



20TH ERRA ANNUAL CONFERENCE

EN ROUTE TO SUSTAINABLE REGULATION
UNDER NEW MARKET PARADIGMS

09-10 October, 2023
BUDAPEST, HUNGARY



ERRA STATUS QUO REPORT ON ENERGY TRANSITION AMONG MEMBER COUNTRIES

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ERRA

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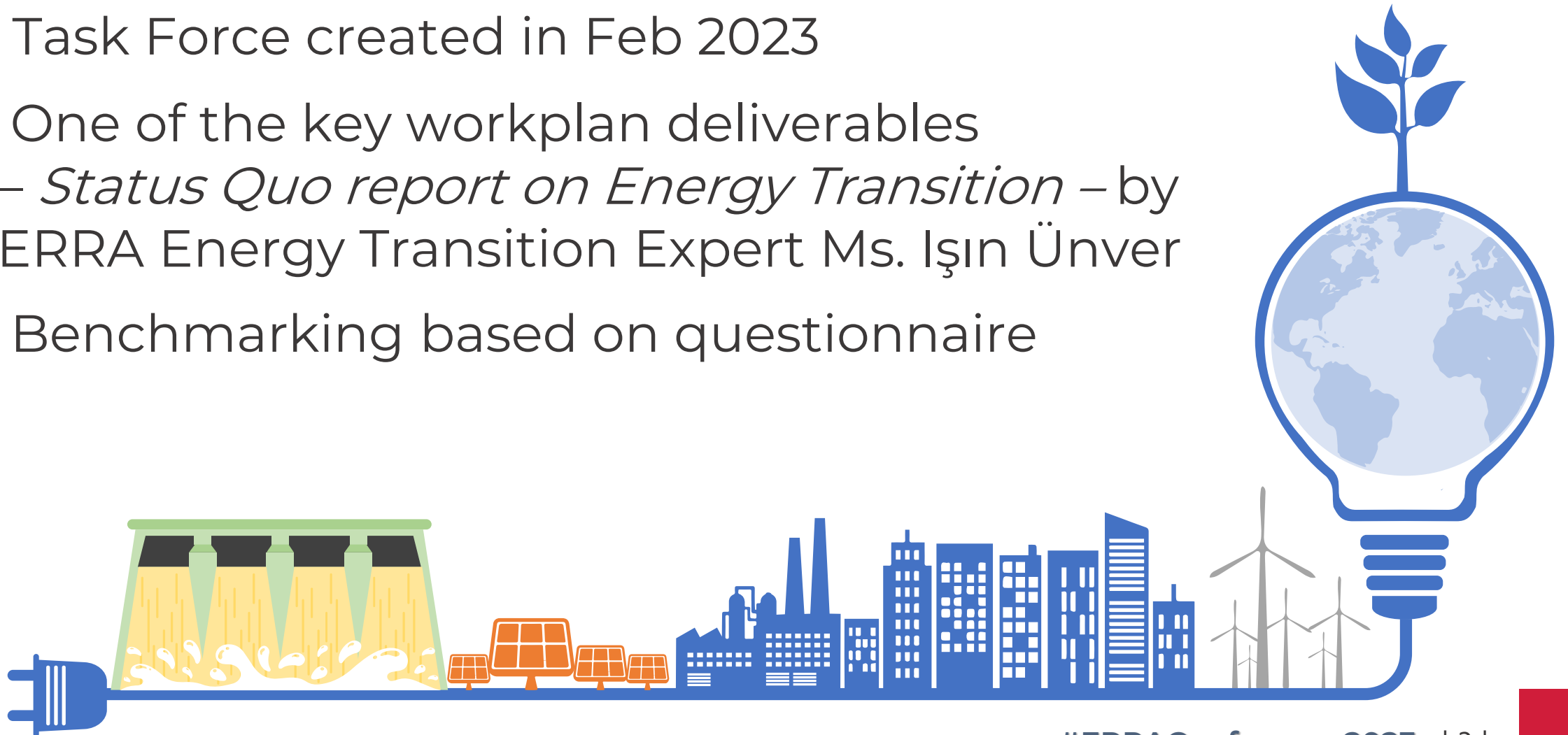


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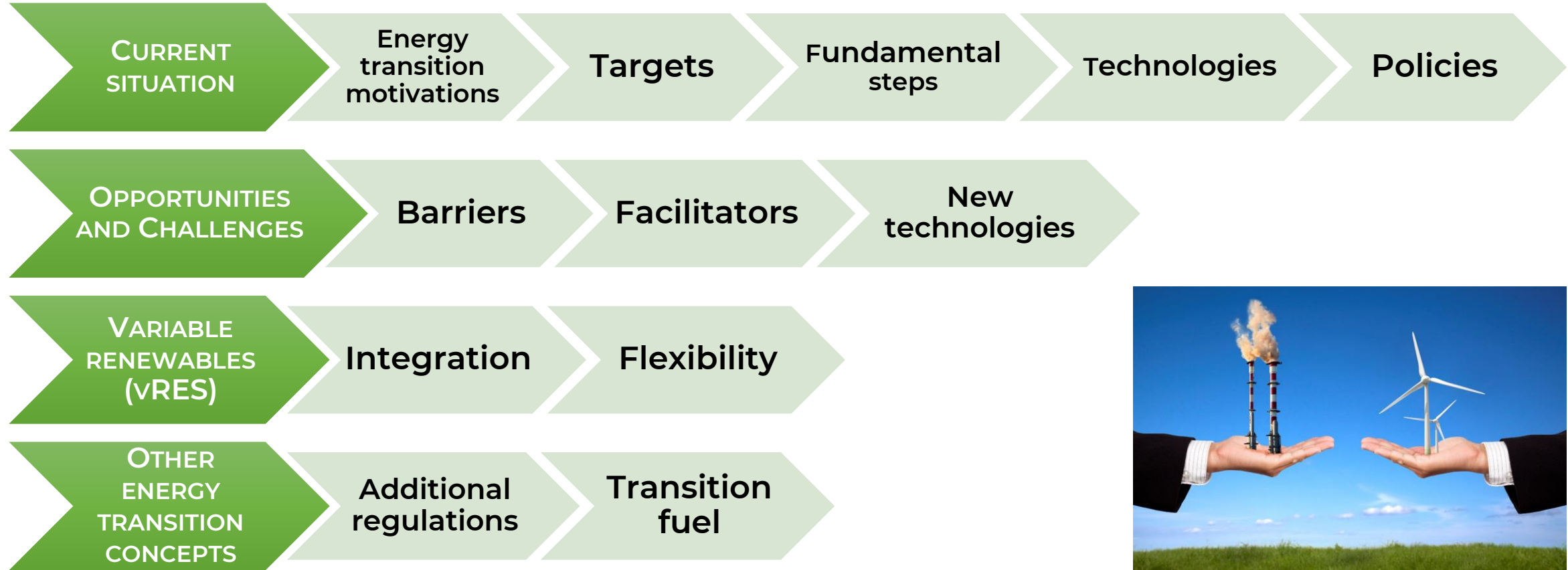
- BACKGROUND INFORMATION ON THE BENCHMARK
- REPORT TAKEAWAYS
- EARLY CONCLUSIONS
- NEXT STEPS

ENERGY TRANSITION TF AND ITS KEY DELIVERABLE

- Task Force created in Feb 2023
- One of the key workplan deliverables
 - *Status Quo report on Energy Transition* – by ERRA Energy Transition Expert Ms. Işın Ünver
- Benchmarking based on questionnaire

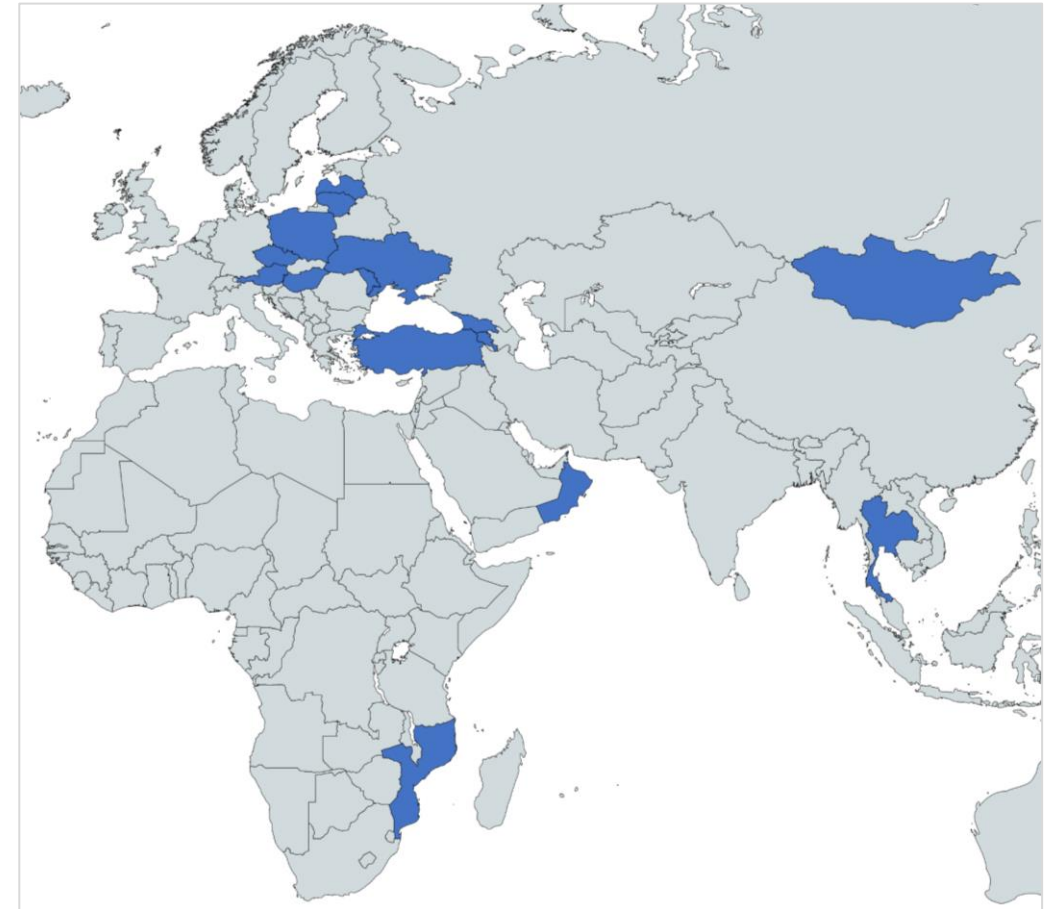


BACKGROUND QUESTIONNAIRE



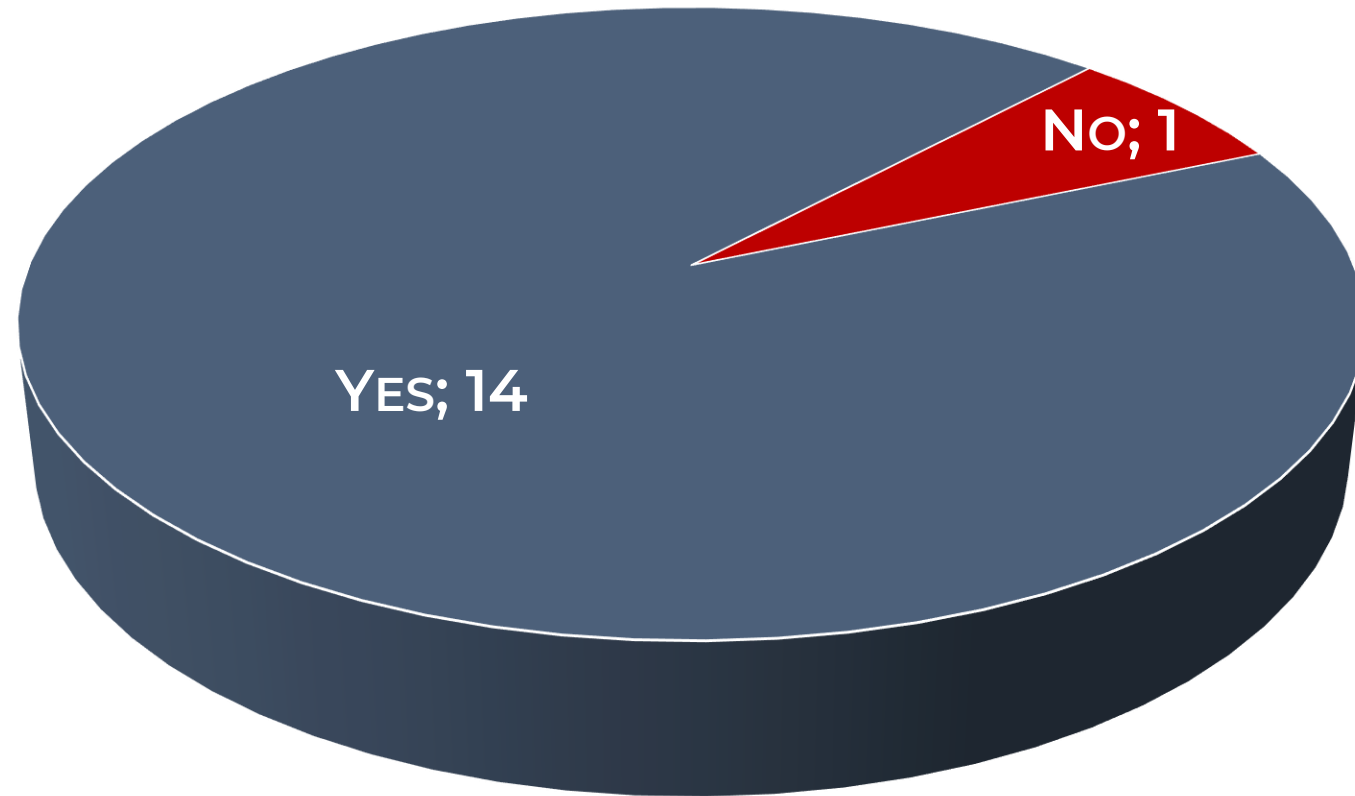
PARTICIPATING ERRA COUNTRIES: 15

- Armenia
- Austria
- Czechia
- Georgia
- Hungary
- Latvia
- Lithuania
- Moldova
- Mongolia
- Mozambique
- Oman
- Poland
- Thailand
- Türkiye
- Ukraine



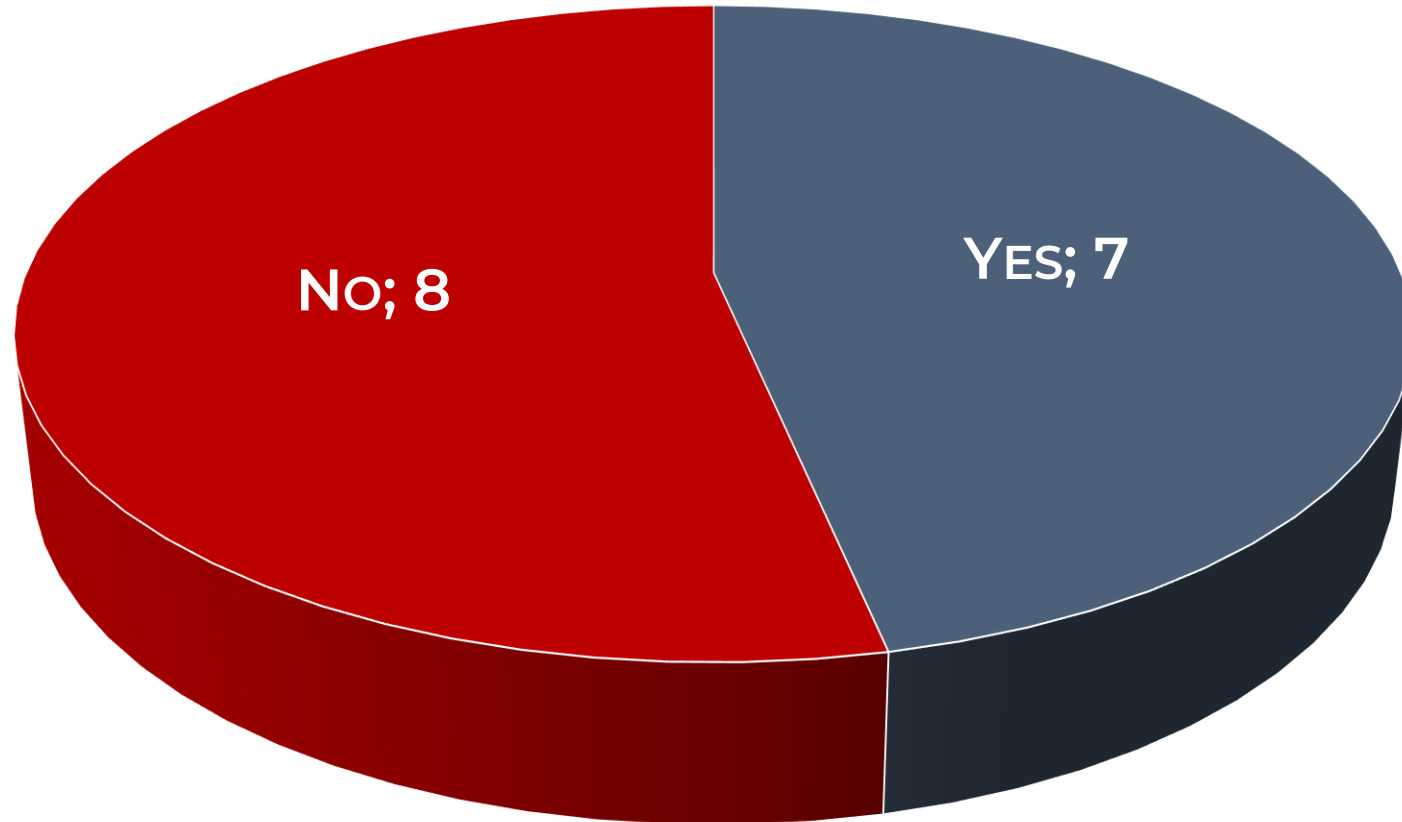
TAKEAWAYS

COUNTRIES ADDRESSING ENERGY TRANSITION



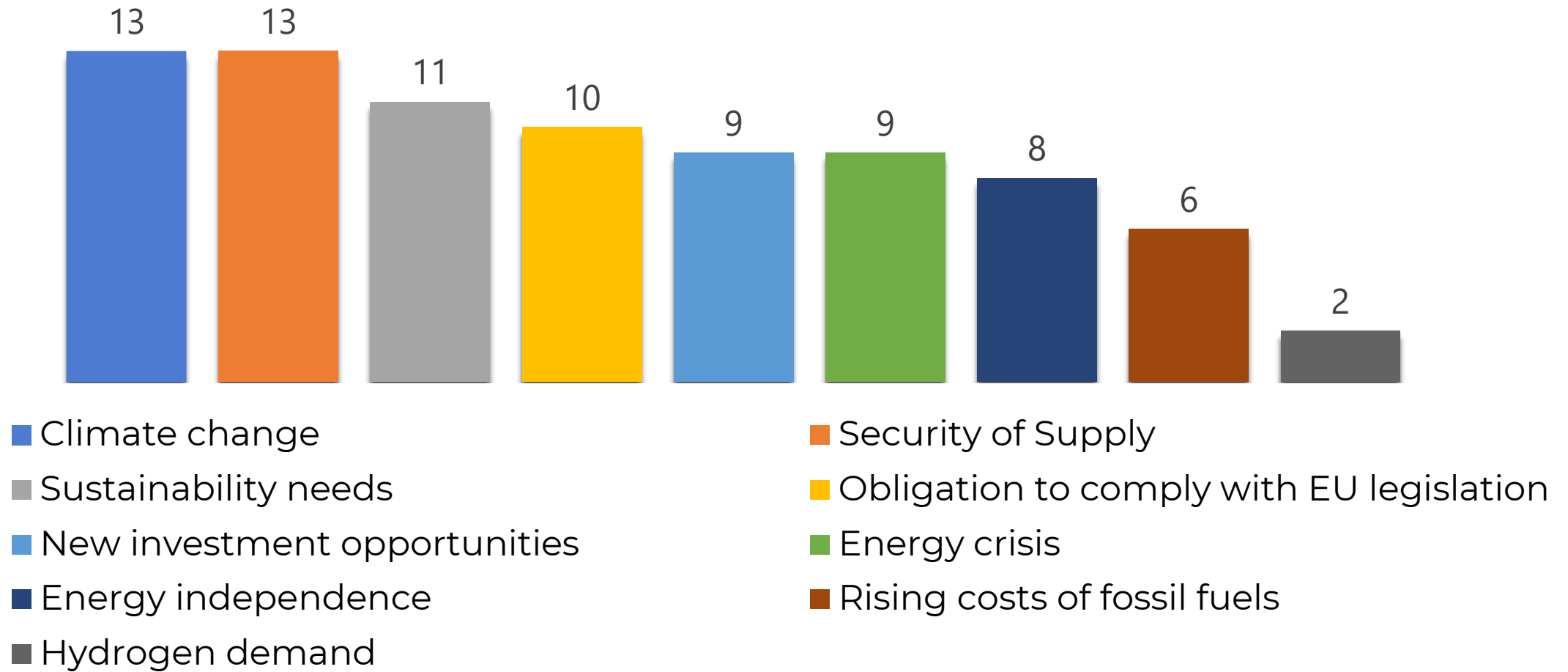
TAKEAWAYS

DEDICATED ENERGY TRANSITION DEPT. WITHIN REGULATOR



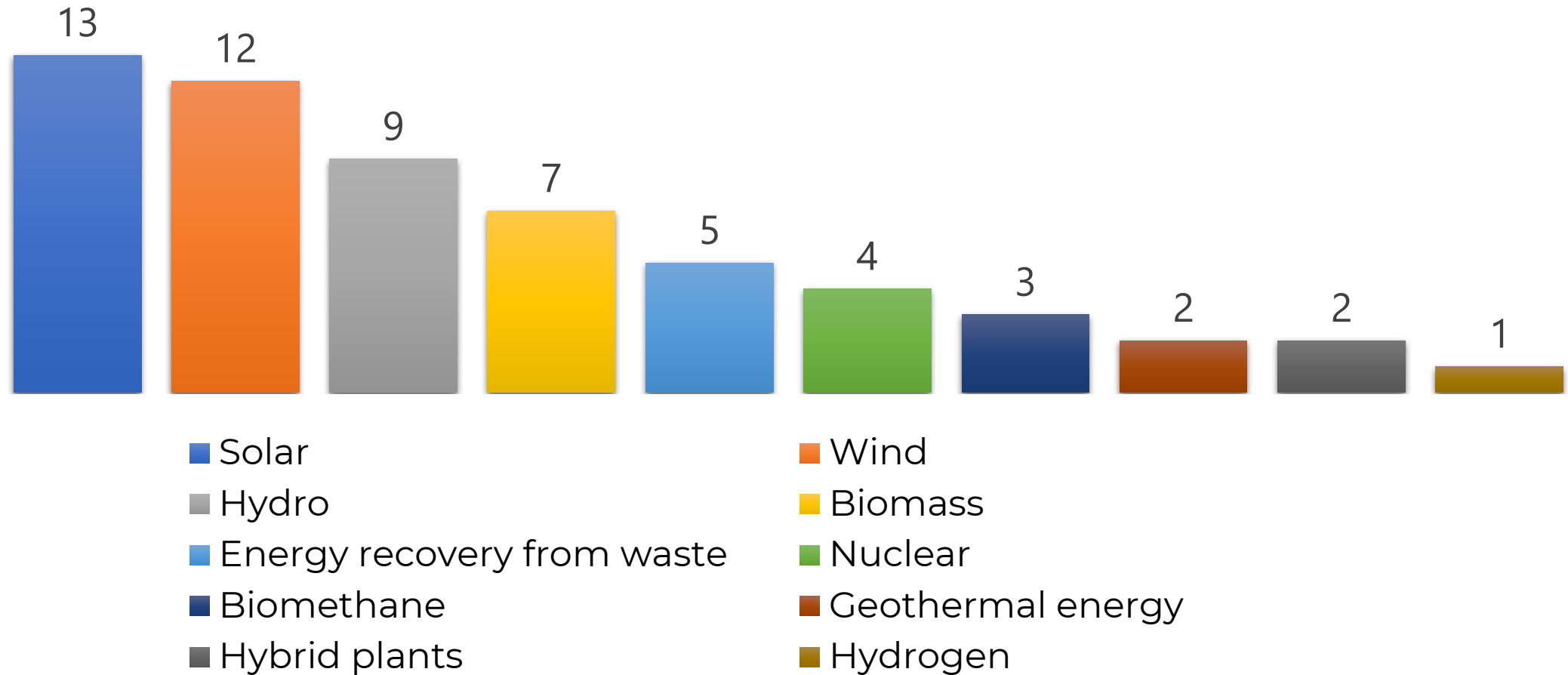
TAKEAWAYS

KEY MOTIVATIONS FOR ENERGY TRANSITION

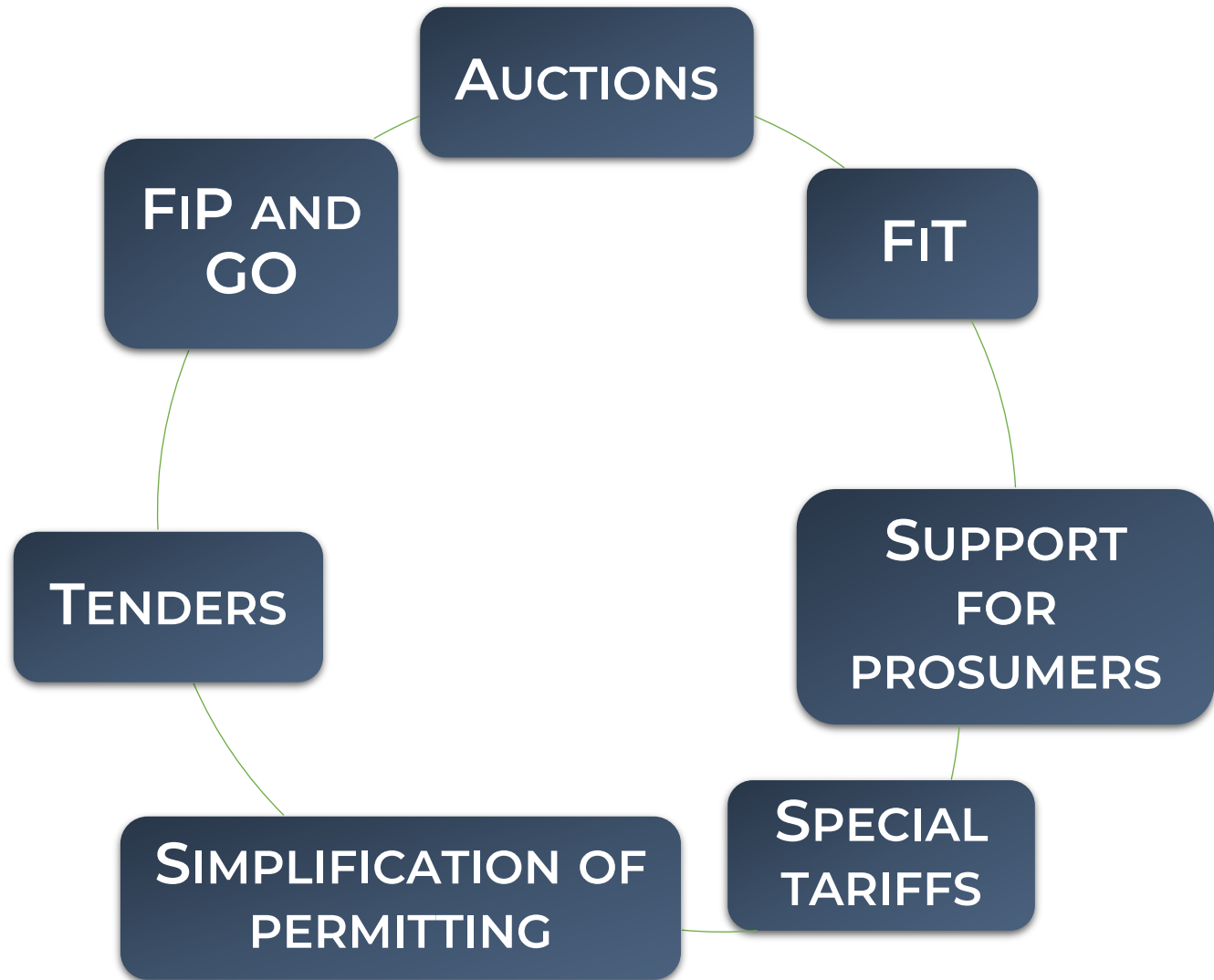
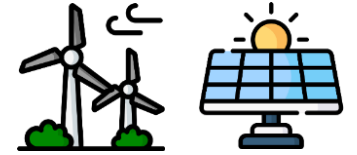


TAKEAWAYS

KEY TECHNOLOGIES FOR DECARBONISATION

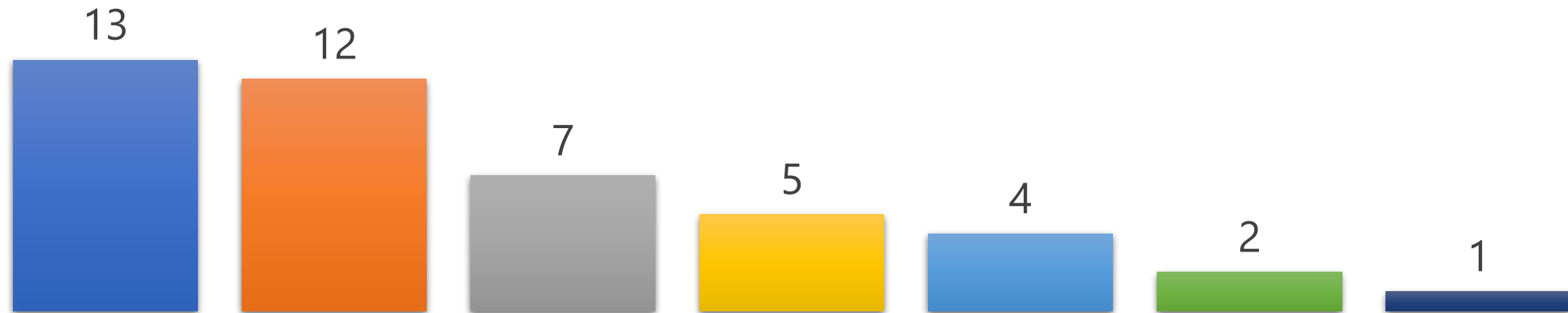
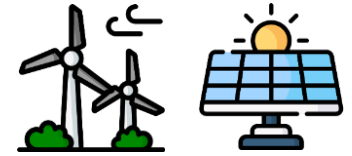


RENEWABLE ENERGY DEPLOYMENT



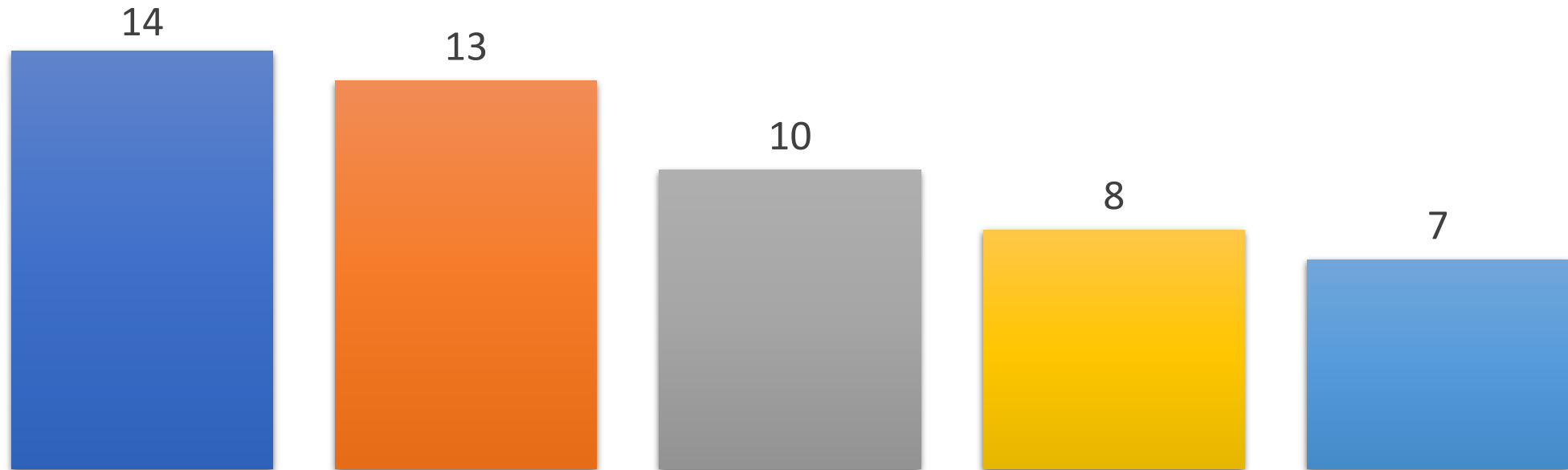
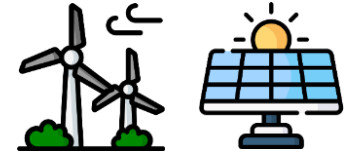
Countries are continuously updating their renewable energy acts and RES support systems.

MAIN INCENTIVES FOR RES



- RES deployment support schemes (e.g., FiT, FiP, auctions)
- Supporting prosumers and decentralized generation
- Increased investment in energy infrastructure to improve grid resilience
- Facilitate getting financial loans for establishment of power plants using clean energy
- Tax incentives
- Plans to change existing gas networks with renewable gases
- Phase-out of fossil fuel subsidies

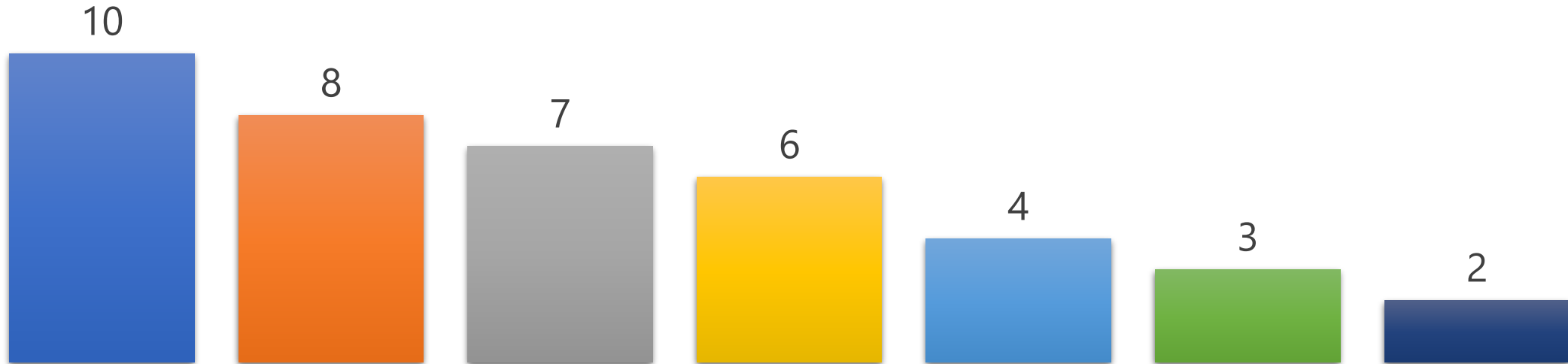
MEASURES TO INTEGRATE LARGE VRES



- Energy storage
- Transmission (TSO) and distribution (DSO) grid investments
- Interconnections with other countries
- Roll out of smart grids
- Functional organised markets

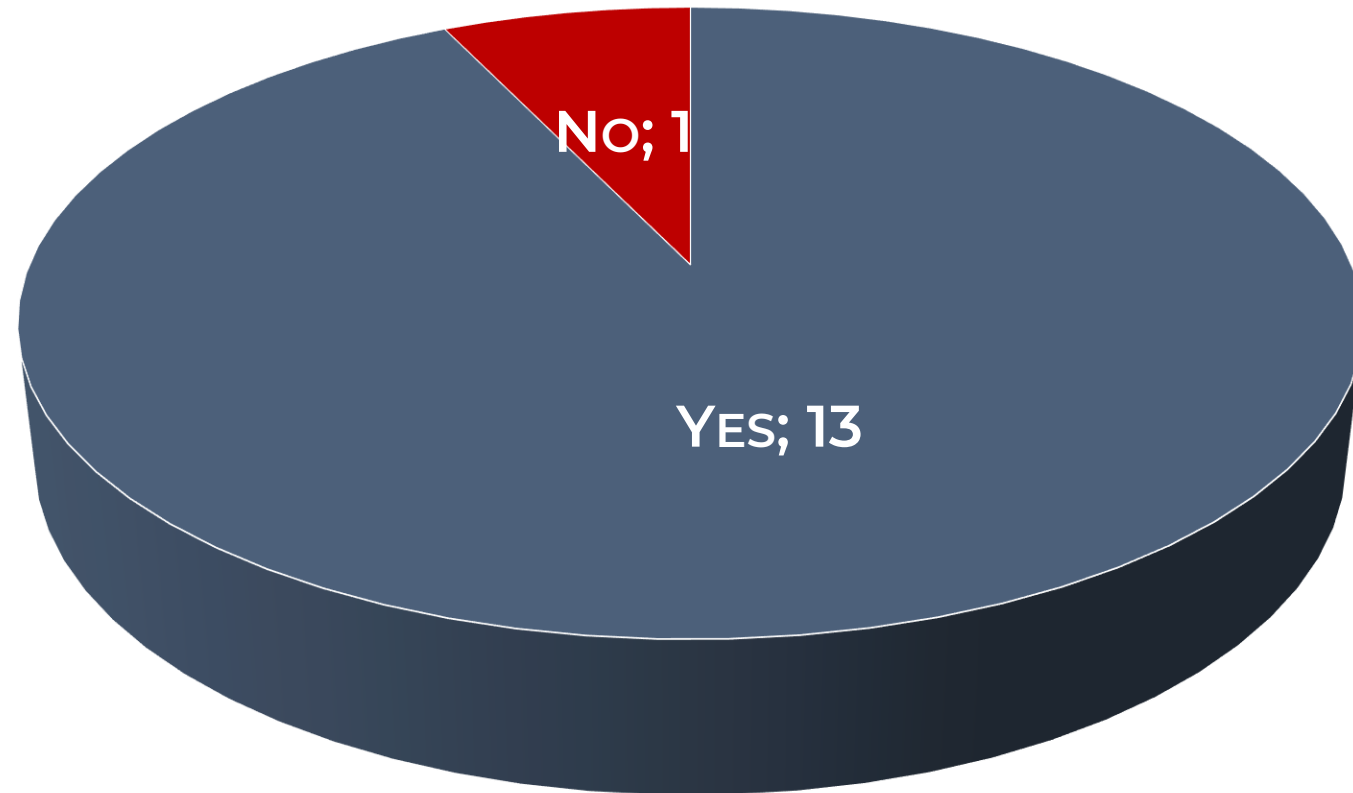
TAKEAWAYS

CHALLENGES FOR THE ENERGY TRANSITION



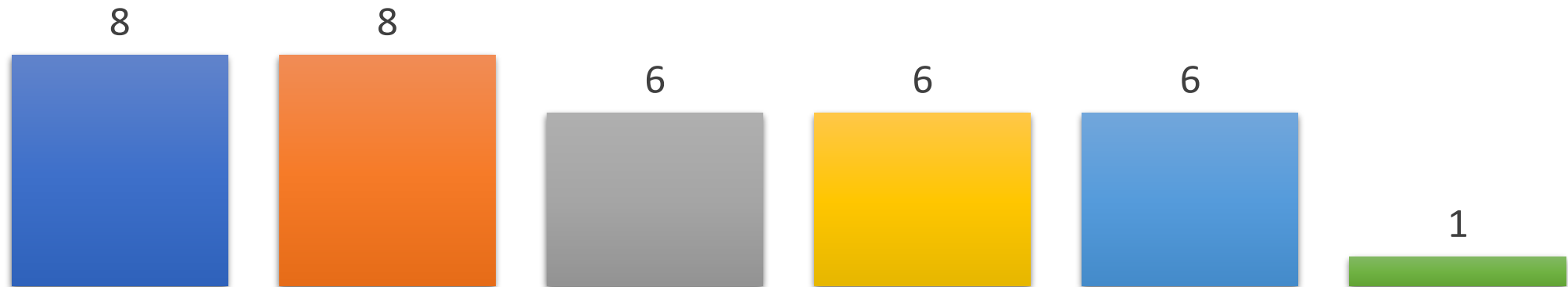
- Grid resilience/system balancing
- High costs of renewable energy investment
- Electricity pricing
- Lack of finance
- Social resistance
- Inadequate human and institutional capacity
- Lack of education and/or specialised programmes involving business stakeholders

GRID DEVELOPMENT REGULATIONS



TAKEAWAYS

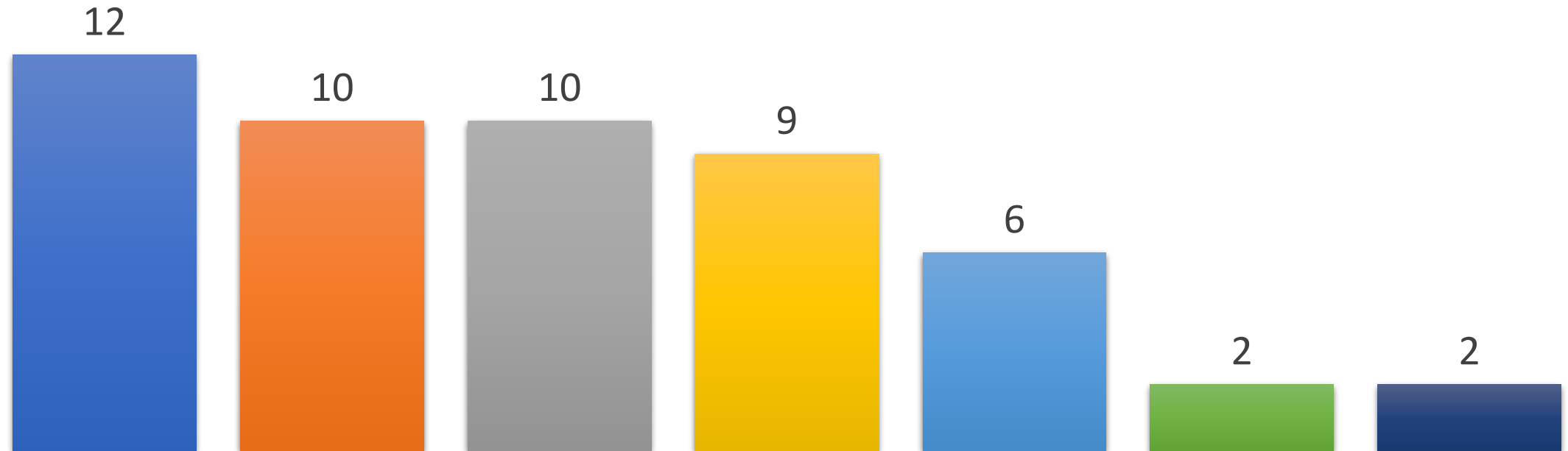
MEASURES FOR FLEXIBILITY



- Adequacy of power system in case of unavailability of renewable generation (Unexpected)
- Adequacy of power system in case of seasonal unavailability of renewable generation like electricity generation from hydroelectric plants during summer (Expected)
- Balancing short term variable generation from wind and PVs
- Efficient operation of day ahead markets to manage changes in net load
- Quality of the primary frequency response and frequency stability
- Other

TAKEAWAYS

ADAPTATIONS AND NEW TECHNOLOGIES USED



- Energy efficiency measures
- Energy storage systems
- Smart grids
- Electrification
- Hydrogen
- Power-to-X
- Other

TAKEAWAYS

ENERGY EFFICIENCY



**LAWS &
STRATEGIC
PLANS**

e.g. Austria, Hungary,
Lithuania, Moldova,
Mongolia, Mozambique,
Poland, Ukraine

**ENERGY
EFFICIENCY
TARGETS**

e.g. Austria, Czechia,
Hungary, Latvia,
Lithuania, Mongolia,
Mozambique, Oman,
Poland, Thailand, Türkiye,
Ukraine

**NEW
PROJECTS &
CONSUMER
AWARENESS
CAMPAIGN**

e.g. Lithuania, Thailand

OTHER CLEAN ENERGY TECHNOLOGIES



Examples of declared interest in other clean energy technologies.

HYDROGEN

- e.g. Czechia, Hungary, Türkiye, Mongolia

HYDRO

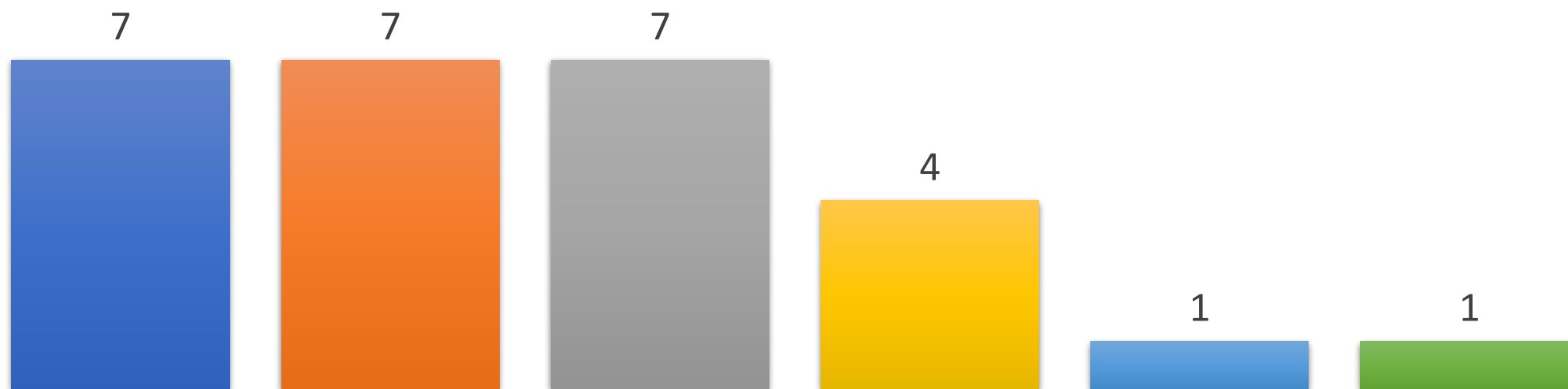
- e.g. Latvia, Thailand

WASTE-TO-ENERGY

- e.g. Oman

TAKEAWAYS

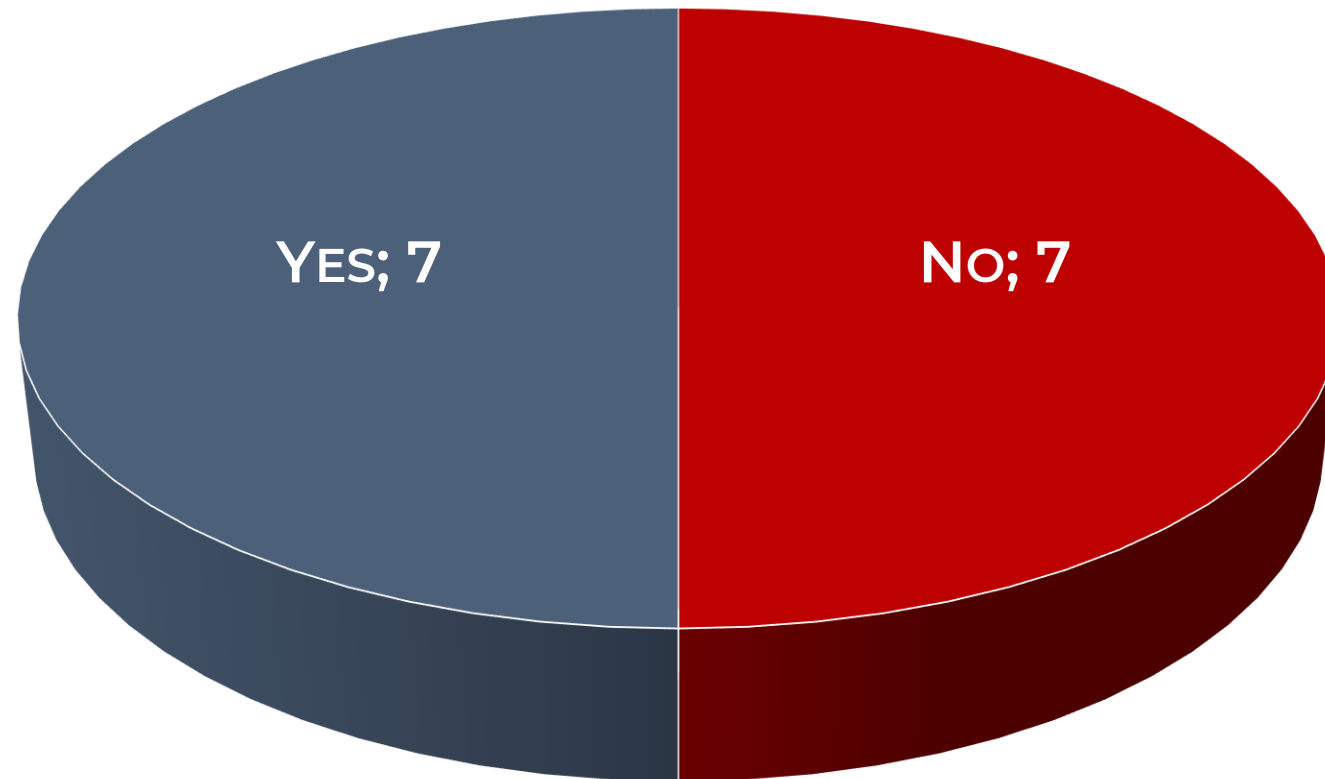
REGULATIONS ON NEW CONCEPTS OF ENERGY TRANSITION



- Regulation regarding energy storage
- Supporting tariff for prosumers
- Regulation for EV charging points
- Regulation enabling smart grids
- Regulation on hydrogen
- Other

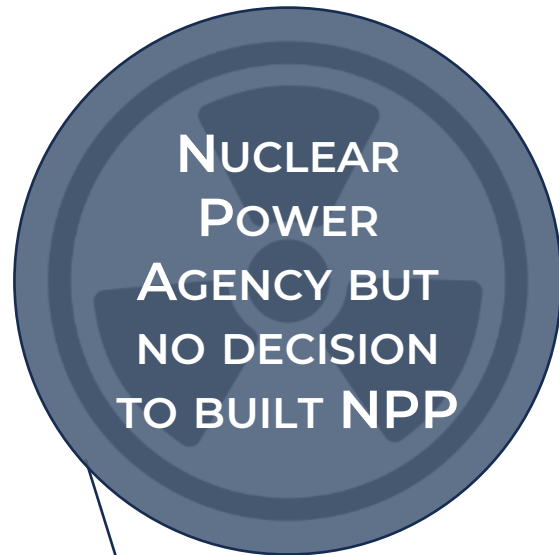
TAKEAWAYS

EXISTENCE OF PILOT PROGRAM/REGULATORY SANDBOX



TAKEAWAYS

NUCLEAR POWER



Mozambique



Poland
Türkiye



Armenia
Czechia
Hungary



Lithuania

TAKEAWAYS

TRANSITION FUEL



Declared transition fuels differ per country as per context and availability.

NATURAL GAS	CNG	COAL	HYDROGEN & METHANE	GREEN HYDROGEN	HYDRO
<ul style="list-style-type: none">• Czechia• Hungary• Lithuania• Mozambique• Ukraine	<ul style="list-style-type: none">• Latvia	<ul style="list-style-type: none">• Poland	<ul style="list-style-type: none">• Mongolia	<ul style="list-style-type: none">• Oman• Türkiye	<ul style="list-style-type: none">• Georgia

EARLY CONCLUSIONS

- ⇒ ERRA Member countries differ in their advancement in energy sector's green transition. Many however, have already been implementing specific means and advanced incentive systems to boost their transition's dynamics.
- ⇒ Challenges such as improvement of grid resilience remain.
- ⇒ New technologies are cautiously explored, but energy-crisis-driven affordability concerns make fossil fuels' phase-out increasingly difficult.

NEXT STEPS

- Finalisation of the report will be conducted in collaboration with a partner organization
- The paper will be published in November 2023





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REGIONAL ASSOCIATION



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