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ACER Report on Hydrogen, Biomethane, and Related Network Adaptations

Transport & Energy Community Workshop: Interlinks between Energy and Transport
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Why this Report?
Findings
Main takeaways

The Report is available at: link
Published on 10 July, with info collected as of 20 May 2020
Why this ACER Report?

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

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

Networks regulation, national H2 strategies, operators, electrolysers ownership

BioCH4 injections, capacities, connection points, roles of producers/DSO/TSO
Information collected from NRAs

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 The information contained in the Report may have changed or be outdated.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...
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)
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 and projects:**

- Premix of gases
- Direct injection
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.
Biomethane injection

Biomethane acceptance

- Injection of biomethane ($\approx$ 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?
Main Takeaways

- **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