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ACER Report on Hydrogen, Biomethane, and Related Network Adaptations

***Transport & Energy Community Workshop:
Interlinks between Energy and Transport
Juan Lopez – Gas Department
21 October 2020***

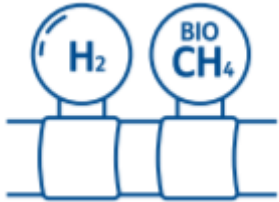
- Why this Report?
- Findings
- Main takeaways

The Report is available at: [link](#)

Published on 10 July, with info collected as of 20 May 2020

Investigate gas network adaptations for ET

*"Is gas **transmission** infrastructure in EU ready to allow new de-c/low-c gases (H2 and biomethane)?"*



By 2050 "green gases" (H2 and bioCH4) ~ 30% to 70% of total gas use



BLENDING



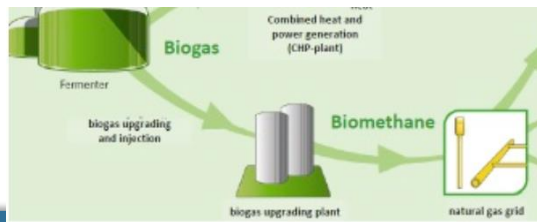
H2 TSO acceptance, blending limits/targets, EU vs. national approach, type of injection, connection points, treatment in network plans

100%

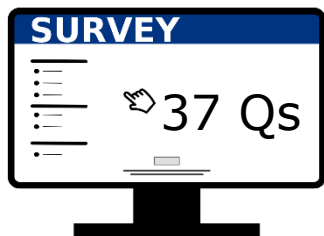
HYDROGEN



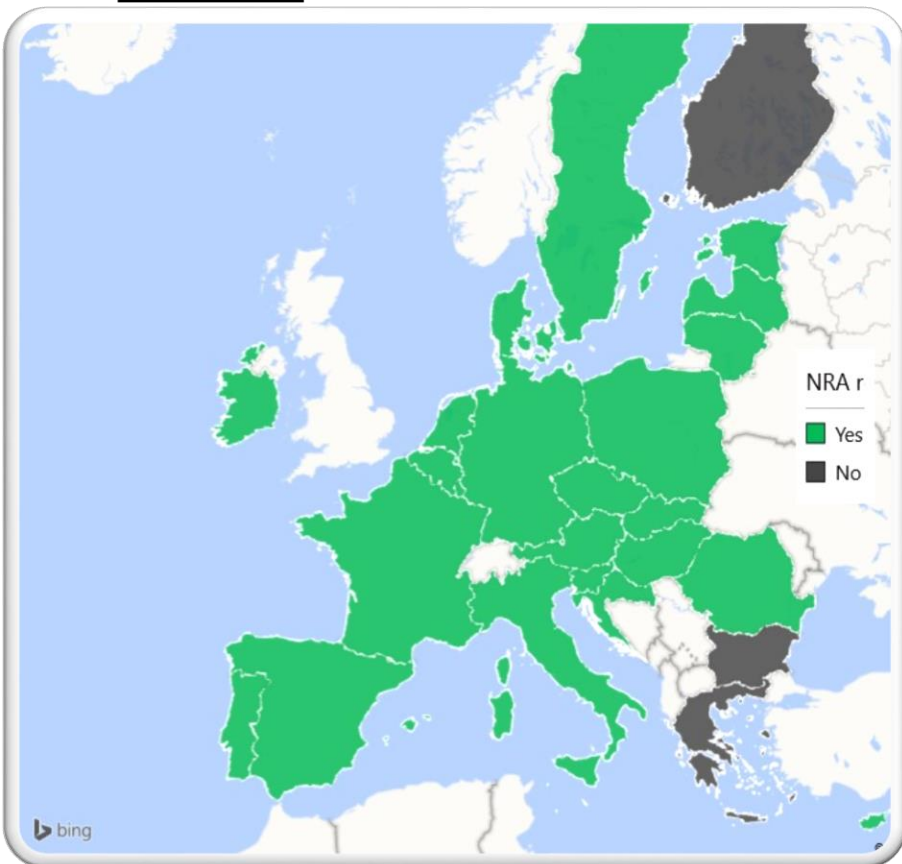
Networks regulation, national H2 strategies, operators, electrolysers ownership



BioCH4 injections, capacities, connection points, roles of producers/DSO/TSO



**23 NRAs
(85%)**



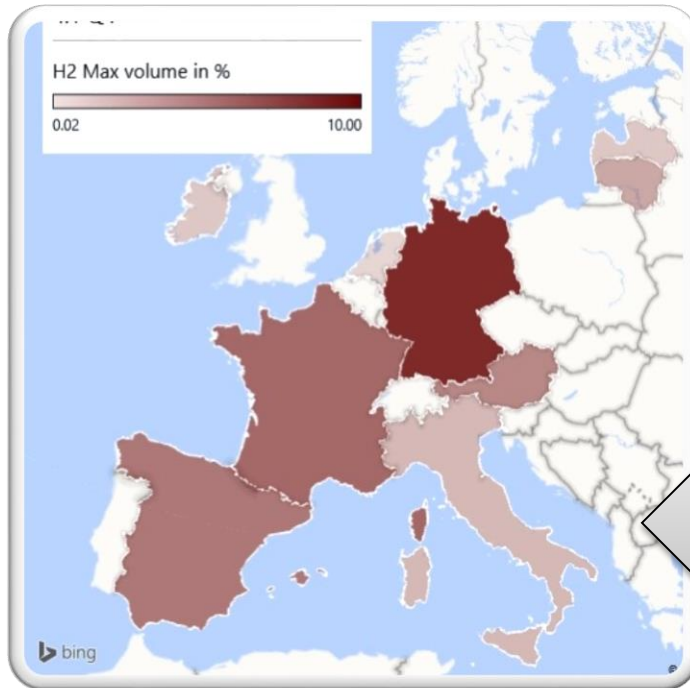
NRA Survey on Hydrogen, Biomethane, and Related Network Adaptations

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DISCLAIMER

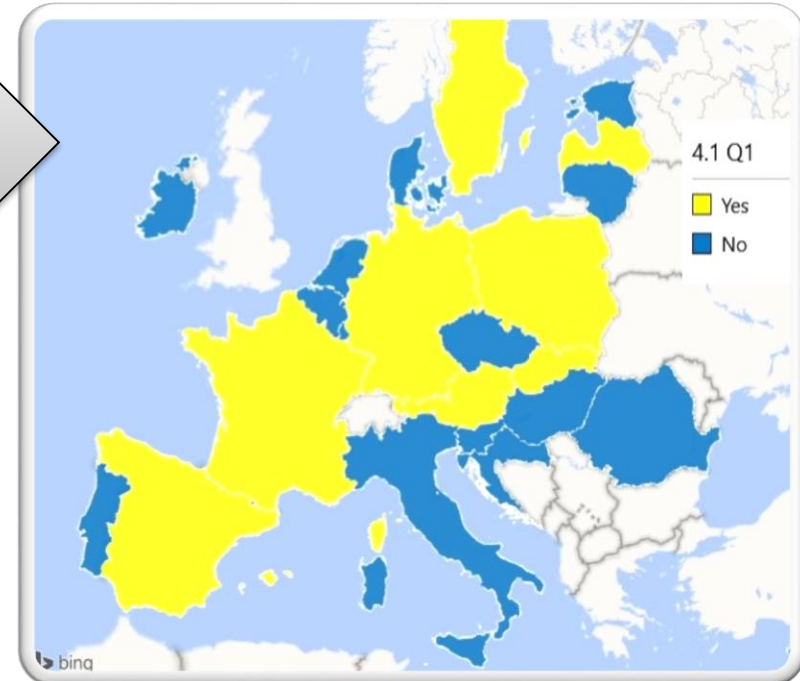
*This Evaluation of Responses Report ("Report") has been prepared by using information provided by NRAs. It aims to provide a **snapshot of the status quo** as of May 2020. The information contained in the Report may have changed or be outdated. **ACER and NRAs provide this information on a "best effort" basis, but cannot guarantee the accuracy, the consistency or the completeness of the information included in the Report.** Neither ACER*

TSO H2 acceptance, limits, projects



TSO H2
acceptance

Max. H2 limits
(*)



- Safety and **tolerances of network and end-use equipment** main reasons for **setting H2 limits**
- **Most MS do not offer specific incentives for TSOs for H2 projects**, but in some MS ongoing consultations
- **9 NRAs** report **projects to increase H2 acceptance** at TSO level.

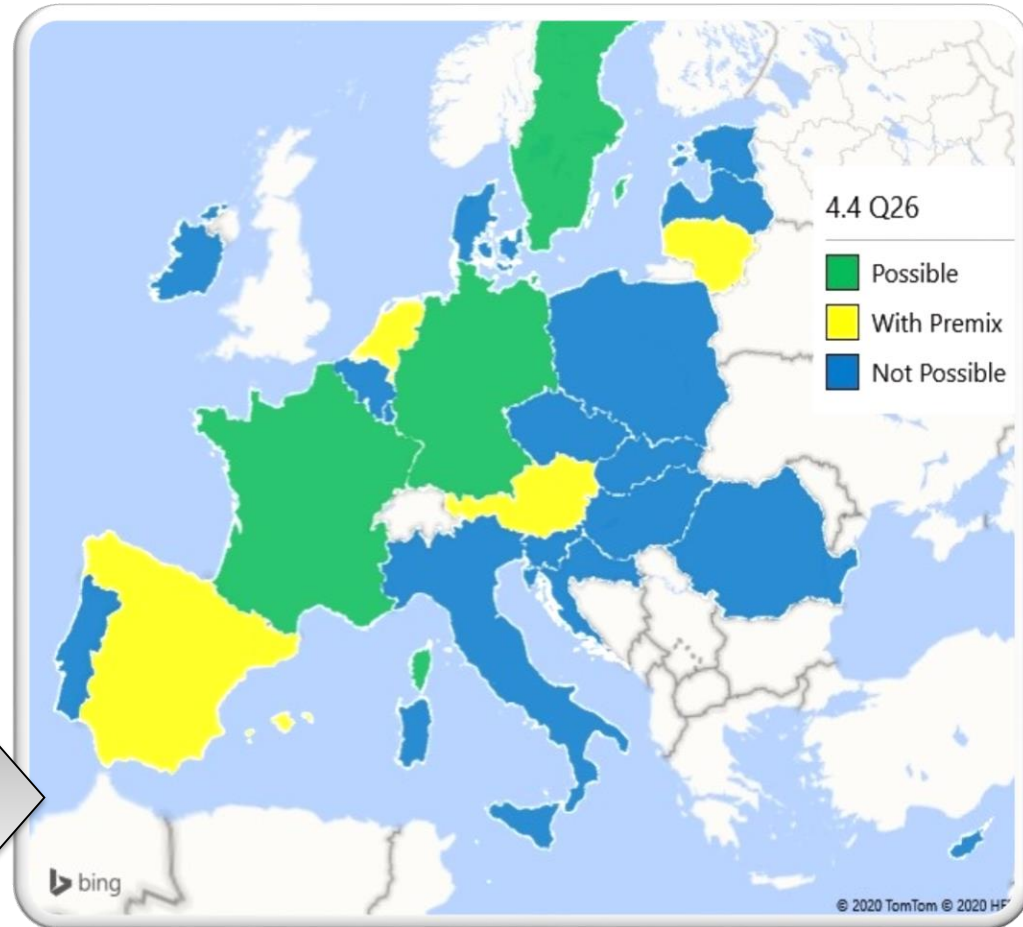
(*)H2% limits are max. level for some sections. E.g. in DE , 10% is only allowed if no "sensitive" customer is connected (NG filling station); in IT, the H2 % is in biomethane injections; in ES, 5% is allowed in the "non-conventional" gases. See report for details.

TSO H2 blending targets, cooperation, EU approach

- **No MS H2 blending targets**, but ongoing discussions
- H2% limits not yet part of interconnection agreements
- **90% of NRAs** mostly agree that **H2 blending limits** should be **decided at EU level** if **different H2 blending limits** at transmission level would **be a barrier** for trading
- Creating **100% H2 networks** is the way to **optimise the economic value of H2**.
- **H2 blending temporary / transitional**
- H2 blending and 100% H2 networks not mutually exclusive (parallel development possible)

Type of H2 injection and projects

- Most MS did not (yet) start discussions on **location of H2 injection points**
 - Most **projects are “pilots”**, sometimes in partnership with the TSO
 - H2 small concentrations possible even if H2 not injected (gas imported)
- Type of H2 injection:
- » Premix of gases
 - » Direct injection

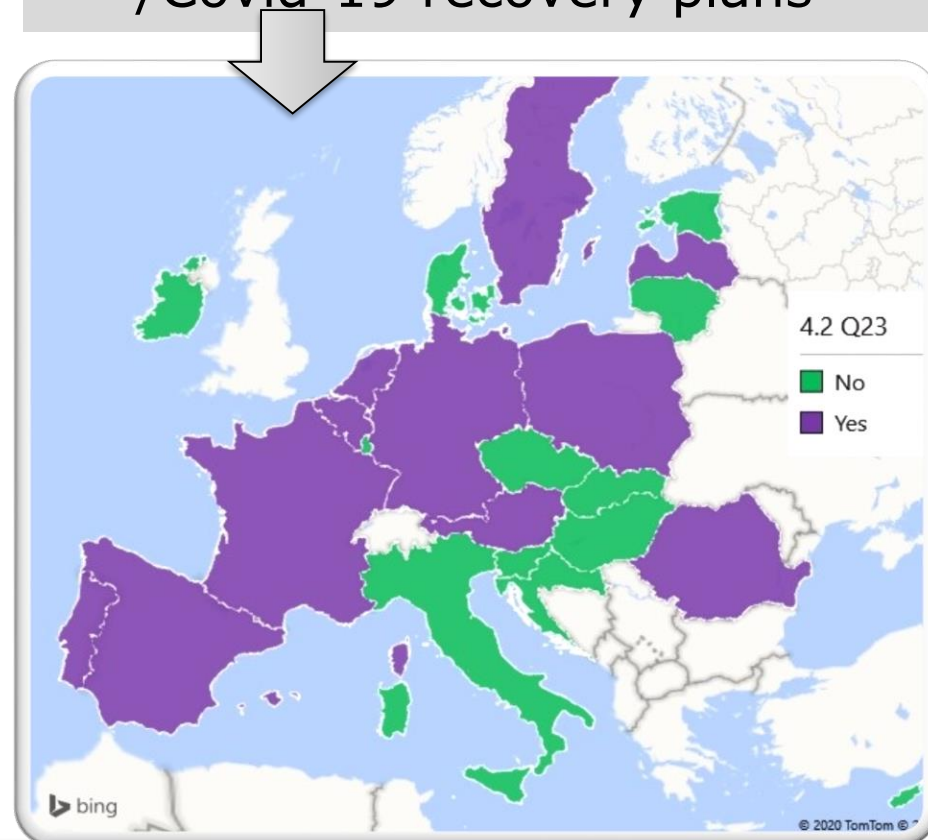


100 % H2 networks & regulation

- BE, FR, DE, NL have **100% H2 non-regulated networks for industrial purposes** (e.g. supply to refineries), operated by private entities (e.g. Linde, Air Liquide).
- Only few MS report plans to develop 100% H2 pipelines/networks
- Regulatory framework is generally not (yet) available, to be steered by clear policy vision on H2.
- Unbundling issues intervene in the role of TSOs regarding H2

H2 strategies

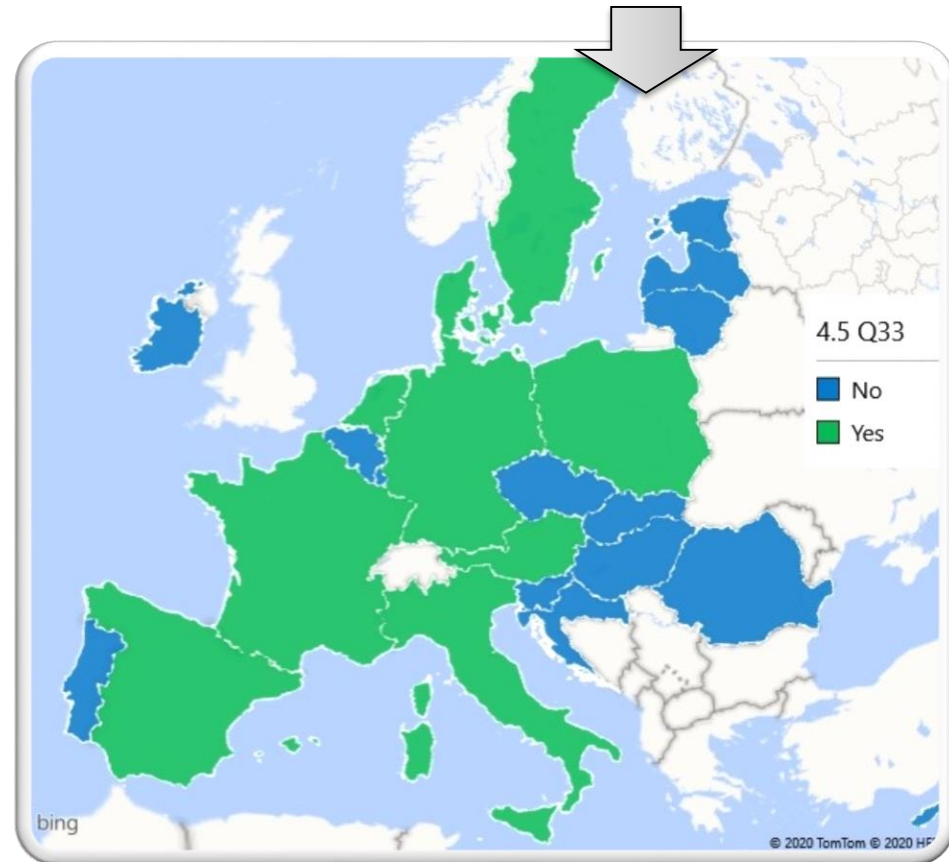
- H2 strategies (published, or under development), including as part of NECPs /Covid-19 recovery plans



Biomethane acceptance

- **Injection of biomethane (\sim CH₄) appears not to be problematic**
- DK, FR, DE, IT, ES, NL and SE have injections of biomethane at TSO level
- 7 NRAs report investments in NDPs to allow/increase biomethane injections
- 15 NRAs report network operators obligations to provide a connection point for biomethane injection
- Biogas producers generally responsible for gas quality upgrading

Is there reverse flow (from distribution to transmission grid) and/or direct injection from biogas /biomethane plant?



- **Readiness** of gas transmission networks to accept H2 or biomethane is **very diverse across the EU**.
- **Developments** are at an early stage, driven mainly by pilot projects.
- Most NRAs would support an **EU-wide approach** for setting **H2 admixing limits**, in pursuit of smooth x-border gas flows & trading
- **100% H2 networks** could **be built in parallel** with **blending of H2**, depending on specific market and network situation.
- **Gas quality standards** (network, IPs) may need to be revised to ensure **interoperability** of H2 admixtures across borders
- **Needed network adaptations** and investments (H2 metering, CS configurations, injection facilities for H2 and biomethane) **deserve greater attention in network plans**.
- **H2 blending** would not initially require major changes in the current market design and legislation.

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Thanks for your attention