GF COM Report Presentation
Gas Networks – Risks of Stranded Costs & Repurposing Benefits
Hydrogen & Biomethane Blending

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Background ,Objectives & Participating Countries

- The report is set in the context of **the global energy transition**, where regulators and stakeholders must address the growing risk of natural gas infrastructure becoming underutilized (“stranded assets”) and explore the potential to repurpose these networks for hydrogen and biomethane blending to support decarbonization goals.
- The main objectives of the report is to **Assess Regulatory, Technical, and Economic Readiness , Benchmark National Approaches and Identify Gaps , Support Policy Refinement and Regional Cooperation and Guide Strategic Planning and Investment**
- The ERRA GF COM surveyed **12 member countries** on readiness to repurpose gas infrastructure for hydrogen and biomethane.

Country	Organization
Austria	E-Control
Czech Republic	Energy Regulatory Office (ERO)
Hungary	Hungarian Energy and Public Utility Regulatory Authority (MEKH)
Latvia	Public Utilities Commission (PUC)
Albania	Albanian Energy Regulatory Authority (ERE)
Armenia	Public Services Regulatory Commission (PSRC)
Bosnia and Herzegovina	Regulatory Commission for Energy in Federation of Bosnia and Herzegovina (FERK)
Egypt	Gas Regulatory Authority (GASREG)
Moldova	National Agency for Energy Regulation (ANRE)
North Macedonia	Energy, Water Services and Municipal Waste Management Regulatory Commission (ERC)
Thailand	Energy Regulatory Commission (ERC)
Türkiye	Energy Market Regulatory Authority (EMRA)

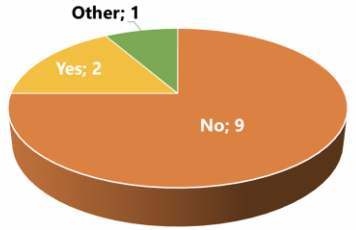
Executive Summary

1. Significant disparities exist among ERRA countries in regulatory, technical, and economic readiness for repurposing gas networks to hydrogen and biomethane.
2. 9 out of 12 countries lack frameworks for managing stranded gas assets, creating uncertainty for operators and investors.
3. Only a few countries have legal or regulatory provisions for blending hydrogen/biomethane with natural gas (Austria, Czech Republic, Latvia).
4. Economic incentives are limited; only Austria, Czech Republic, Egypt, and Türkiye have dedicated support schemes for hydrogen and biomethane.
5. Technical standards for hydrogen/biomethane integration are generally underdeveloped, with Austria as a leader.
6. Several countries have begun integrating hydrogen/biomethane into national strategies, and pilot projects are underway in six countries, but most lack cost-benefit analyses.
7. Few countries have quantified emissions reductions; Austria and Hungary provide initial estimates, while most lack data.
8. The report highlights the urgent need for strategic pathways, improved regulatory frameworks, harmonized technical standards, expanded incentives, and more pilot projects to support a just and effective energy transition.

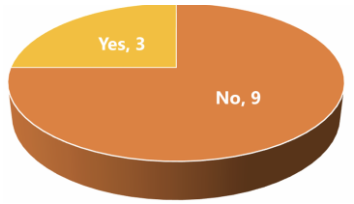
Section (1)

Stranded Asset Regulation

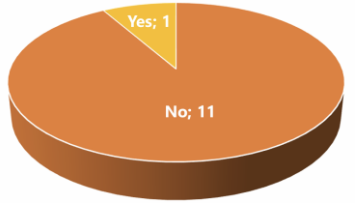
- Regulatory frameworks for stranded assets are mostly absent, 9 out of 12 countries lack formal frameworks; only Armenia and Moldova have relevant legislation. Thailand considers stranded asset impacts in regulation but has no codified rules.
- Mechanisms to mitigate decommissioning are rare, Only Moldova has an operational mechanism (tariff exclusion for unused assets); others report none.
- Practical experience is limited: Armenia, North Macedonia, and Thailand have encountered stranded assets; responses included asset write-off, continued use, or depreciation without capital return.
- No established assessment methodologies, No country has formal criteria for identifying stranded assets.
- Institutional responsibility varies, Mostly TSOs/DSOs are responsible; in some cases, ministries or NRAs play a role. Regulator involvement ranges from advisory to full approval.



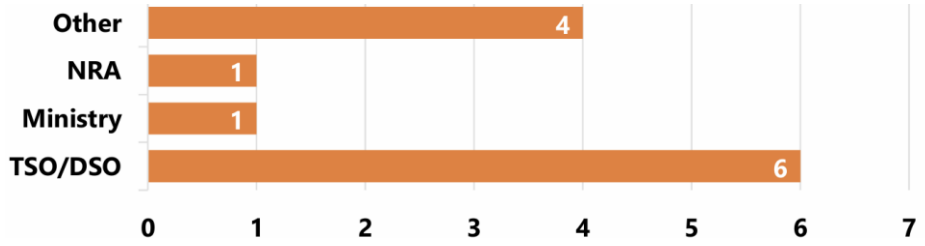
Regulatory Framework For Stranded Assets



Practical Experience With Stranded Assets



Mechanisms To Mitigate Asset Decommissioning

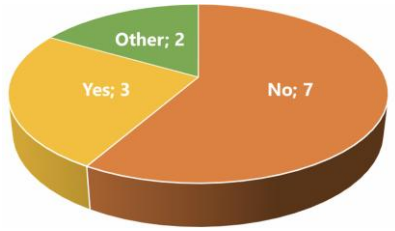


Institutional Responsibility And Role Of Regulators

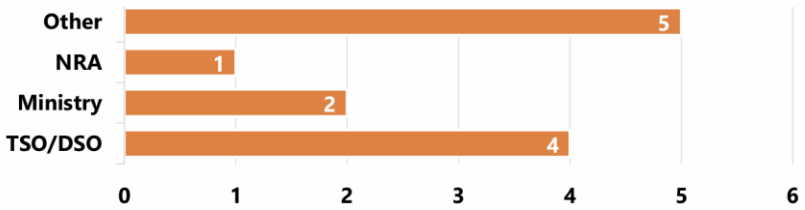
Section (2)

Policy and Regulatory Framework

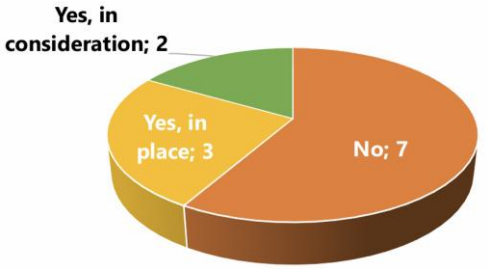
- Regulatory preparedness is limited and fragmented, Only Albania, Czech Republic, and Moldova have formal guidelines for repurposing gas assets.
- Responsibility for repurposing varies, TSOs/DSOs lead in some countries; ministries or NRAs in others; some use a joint approach.
- Legal basis for blending is rare: Only Austria, Czech Republic, and Latvia have explicit legal provisions for hydrogen/biomethane blending.
- Initial steps focus on feasibility studies, Austria and Latvia integrate repurposing into network planning; others are at early stages.
- Evaluation criteria emphasize technical and safety compatibility, Austria and Latvia use technical feasibility and legal alignment.
- Community involvement is limited: Only Latvia reports active engagement.
- Few examples of regulatory implementation, Latvia has operational biomethane injection; others are pending.
- Strategic role of blending differs, Austria sees blending as transitional; Czech Republic and Latvia as long-term.



Regulatory Preparedness: Regulatory Guidelines/Criteria/Methodology To Identify The Gas Assets To Be Repurposed



Institutional Responsibility For Assets Repurposing Identification



Legal Basis For Hydrogen And Biomethane Blending

Section (3)

Incentives and Subsidies

- Economic incentives are scarce, Only Austria, Czech Republic, Egypt, and Türkiye have implemented support mechanisms.

  - Austria: €820 million Hydrogen Promotion Act, fixed premium for hydrogen production.

  - Czech Republic: Green bonuses for biomethane, support for plant conversion.

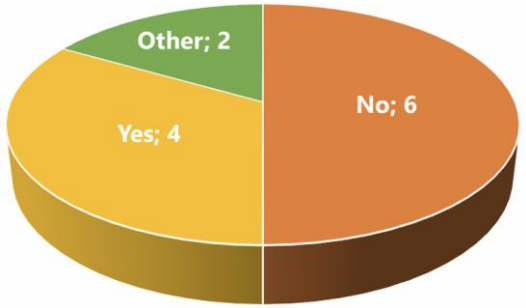
  - Egypt: Tax credits, VAT and customs exemptions, "Golden License" for streamlined approvals.

  - Türkiye: R&D funding for hydrogen/biomethane via tariffs and national research agency.

  - Hungary: Guarantee of Origin scheme under development.

  - Latvia: Some incentives for biomethane producers.

- Most countries lack incentives, Albania, Armenia, Bosnia and Herzegovina, Moldova, North Macedonia, and Thailand report none.

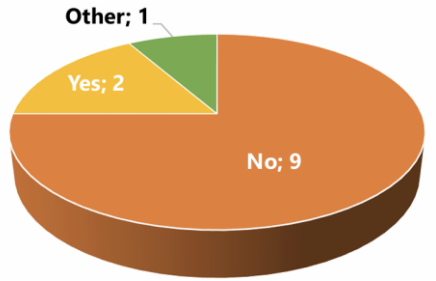


Availability of Economic Incentives and Subsidies

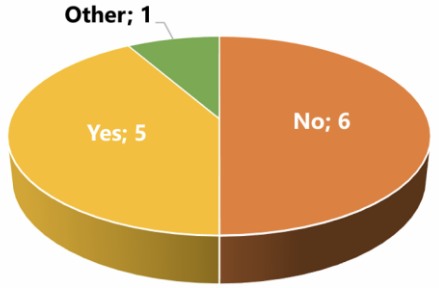
Section (4)

Technical Requirements and Guidelines

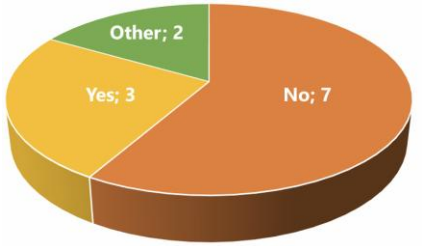
- Technical standards are generally under-developed , Only Austria has established standards (via ÖVGW); Hungary and Thailand are developing guidelines.
- Limited gas-electricity sector coordination, Only Egypt and Czech Republic have structured mechanisms; Austria includes integrated planning in law.
- Industry stakeholder involvement varies , Austria, Czech Republic, Hungary, Latvia, and Thailand involve stakeholders; others do not.
- Few countries have pipeline and equipment standards, Austria leads; Hungary and Türkiye are developing; others lack standards.



Coordination Mechanism between Gas Regulation and Electricity Regulation for Hydrogen Production



Industry Stakeholders Involved in Setting Blending Limits and Technical Standards

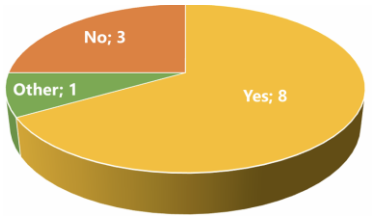


Guidelines for Pipeline Materials, Storage Facilities and End-Use Equipment

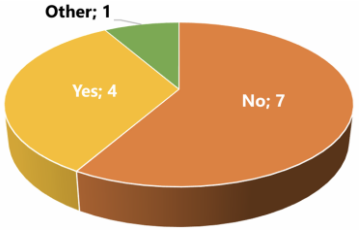
Section (5)

Economic Viability And Market Integration

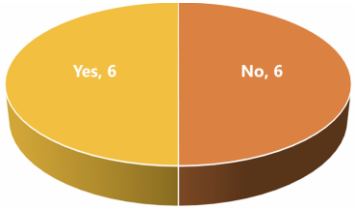
- National development plans exist in some countries, Austria, Egypt, Türkiye, and Czech Republic have hydrogen/biomethane strategies.
- Policies to facilitate integration, Austria, Czech Republic, Egypt, and Türkiye have supportive policies; others are at early stages or lack legal provisions.
- Technical evaluations conducted in some countries: Austria, Czech Republic, Hungary, Latvia, Thailand, and Türkiye have assessed blending feasibility.
- Pilot projects underway or planned, Austria, Czech Republic, Egypt, Hungary, Latvia, and Thailand; others have none.
- Cost-benefit analyses are rare: Only Austria and Hungary have conducted formal studies.
- 2030 demand/production targets, Austria, Czech Republic, Hungary, Türkiye, Egypt, and Thailand have set targets; others have not.
- Export plans limited, Only Egypt has a defined hydrogen export strategy.
- Regional cooperation, Latvia, Hungary, Austria, and Egypt participate in regional initiatives; others do not.



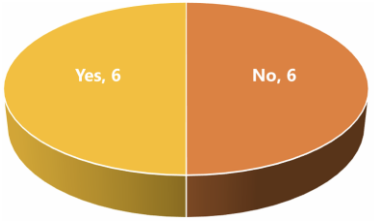
National Development Plans for Hydrogen and Biomethane



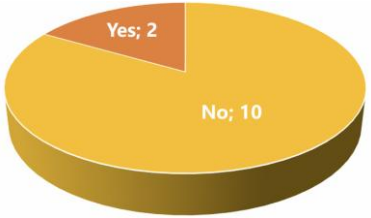
Policies and Regulations Facilitating Integration of Hydrogen and Biomethane



Technical Evaluation of the Domestic Gas Network for Possible Blending



Ongoing or Planned Blending Pilot Projects



Cost-Benefit Analysis for Infrastructure Repurposing for Blending

Section (6)

Environmental Impact and Carbon Emissions

- Few quantified emissions reductions, Only Austria (2.412 Mt CO_2e by 2030) and Hungary (1.275 Mt CO_2e by 2030) provide estimates.
- Most countries lack data or methodologies, No comprehensive assessment in most ERRA countries.
- Blending recognized as a tool, Türkiye includes blending in national climate policy but provides no specific estimates.
- Thailand projects zero reductions by 2030, Hydrogen blending expected to start later.

Recommendation

Immediate Priorities (0–2 Years)

1) **Develop strategic pathways:** Regulators, TSOs, and DSOs should explore and develop various strategic pathways to maximize the utilization of existing assets while minimizing emissions, tailored to national circumstances.
2) **Establish clear frameworks for stranded asset management:** Define methodologies for stranded asset treatment, clarify institutional responsibilities, and ensure the regulatory asset base reflects transition risks transparently.
3) **Adopt harmonized technical standards:** Collaborate with TSOs, DSOs, and standardization bodies to develop and implement harmonized technical codes and safety standards for secure blending and end-use.
4) **Support pilot projects:** Actively support pilot projects to generate empirical data, inform regulatory design, and demonstrate system compatibility; share best practices through regional platforms.

Medium-Term Priorities (3–4 Years)

1) **Implement targeted economic incentives:** Introduce or scale up economic mechanisms such as fixed premiums, green tariffs, capital subsidies, and tax incentives to stimulate early-stage investment and reduce investor risk.
2) **Strengthen gas-electricity sector coordination:** Institutionalize coordination between gas and electricity sectors to support sector coupling and participate in regional initiatives for common blending standards and market integration.
3) **Incorporate emissions reduction estimates into national planning:** Embed emissions reduction estimates in national planning, supported by clear methodologies and data collection tools, to enhance credibility and support access to climate finance.

THANK YOU FOR YOUR ATTENTION!