

The EU gas infrastructure: fostering a secure, safe, & affordable hydrogen economy



EEF Debate
9 November 2021

Online meeting

EU association of gas infrastructure operators

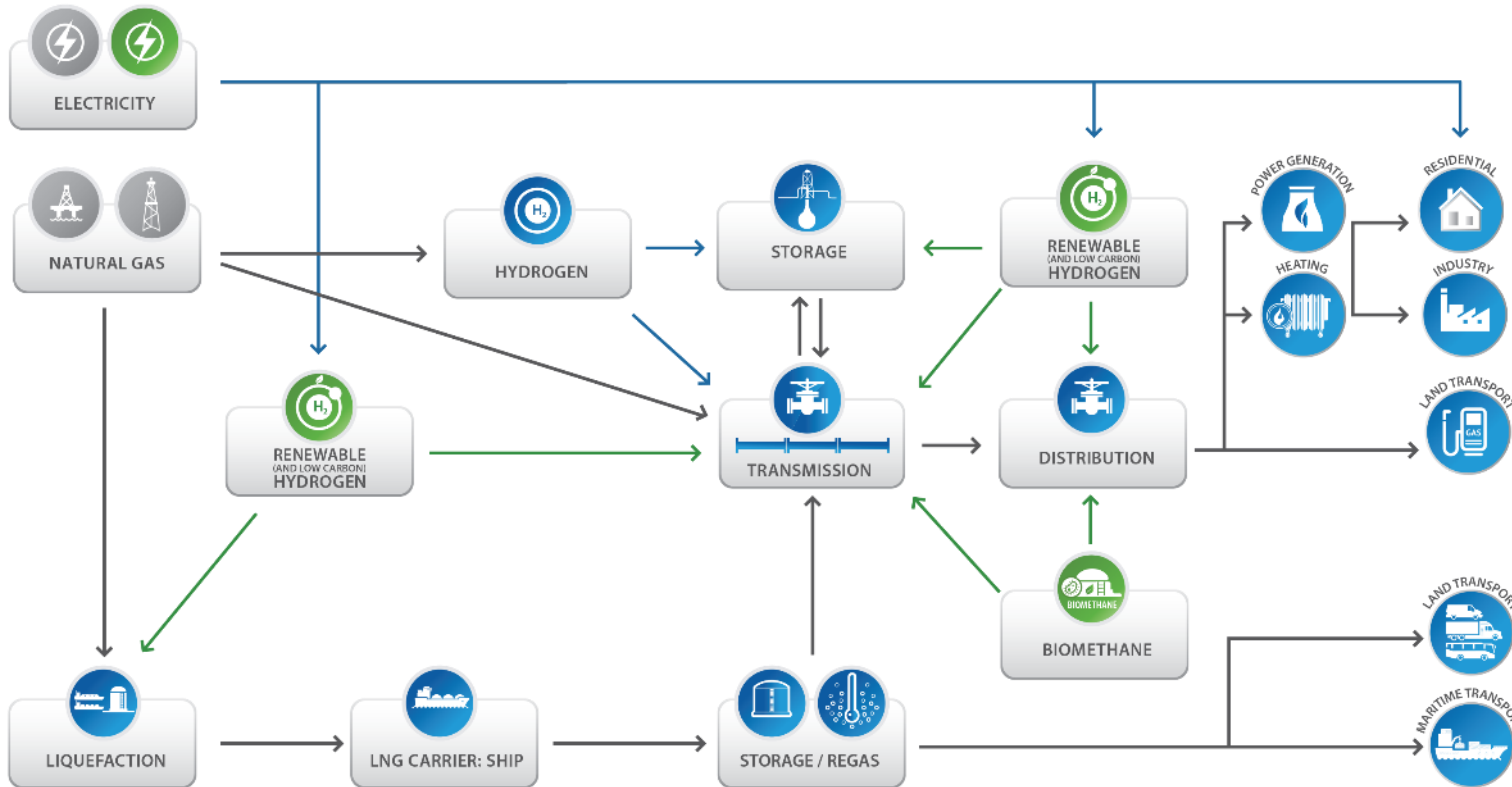
Pipelines, underground storage & LNG terminals

Around 70 companies from 27 European countries

no one-size fits all



GIE contributes to the debate by providing perspectives from **TSO** and **SSO** and **LSO**!




Hydrogen has the benefit that it can be developed along several pathways like **clusters**, dedicated **backbones** or **blending**, reflecting national starting points!

What is on the agenda for today?

Benefits of the existing gas infrastructure



Elements of the **regulatory** environment



GIE **policy** recommendations

Different pathways to integrate hydrogen



Retrofitting



- Enables hydrogen to be blended into natural gas
- (De)blending to enable quick decarbonisation wins and scale-up of (de)centralised hydrogen production / technologies
- Cost-effective transitional solution in several EU countries

Repurposing



- Using existing gas infrastructure to transport, store and import and export 100% hydrogen
- Cost- and time savings
- Minimise need for new energy infrastructure

Building new infrastructure



- Connecting hydrogen supply and demand
- Infrastructure companies have the expertise to build, own and operate hydrogen infrastructure

Options to integrate hydrogen



Transmission Pipelines

- Transport 22% of all EU primary energy
- Single hydrogen pipeline can transport **10-20 times more energy** than an electricity cable¹
- Repurposing pipelines at **10-35% of costs** that would be required for newly built hydrogen pipeline²



Storage Sites

- GIE storages at 1150 TWh
- Salt caverns, depleted fields and aquifers in the EU could already today have a theoretical potential of storing at least **60 TWh** hydrogen³
- Gas storages are at least **100 times cheaper** than electricity storage costs in batteries⁴



LNG Terminals

- Current LNG import capacity more than 2000 TWh
- Retrofitting and repurposing LNG Terminals at lower costs (compared to investments into new terminals) that contribute to enable the intra-EU trade and non-EU imports and **exports of hydrogen and hydrogen carriers**

1) https://static1.squarespace.com/static/5d3f0387728026000121b2a2/t/5e85aa53179bb450f86a4efb/1585818266517/2020-04-01_Dii_Hydrogen_Studie2020_v13_SP.pdf

2) https://gasforclimate2050.eu/sdm_downloads/european-hydrogen-backbone/

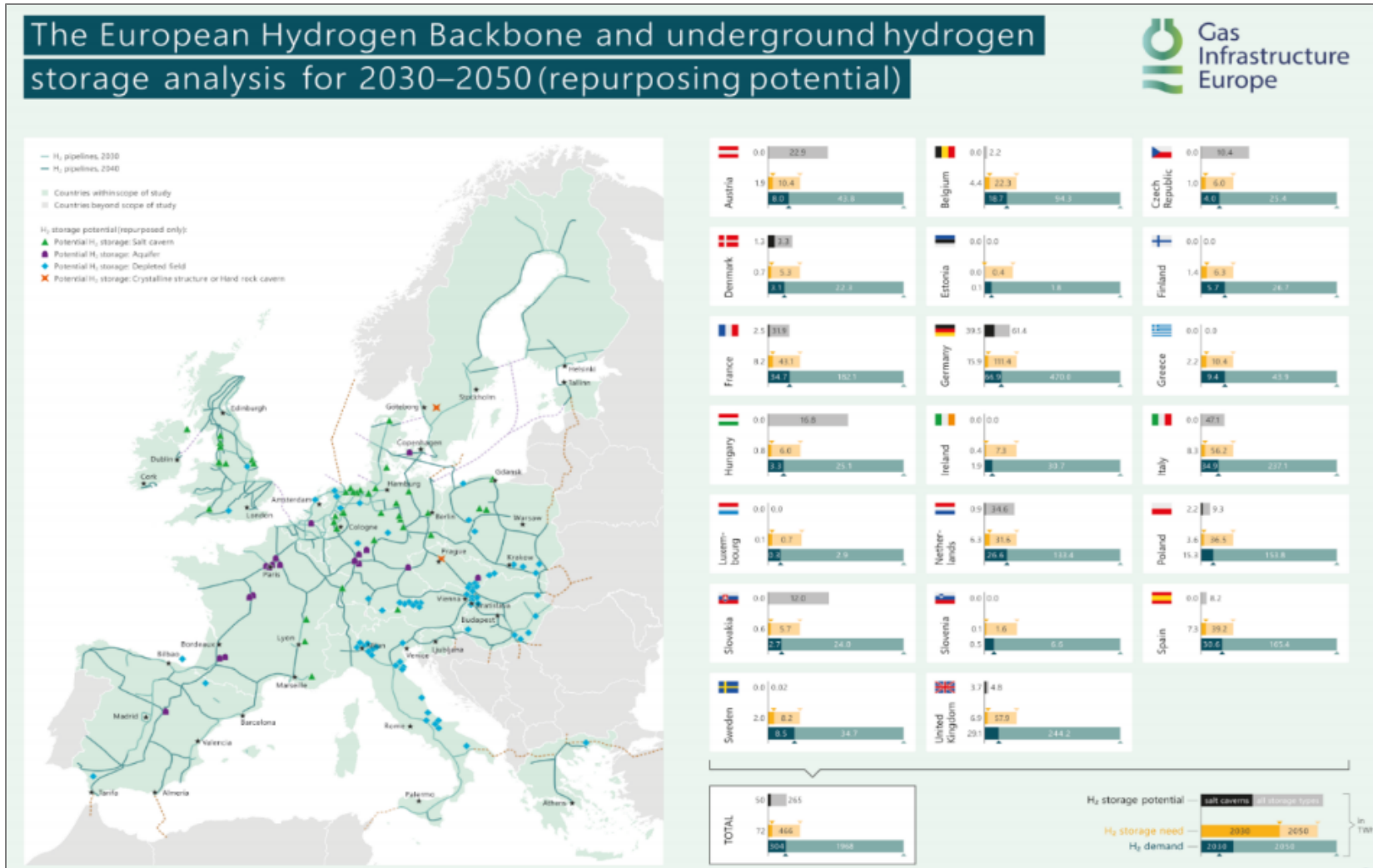
3) <https://gie.eu/index.php/gie-publications/databases/storage-database>

4) https://static1.squarespace.com/static/5d3f0387728026000121b2a2/t/5e85aa53179bb450f86a4efb/1585818266517/2020-04-01_Dii_Hydrogen_Studie2020_v13_SP.pdf

- Benefits of the entire existing gas infrastructure show a complete picture where **synergies** exist due to the **interconnections** between pipeline, storage, and LNG infrastructure
- Gas infrastructure operators have the **ability and experience** to reliably and safely transport, store and import hydrogen

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- Large **cost- and time savings** for society
 - minimising the need for **constructing** new types of energy infrastructure
 - ➔ **Increasing the social acceptance of the energy transition**

Storages value creation in hydrogen requires EU regulatory change (remuneration in new value chains)



- 39,700 km pipeline network by 2040 across 21 European countries
- Hydrogen storage demand of 450 TWh in 2050 (with a predicted demand of 2,110 TWh)

GIE calls for a **coherent legislative framework** with the **existing EU Gas legislation!**



- Avoid inconsistent roles and responsibilities and definitions of regulatory principles to be set for the hydrogen market.
- **Leave Member States more flexibility** to apply the appropriate regulatory environment to scale up the national and regional hydrogen markets depending on the market developments.
- Acknowledge and enable the **crucial role of infrastructure operators** to contribute to the EU climate targets by being allowed to **retrofit, repurpose and newly build and consequently own and operate their infrastructure.**



GIE calls for a **dynamic regulatory approach** at European level!



- **Dynamic regulation** evolving with the market & infrastructure development stages
- Consider the basic principles of the regulation for electricity and natural gas **to be extended to the regulation of hydrogen** from the outset, including:



- The principle of unbundling from vertically integrated activities
- Third-Party-Access to the hydrogen infrastructure for all market users
- Based on transparent and non-discriminatory access rules
- Taking into account the specifics of regional hydrogen markets

GIE calls for a **financial framework** that guarantees support for **infrastructure conversion** and **construction of new infrastructure!**

- Accounting rules for gas and hydrogen infrastructure should allow a **transparent mutualisation of costs** between the different parts of the wider energy system – including gas and hydrogen infrastructure – to ensure **cost-reflective and stable tariffs for using the gas and hydrogen infrastructure in the long run** for the benefit of all energy users.
- Especially when scaling up a hydrogen infrastructure, a coordinated energy system and network planning between electricity, gas and hydrogen infrastructure should be the central mode for identifying the necessary infrastructure needs, **allowing for 'Member States' to choose on the right remuneration model at national level.**



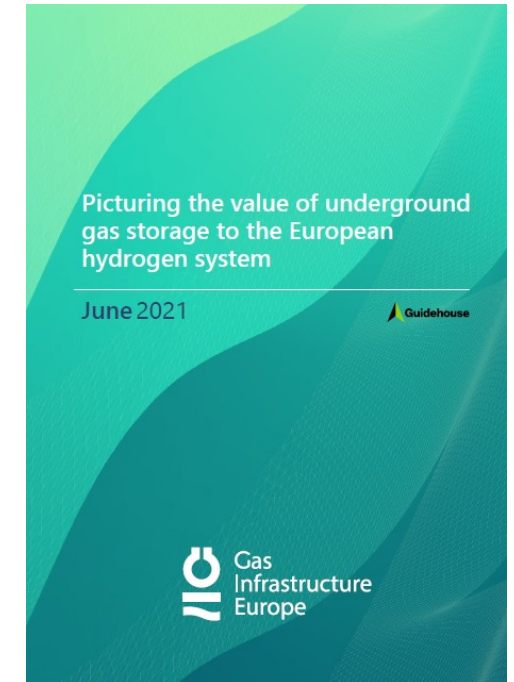
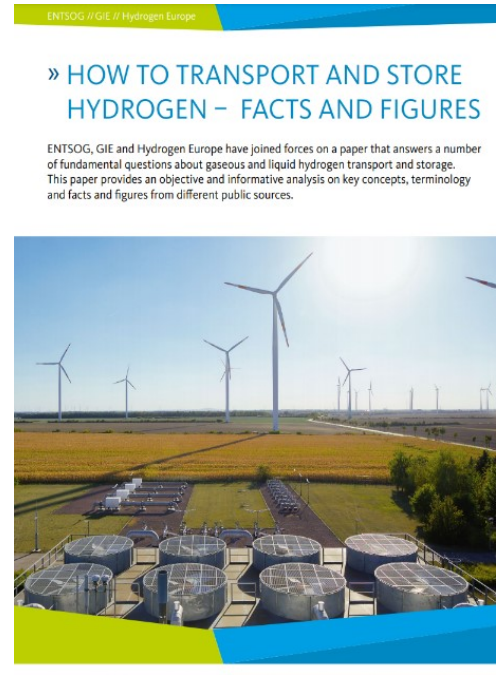
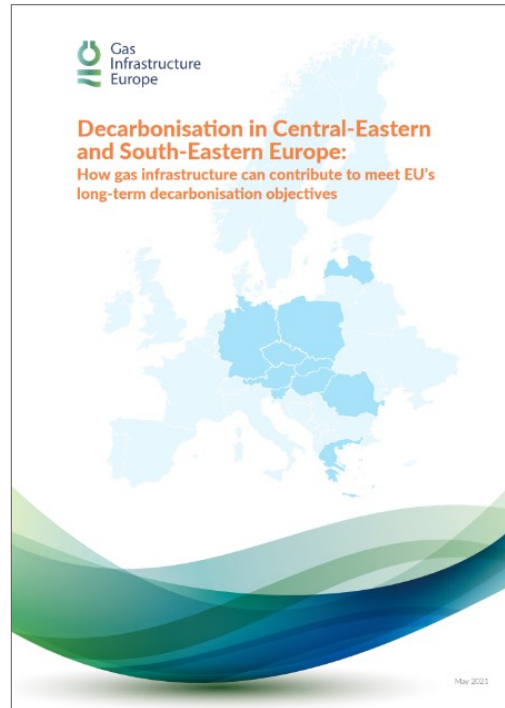
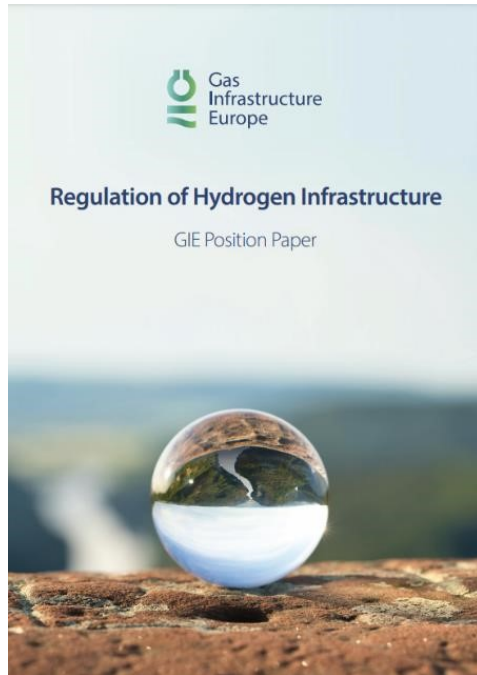
GIE calls for a **level-playing field** for gas infrastructure operators to be **central actors** in the energy transition process!



- In fulfilling the current EU legislation, it is crucial that gas infrastructure operators, including TSOs, will be allowed to **participate in decarbonisation activities**, supporting the development of innovative technology facilities (including power-to-gas-facilities).
- Implementation of **national regulatory sandboxes** in the revised legislation may represent a first application to support innovative initiatives.

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