



European Association
for Storage of Energy



EASE Brief on the Hydrogen Strategy

For EASE Members' Internal Use
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The Role of Hydrogen

The European Commission believes renewable electricity can decarbonise a large share of the EU energy consumption by 2050, but not all of it. With this in mind, the European Commission considers Hydrogen essential to support the EU's commitment to reach carbon neutrality by 2050. The Commission believes that for Hydrogen to contribute to climate neutrality, it needs to achieve a far larger scale and its production must become fully decarbonised. To do so, the Commission aims to create a market of scale, bringing costs down.

In May 2020, EASE has published a paper outlining the main business opportunities for Power-to-Gas, as well as the barriers that could obstruct its wider deployment in the EU and a set of recommendations for policymakers to support the business cases. This paper built on the previous paper on sectoral integration through Power-to-Gas/Power-to-Liquid.

Which Hydrogen?

Current production of Hydrogen is too much fossil-based. [...] Our entire strategy is geared towards supporting clean Hydrogen as much as possible and as soon as possible. This is our priority. To boost its development, renewable Hydrogen will receive premium support.

Vice-President Frans Timmermans

The priority for the EU is to develop renewable Hydrogen. In the short and medium-term, however, other forms of low-carbon Hydrogen will be supported. The Commission envisions a transition where support for low-carbon production of Hydrogen, for example via carbon capture and storage, is ensured.

How the Commission Plans to Foster Hydrogen Investments

To capitalise on the investment plans in the Hydrogen strategy, the Commission will launch the **European Clean Hydrogen Alliance**. It will bring together the industry, national, regional and local public authorities and civil society. The key deliverable of the Alliance will be to identify and build up a clear pipeline of viable investment projects.

The **Strategic Forum for Important Projects of Common European Interest (IPCEI)** will be key to promote well-coordinated or joint investments and actions across several Member States. Additionally, as part of the new recovery instrument **Next Generation EU**, the **InvestEU programme** will see its capacities more than doubled.

Other key instruments, such as the **European Regional Development Fund**, the **Cohesion Fund** and the **Just Transition Mechanism** will also be important to support this transition.

EASE has been pushing for a bigger role for energy storage in the Just Transition Fund: it is an excellent tool to decarbonise carbon-intensive areas. EASE also aims to be part of the European Clean Hydrogen Alliance, as we are currently part of the European Battery Alliance.

How the Commission Plans to Boost Demand

To create sufficient demand for clean Hydrogen, the Commission will work on common standards, certifications and terminology and pilot a **Carbon Contracts for Difference** programme to facilitate the use of clean Hydrogen in steel and chemical production. **Quotas** for specific sectors and direct market-based support schemes for renewable Hydrogen may also be needed to scale-up the use.

To connect the supply and demand, the Commission believes an appropriate infrastructure is needed, as will be discussed below.

Support Schemes for Scaling-up Hydrogen

1. The Commission is considering a **revision of the ETS (Emission Trading Scheme)**, to further incentivise production of renewable and low-carbon Hydrogen, while taking due account of the risk for sectors exposed to carbon leakage.
2. To scale-up renewable and low-carbon Hydrogen before they are cost-competitive, **support schemes** are likely to be introduced.
 - a. The Commission is looking into a tendering systems for **Carbon Contracts for Difference ('CCfD')**. Such a long-term contract with a public counterpart would remunerate the investor by paying the difference between the CO₂ strike price and the actual CO₂ price in the ETS in an explicit way, bridging the cost gap compared to conventional Hydrogen production.
 - b. Direct and **market-based support schemes** for renewable Hydrogen, allocated through competitive tenders, could be envisaged.

The Importance of Standards and Certification

The Commission plans to look into **common low-carbon threshold/standard** for the promotion of Hydrogen production installations based on their full life-cycle greenhouse gas performance, which could be defined relative to the existing ETS benchmark for Hydrogen production. In addition, it plans to prepare a comprehensive terminology and European-wide criteria for the certification of renewable and low-carbon Hydrogen.

The EU is expected to promote in multilateral fora the development of **international standards** and the setting up of common definitions and methodologies for defining overall emissions from each unit of Hydrogen produced and carried to final use as well as international sustainability criteria.

EASE agrees that certification of Hydrogen is an absolute key step, as discussed in the paper ["Recommendations on Certification of Renewable and Low-Carbon Hydrogen"](#).

The Hydrogen Infrastructure

Initially, until 2024, infrastructure needs for transporting Hydrogen are foreseen to remain **limited** as demand will be met by production close or on site, and in certain areas blending with natural gas. From 2025 onwards, a medium range and backbone transmission infrastructure is envisioned as necessary. By the end of this year, the Commission will revise the **Trans-European Energy Networks Regulation** with Hydrogen in mind.

The Commission believes elements of the existing pan-European gas infrastructure could be repurposed to provide the necessary infrastructure for large-scale cross-border transport of Hydrogen, to be used in combination with (relatively limited) newly built Hydrogen dedicated infrastructure. Sound infrastructure planning, such as for the ten year network development plans (TYNDP), is needed.

Regarding blending, the Commission believes in a limited percentage it may enable decentralised renewable Hydrogen production in local networks in a transitional phase. But this is not seen as a fully satisfactory solution, and therefore technical feasibility and market assessments will be needed.

In any case, the deployment of different refuelling infrastructure is seen as paramount for the decarbonisation of, for instance, the transport sector.

Finally, the Commission believes Hydrogen infrastructure should be accessible to all on a non-discriminatory basis, moving towards a liquid market with commodity-based Hydrogen trading. In order not to distort the level playing field for market-based activities, network operators must remain neutral.

EASE has discussed the importance of hydrogen infrastructures in the previously mentioned position paper "Power-to-Gas Business Cases: Revenue Streams, Economic and Regulatory Barriers, Business Opportunities". The role of hydrogen was also discussed in the papers on the Alternative Fuels Infrastructure Directive Revision and Energy Storage and the Transport Sector. EASE is also replying to the Commission's public consultation on the TEN-E Regulation revision.

How the Commission Plans to Foster Research & Innovation

The Commission believes further research and innovation efforts are required:

- On the generation side, to obtain larger-scale, more efficient and cost-effective electrolysers.
- On the infrastructure side, to better distribute, store and dispense Hydrogen at large volumes, and repurposing existing gas infrastructure.
- From a standard perspective, to achieve harmonisation and assess the social/environmental impacts of Hydrogen.

R&I Projects will be funded, among others, through the Clean Hydrogen Partnership under the framework programme Horizon Europe; through the ETS Innovation Fund; and through dedicated instruments (e.g. InnovFin Energy Demonstration Projects, InvestEU).

EASE has worked intensively with the Commission in the context of Horizon Europe – for example, contributing to the Clean Energy Research and Innovation Outlook - and has supported the creation of the Innovation Fund.

An Integrated Energy System

The Commission understands the role of Hydrogen in the context of an integrated energy system. Hydrogen, through e.g. Power-to-Gas, will play an important role in interlinking different sectors. More details on this point are discussed in the recently presented "Strategy for Energy System Integration".

EASE has looked into how storage technologies enable smart sector integration in June 2020's Commission's public consultation reply. The topic was also investigated in the previously mentioned paper on Power-to-Gas Business Cases and Power-to-Gas/Power-to-Liquid recommendations.

The Commission's Objectives

The European Commission would like to reach 6GW of renewable hydrogen electrolyzers by 2024, to then achieve 40 GW by 2030 and the production of up to 10 million tonnes of renewable hydrogen in the EU.

By 2050, there could be up between 180 and 470 billion EUR of investments in renewable hydrogen, compared to 3-18 billion EUR for low-carbon fossil-based hydrogen. We are speaking about up to 1 million jobs in Europe.

Thierry Breton, European Commissioner for Internal Market

The International Dimension

This Strategy brings new opportunities for re-designing Europe's energy partnerships with both neighbouring countries and regions and its international, regional and bilateral partners, advancing supply diversification and helping design stable and secure supply chains. The EU should actively promote new opportunities for cooperation on clean Hydrogen with neighbouring countries and regions, as a way to contribute to their clean energy transition and foster sustainable growth and development. A key example is the Ukrainian case, as looked into in April 2020 in the [EASE-organised webinar](#).

Complementarity with other Policy Initiatives

The Hydrogen Strategy will build on and complement:

- The already published "[New Industrial Strategy for Europe](#)".
- The recently published "[Strategy for Energy System Integration](#)".
- The [initiatives on green Hydrogen](#) foreseen in the context of the German Presidency of the Council of the European Union.
- The "[Sustainable and Smart Mobility Strategy](#)", to be presented before the end of 2020.
- The review of the "[Alternative Fuels Infrastructure Directive](#)".
- Revision of the "[Trans-European Transport Network](#)" (TEN-T) Regulation.
- Revision of the "[Trans-European Networks for Energy](#)" (TEN-E) Regulation.

EASE's Advocacy

EASE welcomes the new Hydrogen Strategy: it is a needed step in the transition towards a greener energy system.

EASE fully agrees that it is paramount to bring down costs and eliminate existing obstacles to foster the Hydrogen business cases. There are currently several unnecessary barriers to Hydrogen uptake that need to be overcome, and the legal framework and the existing policies are often not fit for this purpose. EASE also agrees that Hydrogen can play a key role in the context of sector integration, and that certification of Hydrogen is needed as soon as possible.

To conclude, EASE Secretariat believes that the Hydrogen Strategy goes in the right direction; but, with the support of a.o. the papers and work mentioned in the previous paragraphs, there are many possibilities for EASE to further guide the Commission in its activities.



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