ENERGY REGULATORS
REGIONAL ASSOCIATION

ET Committee

Presentation of the survey for the 2025 Report and next steps

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ET 2025 Report

- The ET Committee has chosen in the November 2024 meeting (in Istanbul) this topic for its 2025 Report

Energy Transition In Emerging Economies With Coal-fired Electricity Sectors: Financing And Regulation

- Description

This report explores the challenges and opportunities of energy transition in both coal fired electricity dependent and emerging economies, focusing on financing infrastructure projects and regulatory frameworks. It investigates the role of the State in driving this transition, including obligations placed on countries to develop renewable energy sources. By examining financing mechanisms and regulatory strategies, the report aims to provide insights into how governments and regulatory authorities can effectively navigate the transition towards sustainable energy systems while meeting international obligations. Through case studies and analysis, it offers recommendations for policymakers and stakeholders to facilitate a smooth and successful energy transition. Additionally, a survey was executed among the ERRA member countries for their status on fossil fueled genetation. The outputs of the data show how the transition is handled in ERRA countries.

- Deadline: End-April 2025

Questionnaire

1. Does your country generate electricity from coal? Please note that timed reopenings made in the latest energy crisis does not count if not persisting.

- If yes, please specify the planned phase-out year.

2. Does your country have a specific national energy plan with reduction or exit targets for coal in the overall electricity generation mix?(MT Y/N- if Y open txt)

- If yes, please provide details about the reduction or exit targets.

3. How would you rank the importance of the following transition technologies? (Rank from 1 = most important to 5 = least important) (choose rank a-c-d-b-e or give numbers next to the options.)

a. Coal gasification
b. Co-firing technologies (e.g., biocoal, hydrogen, ammonia)
c. Renewable-coal hybrid installations
d. Coal-renewable-battery hybrid installations
e. Other (please specify): _____

4. Does your country provide any of the following subsidies or support mechanisms for coal-related energy? (Select all that apply) (simple clickbox)

- Investment incentives for coal mining
- Government R&D expenditures
- Tax rebates
- Exploration subsidies(e.g new coal mines)
- Rehabilitation aid for coal-fired power plants
- Capacity mechanisms
- Feed-in tariffs for coal-fired generation
- Feed-in premiums for coal-fired generation
- Other (please specify): _____

5. Does your country provide any of the following subsidies or support mechanisms for renewable energy? (Select all that apply) (simple clickbox)

- Investment incentives for local renewable contents
- Government R&D expenditures
- Tax rebates
- Exploration subsidies(e.g geothermal)
- Rehabilitation aid for renewable power plants(e.g old hydros)
- Capacity mechanisms

6. What percentage of your total electricity generation comes from coal for the previous 5 years (combining all types of coal)? (open 5 cells for data input only percentage writing allowed)

- Please provide the yearly percentage for years 2019 to 2024.

7. What percentage of your total electricity generation comes from renewable for the previous 5 years (combining all types of renewables)? (open 5 cells for data input only percentage writing allowed)

- Please provide the percentage for 2019 to 2024.

8 . What percentage of your total energy generation comes from renewable (combining all types of renewables)? (open 1 cells for data input only percentage writing allowed)

- Please provide the percentage for 2024.

9.From your country perspective what is the utmost key challenge with the energy transition in emerging economies with coal-fired power? (multiple choice clickbox)

- Economic Dependency
- Social Consideration
- Financial Constraints
- Regulatory Gaps.
- Energy Security

Other (…….)

10. What is the Financing Mechanisms that is followed by your country to promote the energy transition? (multiple choice clickbox)

- International Climate Funds
- Public and private partnership Finance
- Debt Swaps
- Carbon Markets
- **Others (…..)**

11. What are the main challenges in accessing financing for energy transition projects? (multiple choice clickbox)

- Limited public funds
- High cost of renewable energy projects
- Insufficient private sector participation
- Regulatory or policy uncertainty
- Lack of technical expertise
- Other (please specify): _____

Questionnaire

12. From your country perspective what is the implemented Regulatory approaches in your country towards energy transition? (multiple choice clickbox)

- Carbon Pricing
- Subsidy Reforms
- Mandatory Renewable Targets

- Retiring coal plants early
- Others (please specify)

13. What regulatory challenges has your country faced in the energy transition if any? (multiple choice clickbox)

- Resistance from industry stakeholders
- Inconsistent policies
- Lack of enforcement capacity
- Limited political support
- Other (please specify): _____

14. What measures has your country implemented to support communities and workers impacted by the transition away from coal? *(multiple choice clickbox)*

- Job retraining programs
- Economic diversification in coal-reliant regions
- Social safety nets (e.g., unemployment benefits)
- Other (please specify): _____

15. What are the main social challenges faced in the energy transition? (multiple choice clickbox)

- Resistance from affected communities
- Lack of alternative employment opportunities
- Rising energy costs for consumers
- Other (please specify):

16. Does your country have a system for tracking progress in the energy transition? (If yes open textbox)

- Yes (please describe):
- No

17. What key performance indicators (KPIs) are used to measure progress on energy transition? (multiple choice clickbox)

- Reduction in coal-based electricity generation (%)
- Increase in renewable energy capacity (MW or %)
- Reduction in greenhouse gas emissions (tonnes CO_2e)
- Other (please specify): _____

Questionnaire: Data issues

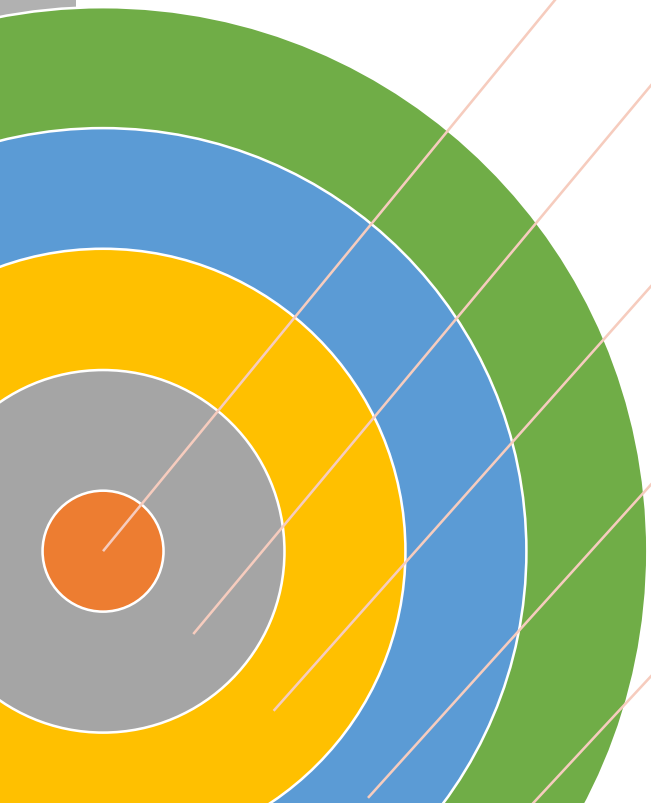
- Inconstintencies detected
- If there is any correction please report before 21st of April

	Percentage of total Energy generation comes from Renewable (%)					
Country	2019	2020	2021	2022	2023	2024
Republic of North Macedonia	24.20	29.21	31.46	28.98	0.00	0
Mozambique	100	100	100	100	100	100
Cameroun	2	3.03	3.35	4.62	5.65	5.72
Albania	0	0	0	0	0	0
Azerbaijan	10.7	10.7	10.7	10.7	10.7	10.7
Bosnia and Herzegovina	40	32	42	36	47	35
Ukraine	0	0	0	0	0	0
Poland	18	20	22	25	28	32
Türkiye (Excluding hydro)	14.66	16.81	19.1	21.6	23.38	0
Nigeria	0	23	22	26	24	32.75
Armenia	13.2	8.11	9.12	13.4	15.2	20
Czech Republic	15	15	14.47	16	16	0
United Arab Emirates	3	6	7	8	11	13.12
Lithuania	64	49	48	60	68	0
Thailand	0	0	0	0	0	15.76
Latvia	53.42	53.36	51.4	53.52	54.32	0
Republic of Moldova	9.3	9.5	11.8	23.1	33.4	39.6
Hungary	19	15	19	19.20	20.50	24.90
Egypt	10	12	12	11	12	12
Austria	75	78	75	75	92	0
Georgia	76.04	74.72	81.2	76.2	76.1	80.2

First results

- 22 organizations representing 21 countries responded.
- 13 respondent does not use coal.(Still responded with their valuable views on coal transition)
- Social aspects of the coal transition are valued highly . (most likely from experience)
- Similarly economical aspects are weighed greatly.
- The social side output is also handled in three country examples.

Questionnaire: Focus areas



Coal renewable relations in ERRA countries.

Main barriers of coal transition.

Demonstration of good examples.

Database of coal subsidies.

Database of transition enhancing subsidies

How to proceed (next steps)

Today: Results of the questionnaire &feedback
(by 21st of April)

Mid-April :Data validation, changes related to feedback.

End-April: Secretariat finalization

May: final report

Pre-final structure of the report

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Ideas for the conclusion

- The social effects to be kept in mind
- Energy security concerns are paramount(related to srecent energy crisis)
- Public and private partnerships are the main financing stream
- High renewable costs and limited public funds slows down the transition.
- Each coal user country has some sort of incentive for their coal generation. (Incentives to be phased out in the first place.)

6 points for conclusions and final recommendations

1. Energy Security Remains the Primary Concern
2. Public-Private Partnerships Are Essential for Financing
3. Economic Impacts Require Proactive Management
4. Renewable Energy Incentives Need Refinement
5. Integrated Transition Technologies Show Promise
6. Progress Monitoring Systems Require Standardization

1. Energy Security Remains the Primary Concern

- **Conclusion:** Energy security emerged as the top challenge in the coal phase-out process, with 13 out of 21 surveyed countries citing it as a major concern. This reflects persistent worries about grid stability, reliability, and baseload power replacement when transitioning away from coal.
- **Recommendation:** Implement a phased transition approach that prioritizes system reliability by developing adequate flexible generation capacity, energy storage solutions, and demand-side management before coal plants are retired. Regulators should make TSOs and DSOs making transition plans to demonstrate how grid stability will be maintained throughout the process.

2. Public-Private Partnerships Are Essential for Financing

- **Conclusion:** 15 out of 21 countries identified Public-Private Partnerships (PPPs) as their preferred financing mechanism for energy transition, signaling the importance of collaborative approaches that leverage both government policy support and private sector expertise and capital.
- **Recommendation:** Develop standardized PPP frameworks specifically designed for energy transition projects, with clear risk allocation, transparent procurement processes, and long-term contract stability. Regulators should cooperate with Governmental PPP units providing their own energy sector expertise, to facilitate project development and ensuring regulatory certainty to attract private investment.

3. Economic Impacts Require Proactive Management

- **Conclusion:** Rising energy costs for consumers (cited by 12 countries) and resistance from affected communities (9 countries) represent significant social challenges to energy transition, highlighting the need for economic impact mitigation.
- **Recommendation:** Design comprehensive just transition programs that include energy price stabilization mechanisms, targeted subsidies for vulnerable consumers, workforce retraining programs, and economic diversification initiatives for coal-dependent regions. Regulators can help to conduct thorough impact assessments and establish monitoring frameworks to track socioeconomic outcomes throughout the transition.

4. Renewable Energy Incentives Need Refinement

- **Conclusion:** While investment incentives for local renewable content (15 countries) and feed-in tariffs (11 countries) are widely used, the diversity of approaches indicates that countries are still experimenting with optimal support mechanisms for renewable energy.
- **Recommendation:** Transition from technology-specific support schemes to technology-neutral competitive mechanisms like auctions, with design features that ensure both cost efficiency and project delivery. Regulators should implement regular evaluations of support schemes to adjust incentive levels as technology costs decline and market conditions evolve. Coal incentives should be phased out in the first place.

5. Integrating Several Transition Technologies

- **Conclusion:** The survey revealed diverse preferences for transition technologies, with coal gasification, co-firing technologies, and renewable-coal hybrids all receiving significant support, suggesting that hybrid approaches may be valuable during the transition period.
- **Recommendation:** Promote regulatory frameworks that enable and incentivize integrated approaches combining existing coal infrastructure with cleaner technologies as a bridge to fully renewable systems. Together with technical bodies, regulators could develop specific guidelines for hybrid plants, addressing technical requirements, emissions standards, and appropriate market compensation mechanisms.

6. Progress Monitoring Systems Require Standardization

- **Conclusion:** Despite 13 countries reporting systems for tracking energy transition progress, the metrics and methodologies vary widely, making cross-country comparisons and best practice identification challenging.
- **Recommendation:** Establish standardized KPIs and reporting frameworks for energy transition tracking, focusing on emissions reduction, renewable capacity growth, and socioeconomic impacts. Regulators could develop monitoring approaches at regional levels and implement transparent public reporting to enhance accountability and facilitate knowledge sharing.

Synthesis of final recommendations

Key Challenge	Recommendation
Energy Security Concerns	Implement phased transition with reliability standards, adequate flexible generation, energy storage solutions, and demand-side management before coal plant retirement.
Financing Limitations	In cooperation with Governments, develop standardized Public-Private Partnership frameworks with clear risk allocation, transparent processes, and ensure regulatory certainty to attract private investment.
Economic and Social Impacts	Design comprehensive just transition programs including price stabilization mechanisms, targeted subsidies, retraining programs, and economic diversification initiatives. Regulators can help to conduct thorough impact assessments
Renewable Energy Support	Transition toward technology-neutral competitive mechanisms like auctions, with regular evaluations to adjust incentive levels as costs decline and markets evolve.
Technological Integration	Promote regulatory frameworks enabling hybrid approaches that combine existing coal infrastructure with cleaner technologies as a bridge to fully renewable systems.
Progress Monitoring	Establish standardized KPIs and reporting frameworks focused on emissions, renewable capacity growth, and socioeconomic impacts to enhance accountability and knowledge sharing.

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THANK YOU FOR YOUR ATTENTION!

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