POLLUTION	
C1a	5%	C2b	5%	C3a	2%
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				C3b	2%
				CO ₂ per capita	
C3c	1%				
C1b	5%	C2a	5%	C3d	3%
Efficiency of power generation and T&D		Low carbon electricity generation		PM _{2.5} mean annual exposure	
				C3e	2%
				PM 10 mean annual exposure	

ENVIRONMENTAL
SUSTAINABILITY

ENVIRONMENTAL
SUSTAINABILITY

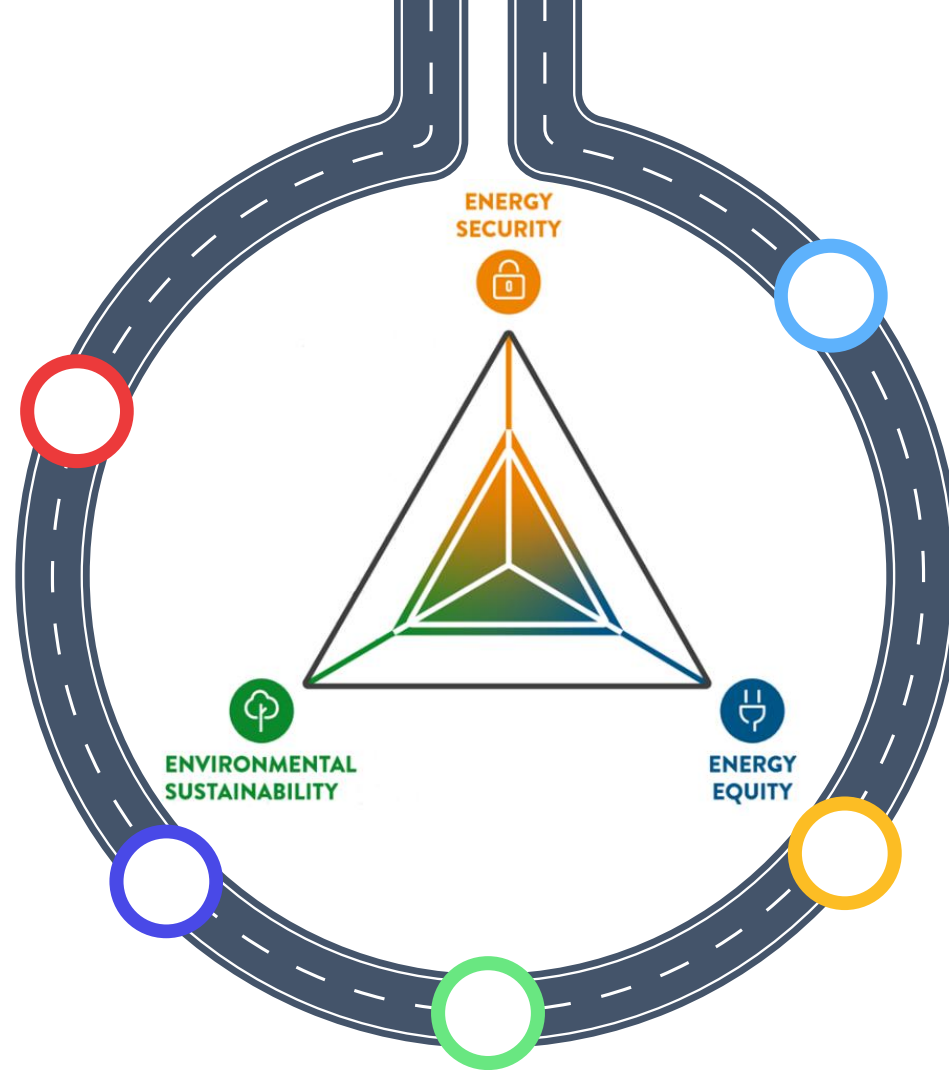
Conclusions

Energy strategy

Energy trilemma can be looked at as a backbone of energy strategy

Energy policy

Energy trilemma as a tool when planning energy policies.



Education

Public engagement, communication and research tool

Long-term planning

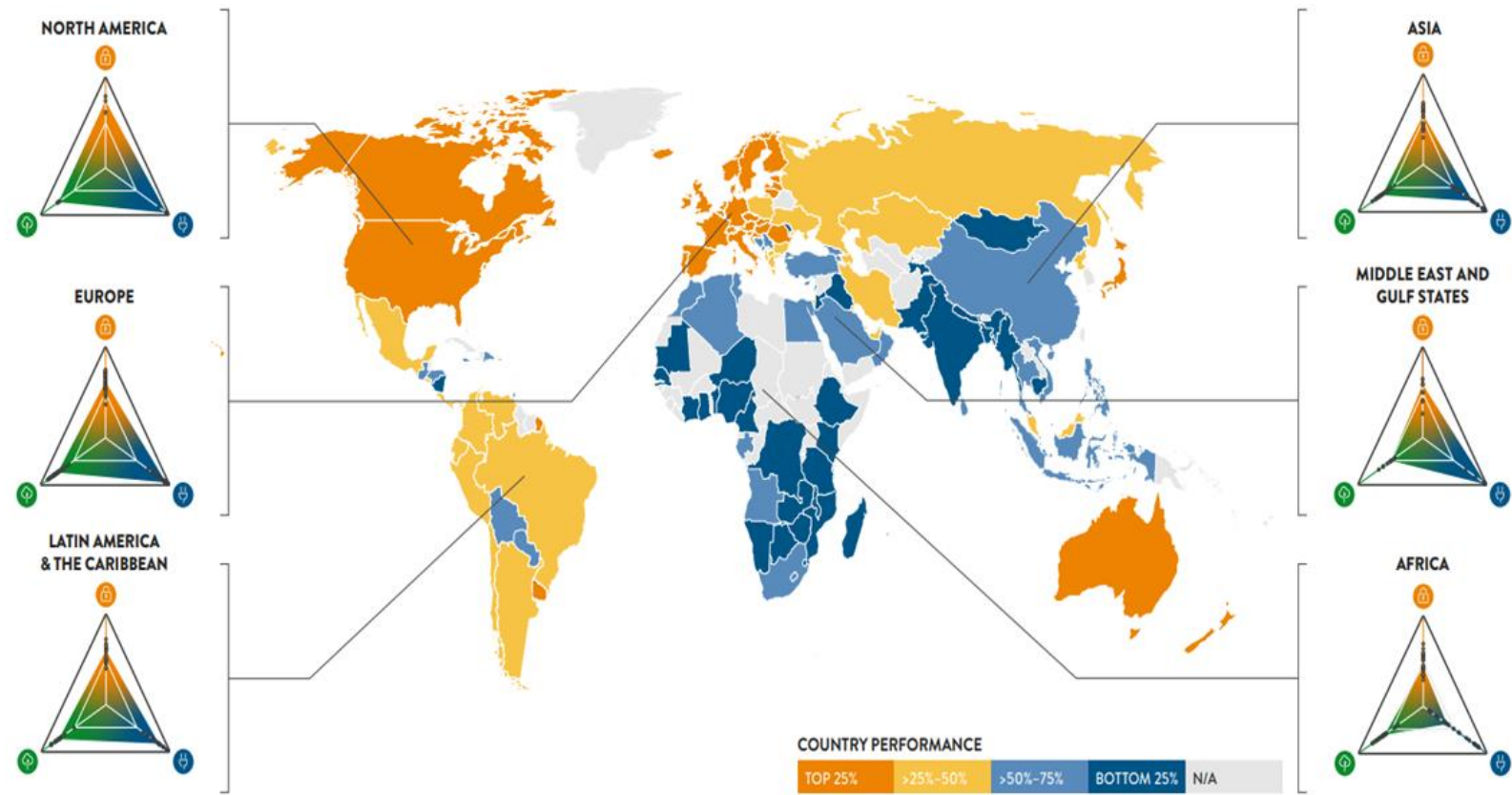
To avoid switching from one trending energy dimension issue, thus leaving other two behind

Cooperation

Shows strengths and weaknesses to develop a common energy strategy in Baltics



Thanks!



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