HYDROGEN and decarbonised gas market package

Brussels, January 28th, 2022

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Roundtable on
Climate Change and
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Presentation Structure

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Fit for 55 Package and H_2, completing the regulatory puzzle

Background to the discussions state of play of the hydrogen and gas market in Europe

What is in the revision of the package for hydrogen

Additionality principle for renewable hydrogen

Key questions for the discussions:

Is the regulatory framework for hydrogen complete? What are the missing pieces?

Is there a comprehensive definition for low carbon hydrogen that provides certainty and supports investments in this technological landscape?

What are those elements of the regulation that despite being included may act as a regulatory bottle neck?

Are we making an excessive use of regulation? Additionality?

H2 regulatory puzzle

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Production	❖ **Binding classification (Certification production processes)** ❖ **Additionality criteria for renewable H2.** ❖ impots v. exports	❖ RED III and additionallity for RFNBOs, H2 and Gas Package for low carbon, EU Taxonomy ❖ Delegated act on RFNBOs ❖ Member States, H2 and Gas Package
Demand	❖ **Hard to abate vs. other sectors** ❖ Hydrogen purity ❖ **Hydrogen scarcity and affordability**	❖ RED III, CO_2 Stdrs. for cars and vans, Rev. EU-ETS Directive, AFIR, Refuel Maritime, Refuel Aviation ❖ Member States, H2 & Gas Package ❖ Rev. RED III, Rev. H2 and Gas Package, Rev. State Aid, EU Taxonomy, Energy Taxation Directive, CO_2 Stdrs. for Cs. and Vs
Transportation	❖ **Pace for infraestructure development** ❖ Blending ❖ Repurposing	❖ Rev. TEN-E, H2 & Gas Package, EU Taxonomy, MS level ❖ Rev. TEN-E, H2 & Gas Package, State Aid, EU Taxonomy, MS lev. ❖ Rev. TEN-E, H2 & Gas Package, State Aid, EU Taxonomy, MS lev.
Incentives	❖ **CCfD** ❖ **Demand mandates** ❖ **Tax rebates** ❖ Sustainable Finance ❖ State AID ❖ **Funding Mechanisms**	❖ MSs Level, ETS Directive ❖ RED III, Rev. H2 & Gas Package, MSs Level ❖ Energy Taxation Directive, Revised Stait Ids. ❖ Rev. State Aid Guidelines, IPCIs ❖ ETS Modernization & Innovation Fund, RRF, JTF, Horizon Europe, CEF, EIB financing

Renewable and low carbon gases in the exisiting gas infrastructure an markets

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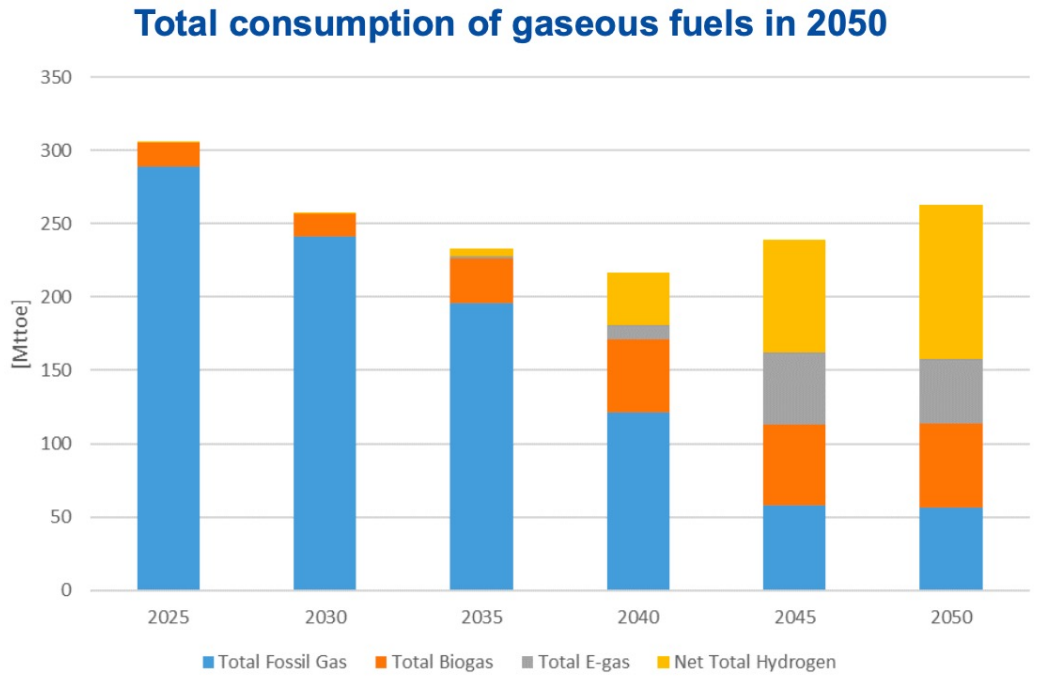
- **Gaseous fuels will represent approximately 20% of final energy consumption in 2050.**
- Decarbonizing current gas consumption will be key.
- **EC focus on:** biogas, biomethane, renewable and low-carbon hydrogen as well as synthetic methane.
- **Problem:** Decarbonised gases have significantly higher levelized costs of energy compared to natural gas.



Source: PRIMES, MIX scenario

Source: Impact assessment EU Commission

The package in a nutshell

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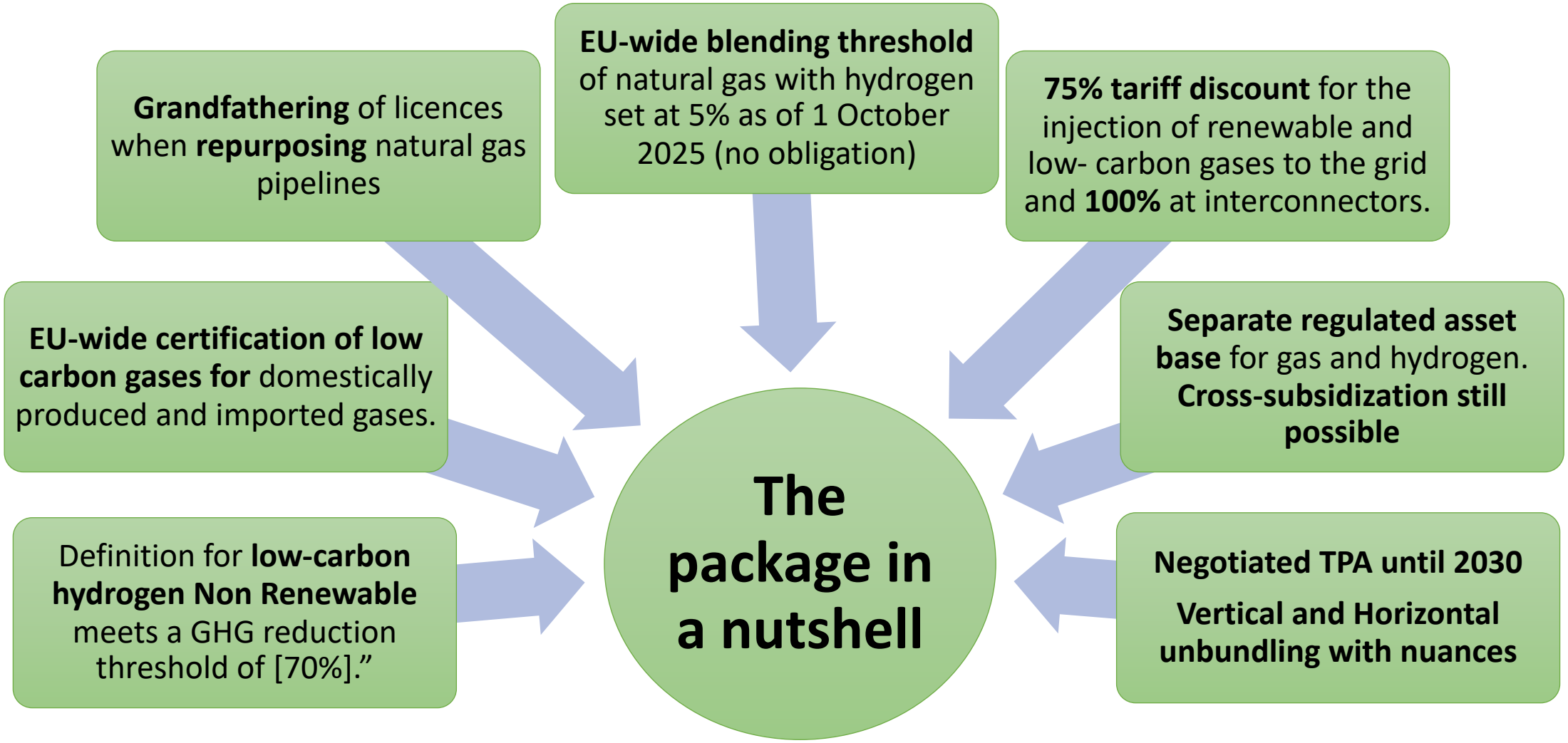

A definition for Low-Carbon Hydrogen in the package

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- The EC hydrogen strategy acknowledges that while renewable hydrogen is the priority it will not be enough to achieve the strategy targets.
- **Other forms of low-carbon hydrogen are needed at least in the transition**.
- **Colours will come with money** or in other words, definitions are needed as the basis for the development of support mechanisms/incentives. They are also important from an State Aid perspective.
- **Low Carbon hydrogen definition:** low-carbon hydrogen means hydrogen the energy content of which is derived from non-renewable sources, which meets a greenhouse gas emission reduction threshold of [70%].”
  - The exact methodology to assess emissions for low-carbon hydrogen will be developed through a Delegated Act adopted by the end of 2024.

Pros and cons of the proposed low-carbon hydrogen definition

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Pros	Cons
• **It takes a technology neutral approach** • **It includes a clear green-house gas emission threshold** • **It addresses the importance of non-renewable hydrogen types** **But…**	• **It is incomplete**: The exact methodology to assess emissions for low-carbon hydrogen will be developed through a Delegated Act adopted by the end of 2024 • **It may create uncertainty** for investments • Do not sufficiently acknowledge other types of hydrogen that capture emissions such as **methane pyrolysis delivering a net increase in emissions.**

A Certification system for Low-Carbon hydrogen (Art. 8 Directive)

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- Renewable gases shall be certified in accordance with Article 29 and 30 of Directive (EU) 2018/2001 (RED).
- Certification based on a life-cycle emissions approach.
- The exact methodology to assess emissions for low-carbon hydrogen will be developed through a Delegated Act adopted by the end of 2024. (Art. 8.5. D)

Third party access and vertical unbundling

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- The proposal provides that access to the hydrogen transmission networks should be subject to regulated **Third Party Access** and provide flexibility until 2030 (Art. 31 D).
- **Vertical unbundling**: VU addresses the question whether a hydrogen TSO should be allowed to own and operate a hydrogen production facility as well as the grid.
- Member States shall ensure that by 31 December 2024, hydrogen network operators are unbundled.
- There is however, **some flexibility** (Art. 62 D): if the hydrogen network belongs to a vertically integrated company, MS may implement an ownership unbundling model but also have the option to choose ISO or ITO.

Horizontal unbundling, RAB and cross-subsidisation

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- If a network operator provides regulated services for gas, hydrogen and/or electricity, it will need to have **separate regulated asset bases** (RAB). (Art. 4 R)
- However, **MS can allow financial transfers from one RAB to another** after compliance with some pre-defined requirements. (Art. 4.2 R)
- **Cross-subsidization:** The proposal acknowledges that it could bring benefits in particular during earlier phases of network development and contribute to an investment climate supportive with the EU decarbonisation objectives. (Recital 47 R)

Blending and repurposing

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- **Blending:** The proposed Regulation allows some flexibility to Member States as to whether they would allow blending of hydrogen into their natural gas system.
- **Introduction of a 5% cap** (no obligation) for hydrogen blends at interconnection points between Member States. Voluntary agreements for higher blends still possible.
- **Repurposing:** Gas network operators shall include information on infrastructure that can or will be decommissioned (and could potentially be repurposed for transport of hydrogen).
- Hydrogen network operators shall include information on the extent to which repurposed natural gas pipelines will be used for the transport of hydrogen.

Network planing and ENNOH

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- The proposed Directive **encourages a single network development plan at national level** for all network operators aligned with: (Art. 51 D)
  - NECPs (National Energy and Climate Plans) and
  - Union TYNDP (Ten Year Network Development Plan)
- **ENNOH:** The proposed Regulation provides for the establishment of an European Network of Network Operators for Hydrogen (ENNOH) following the creation of a temporary platform led by the EC for support. (Art 40, 41 42 R)

Additionality principle for renewable hydrogen

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- In short, the additionality principle **is a measure intended to ensure that renewable electricity is not re-directed from the power grid, to be used for the decarbonization of other sectors.**
- Delegated act on RFNBOs will shed more light on this issue and **complete the definition for renewable hydrogen.**
- Latest leaked version of the delegated act provides wider leeway but probably not enough to avoid a bottle neck effect?

Key questions for the discussion

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Is the regulatory framework for hydrogen complete? What are the missing pieces?

Is there a comprehensive definition for low carbon hydrogen that provides certainty and supports investments in this technological landscape?

What are those elements of the regulation that despite being included may act as a bottle neck?

Are we making an excessive use of regulation vis a vis market-based instruments such as carbon pricing?

More specifically, could the upcoming delegated act on Renewable Fuels of Non Biological Origin (RFNBO) act as a bottleneck/barrier for the deployment of a hydrogen economy?