



ITRE REPORT ON HYDROGEN AND THE ROLE OF LOW CARBON HYDROGEN IN THE TRANSITION

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ERCST

Roundtable on
Climate Change and
Sustainable Transition

What is the Role of Low Carbon Hydrogen

- To understand the role of low carbon hydrogen in the transition there is the need to understand first:
 - The EU has committed to be Climate Neutral in 2050 and to reach at least a 55% emission reduction in 2030.
 - For this reason, there is a need to decarbonize the actual hydrogen production which is mainly used in the refining and chemical industry and produced by fossil fuels releasing 70-100 million tonnes of CO₂ annually .
 - That renewable hydrogen is today not cost competitive with Low Carbon Hydrogen and fossil fuels hydrogen.

What is Low Carbon Hydrogen

- There is no legal definition
- The EC strategy defines Low-carbon Hydrogen as: *The type of hydrogen that encompasses fossil-based hydrogen with carbon capture and electricity-based hydrogen, with **significantly reduced** full life-cycle GHE compared to existing hydrogen production.*
- The EC Strategy defines also another 6 production pathways, among them **Renewable Hydrogen**, which is assimilated to Clean Hydrogen and defined as: hydrogen produced through electrolysis with electricity coming from renewables.
- In this context ITRE Report calls on the Commission to propose a legal definition based on the full *life-cycle GHE*.

Commission, Council and ITRE views on Hydrogen

- **European Commission (July 2020)**
- **Council of the EU (December 2020)**
- **ITRE Report (Published yesterday)**



European Commission: EU Hydrogen Strategy (July 2020)

- **Three phases:**
 - **1st phase (2024):** installation of at least **6 Gigawatt of renewable hydrogen** electrolyzers in the EU and production of up to **1 M tonnes of renewable hydrogen**
 - **2nd phase (2030):** H₂ becomes an intrinsic part of the EU integrated Energy System. **40 Gigawatt of renewable hydrogen** electrolyzers by 2030 and production of up to **10 M tonnes of renewable hydrogen in the EU**
 - **3rd phase (2050):** renewable hydrogen technologies should reach maturity and be deployed at large scale

ITRE report covers a wide range of topics

We will focus on:

- **Role of low carbon hydrogen**
- **The development of a hydrogen infrastructure**
- **Hydrogen demand**
- **The availability of enough renewable electricity as to fulfil renewable hydrogen demand in the future**
- **Links between Hydrogen and other regulations**



European Parliament

What is the Role of Low Carbon Hydrogen

- **European Commission Strategy:** Renewable hydrogen is the priority of the strategy, as it **has the highest decarbonisation potential** and is therefore the most compatible option with the **EU's climate neutrality goal**.
 - **In the short- and medium-term:** Other forms of low-carbon H₂ are needed to rapidly reduce emissions from existing H₂ production;
- **Council Conclusions:** Recognizes a temporarily and complementary role to renewable Hydrogen.
- **ITRE Report** also recognizes also that only renewable hydrogen can contribute to climate neutrality in the long term.
 - Calls on the Commission to assess, for how long and how much low-carbon hydrogen would be needed for decarbonisation purposes.
 - Recognizes the technology-neutrality principle.

Renewable electricity availability

- **Quantity of renewables necessary to meet green hydrogen demand**
- **Additionality issue for renewable energy**
- **Prioritization in the use of renewable hydrogen**

The development of Hydrogen Infrastructure

- **European Commission Strategy**

- Foresees different paces for infrastructure development along the 3 phases envisaged in the strategy.
- Development of hydrogen infrastructure at the pace of the market development for hydrogen.
- Talks about repurposing of part gas infrastructure in phase 2 (2024-2030)

- **ITRE Report**

- Emphasises the timely need to develop infrastructure for hydrogen production, storage and transport to incentivise adequate capacity building.
- Encourages the Commission and the Member States to make a science-based assessment on the possibility of repurposing existing gas pipelines for the transport of pure hydrogen.

Hydrogen demand

- **ITRE Report**

- The focus of the demand should be on sectors for which the use of hydrogen is close to being competitive or that currently cannot be decarbonised using other solutions.
- Agrees with the Commission that the main markets for hydrogen demand are industry, air, maritime and heavy-duty transport.
- Welcomes the Commission's consideration of various options for incentives on the demand side such:
 - Quotas for the use of renewable hydrogen in a limited number of sectors
 - Carbon Contracts for Difference for projects using renewable or low-carbon hydrogen
 - European Investment Bank guarantees

Link between hydrogen and other files

- **TEN-E Revision (Legislative):** EC has proposed the establishment of a new category of hydrogen networks.
- **TEN-T Revision (Legislative):** Is looking at fostering the deployment Hydrogen refuelling infrastructure.
- **Sustainable Mobility Strategy (Non Legislative):** The 'Recharge and Refuel' European flagship under the Recovery and Resilience Facility seeks to build half of the 1.000 hydrogen stations by 2025.
- **EU Taxonomy, Delegated acts for mitigation and adaptation (Legislative)**
- **Revision of the Directive and Regulation for gas (Legislative)**
- **Revision of the Renewable Energy Directive**
- **New Industrial Strategy**