Shaping the ERCST's feedback on the HYDROGEN and decarbonised gas package

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ERCST

Roundtable on
Climate Change and
Sustainable Transition

Structure and context

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- **Is the proposed definition for low-carbon hydrogen aligned with the targets in the hydrogen strategy/Repower EU?**

- **Does proposed regulatory framework encourage/address hydrogen imports?**

- **Is there an excesive use of regulation for hydrogen transportation pipelines given the nascent state of play of the EU hydrogen economy?**

Low-carbon hydrogen in the pre-legislative stage

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- **European Commission Strategy (July 2020):** in the short/medium-term other forms of low-carbon H2 are needed to quickly reduce emissions from the existing H2 production and to support the development of a viable market at scale.
- **Council Conclusions (December 2020):** recognizes a temporary and complementary role for low-carbon hydrogen.
- **European Parliament Resolution (May 2021):** recognises different forms of hydrogen on the market, including low-carbon, which will have a role as a “bridging technology”

Why are definitions important?

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- **A definition for low-carbon hydrogen in a piece of legislation implies its legal recognition which is important for three main reasons:**
- **Definitions represent the starting point where incentives are rooted**
  - Rev. **Energy Taxation Directive:** lowest minimum rate € 0,15/GJ also for low-carbon hydrogen.
- **Definitions represent the basis for certification schemes**
  - A parallel to the renewable fuels certification framework has been proposed for low-carbon fuels. Gas Directive refers to Art. 30 of RED.
- **Definitions are also important from a State Aid perspective.**
  - **Guidelines for Energy and Climate:** Aid for the reduction and removal of greenhouse gas emissions and energy efficiency includes low-carbon hydrogen (Recital 87).

A definition for low-carbon hydrogen

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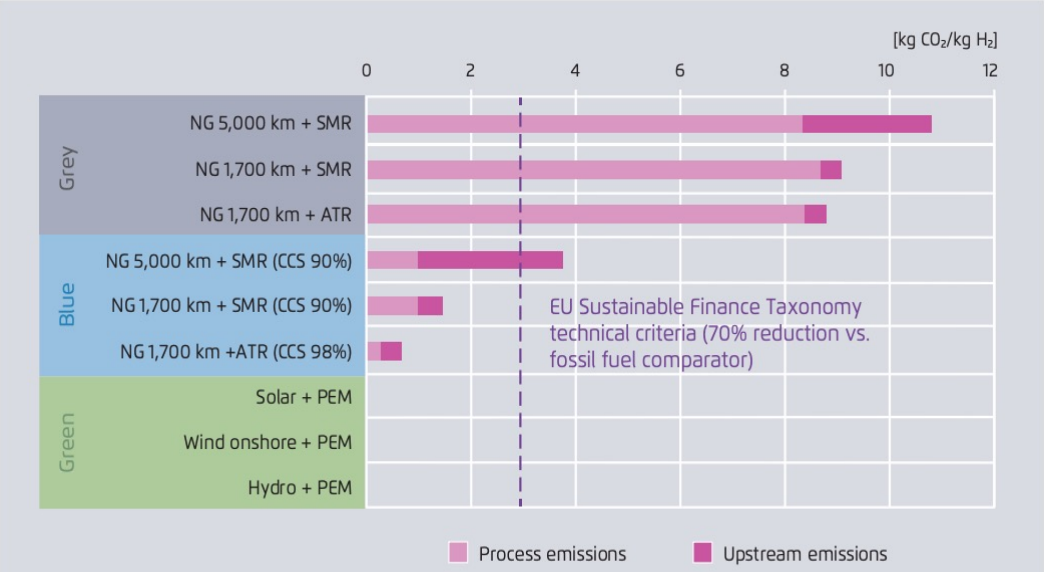
- **Definition of low-carbon hydrogen in the H2 and Gas package:** hydrogen the energy content of which is derived from non-renewable sources and which meets a greenhouse gas emission reduction threshold of [70%].

Lifecycle GHG emissions of hydrogen production pathways on a GWP 20 basis, 2050 Figure 26



Source: Agora Energiewende *The energy production includes upstream methane emissions and has leakage rates of 0.15–1.2% based on fossil gas source and transport distance. H2 production refers to process emissions from SMR/ATR. GHG emissions for capex are due to carbon emissions associated with grid electricity used to manufacture equipment.*

The definition is incompleate creates uncertainty for investments and weakens the role of low-carbon hydrogen

Pros	Cons
It takes a technology neutral approach	It is incomplete, it refers to GHG emission reduction threshold, however the scope of the emissions is not specified
It includes a green-house gas emission threshold	Recital 9 of the Directive also acknowledges that such threshold should become more stringent for installation starting operations from 2031
It addresses the importance of non-renewable hydrogen types	The definition framework is incomplete (e.g., Biomass pyrolysis, Methane Pyrolysis using renewable electricity)

Mismatch with the EC ambitions

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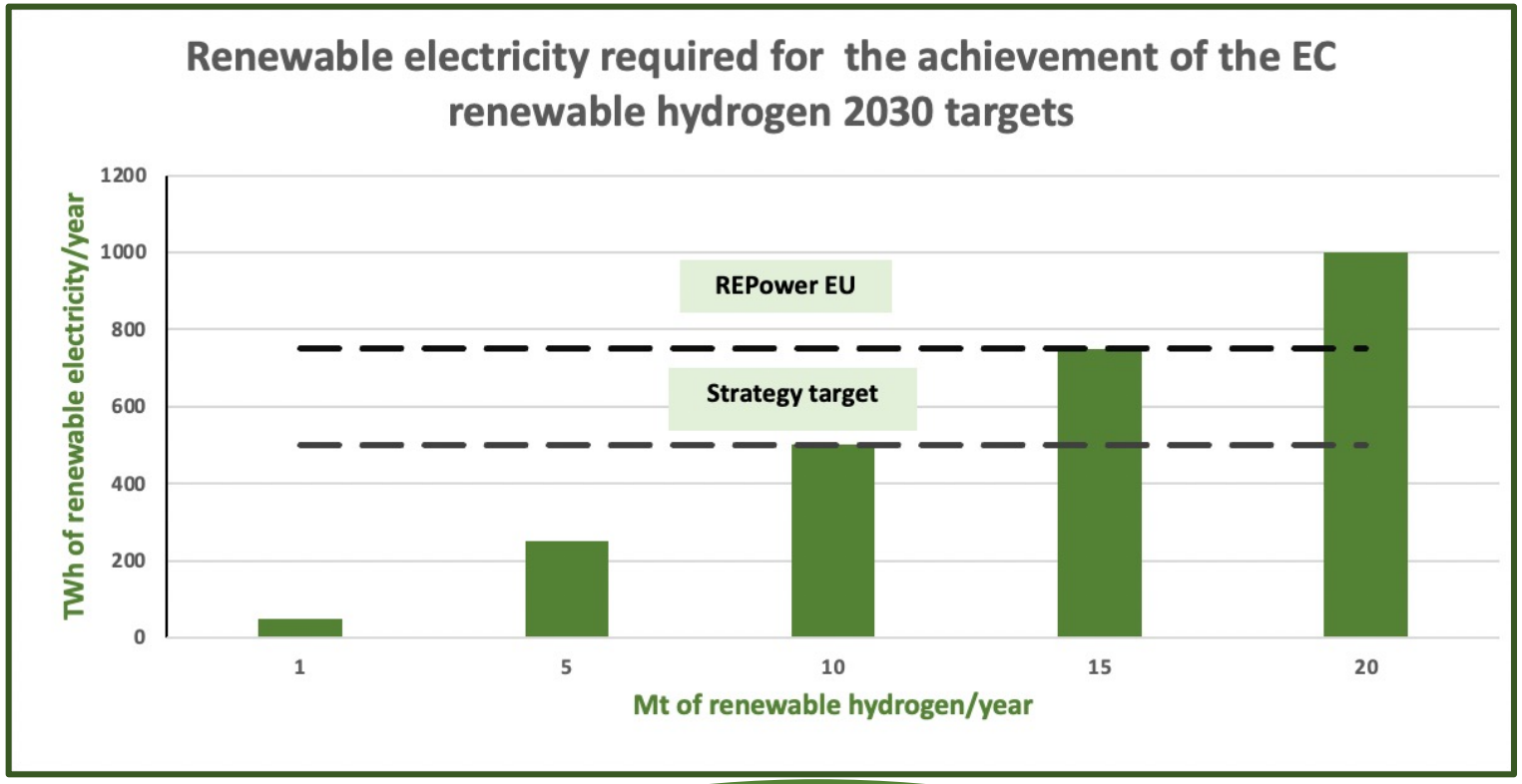
Given the potential scarcity of renewable electricity, other types of hydrogen will be needed in order to:

- Rapidly reduce emissions from the current hydrogen production responsible for 70-100 million tonnes of CO_2 annually
- Rump-up the market and contribute to the creation of economies of scale



To produce 15 Mt/year of RES H2 almost 800 TWh year of RES electricity is needed

Hydrogen imports vs hydrogen made-in EU

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- **Not fully addressed in the proposed hydrogen regulatory framework so far**
- The European Commission had taken a cautious approach until a couple of weeks ago. It acknowledged that EU hydrogen imports from third countries may depend on how competitive the hydrogen produced in the EU will be (Impact Assessment of the H2 and Gas package)
- **Timmermans at the EU-Africa business forum:** *"We want you to be leaders in renewable hydrogen production"*
- **RepowerEU:** Refers to 10 Mt of imported renewable hydrogen
- **At the Member States' level (Germany):**
  - Set up a hydrogen import scheme and hydrogen diplomatic offices run by GIZ
  - Bilateral initiatives with third countries such as: Canada, Australia, Morocco, Namibia, South Africa

Pros and cons for H2 imports from third countries

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Pros	Cons
Foster the development of an international hydrogen market in euro	Substitution of strategic dependencies
Greater cost efficiency	Cannibalization of renewable electricity in third countries, thus leading to substantial price increases
Solving the bottleneck when it comes of renewable electricity scarcity	Decarbonisation illusion if the hydrogen imported is not certified according to EU standards
Sustainable development	Export of the final product (green ammonia, green steel, green fertilizers) putting some industries at risk
Commercial tights	

The regulation of hydrogen networks in a nutshell

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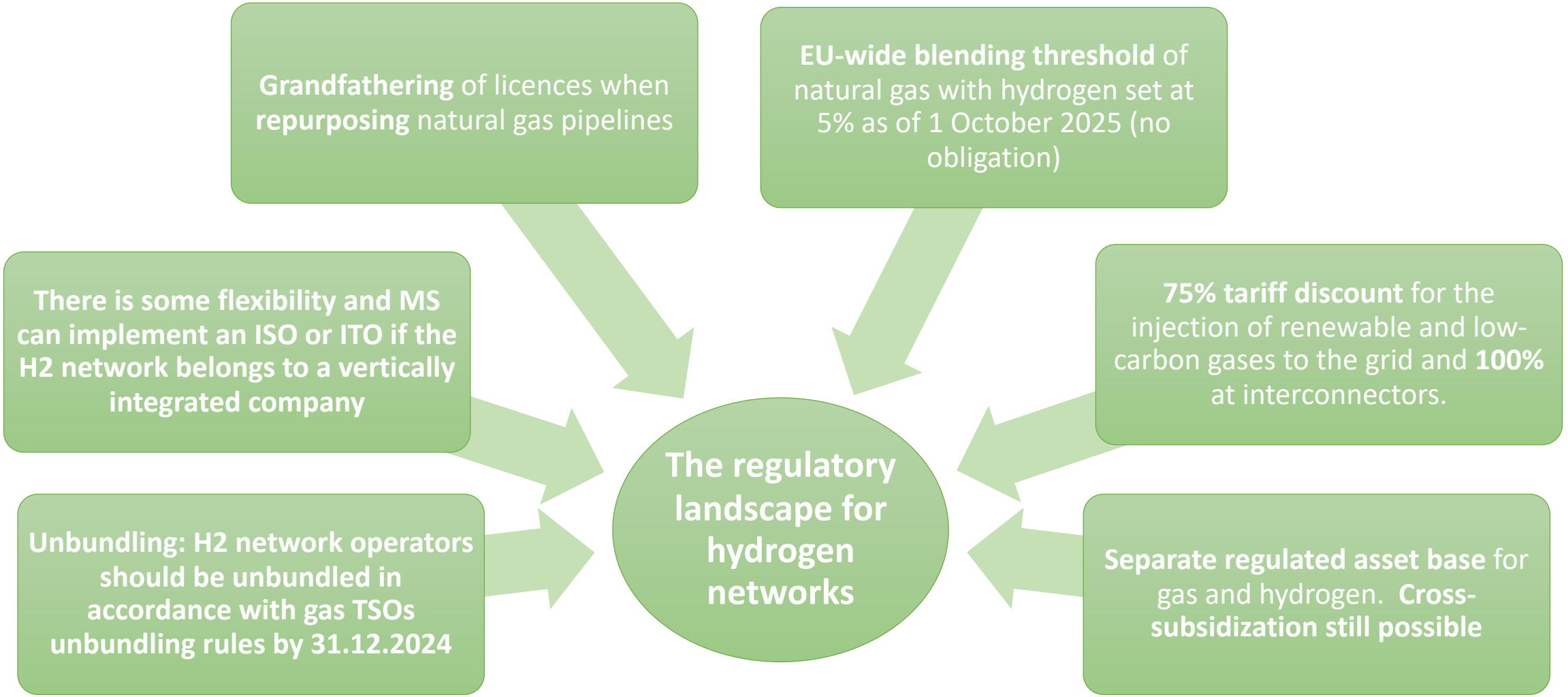

Key questions for the discussion

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• Is the propossed definition for low-carbon hydrogen aligned with the Hydrogen Strategy/RepowerEU?

• Is there an excessive use of regulation for hydrogen transportation pipelines given the nascent stage of the EU hydrogen economy?

• Is the propossed regulatory framework encouraging hydrogen imports?