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The future of the European Hydrogen Strategy

Eurogas recommendations

A resilient European hydrogen strategy should **combine all renewable and low-carbon production pathways, both domestic and imported, according to their verified lifecycle greenhouse-gas performance and contribution to system resilience**, to ensure scaling up hydrogen supply, stimulating market uptake, progressively developing hydrogen and CO_2 transport and storage infrastructure and supporting the development of a competitive European hydrogen economy.

Introduction

Hydrogen and its derivatives are expected to play a central role in achieving climate neutrality[1]. In addition, they can enhance the Union's energy security and resilience, foster innovation, strengthen Europe's technological leadership, enable sector coupling, modernise the complex industrial value chains that underpin the EU's economic strength, and promote industrial competitiveness.

The 2020 European Hydrogen Strategy recognised this potential, and the part hydrogen must play in decarbonising the European economy. Yet, as the European Commission rightly acknowledges in the Call for Evidence note accompanying the strategy's recast, the EU hydrogen market is developing slower than expected. Despite significant investments of early movers, deployment is lagging behind the set ambitions that were also confirmed in 2022 under the REPowerEU Plan (10 + 10 Mt of domestically produced and imported renewable hydrogen).

Eurogas considers this slower-than-expected progress as an opportunity for policy makers to rethink their approach to hydrogen: the EU has pursued a fully renewable hydrogen market from the outset, without any gradual approach nor providing transitional flexibilities. Regulatory uncertainty and overly stringent, partially counterproductive renewable qualification criteria have increased costs and undermined investment certainty for both hydrogen producers and off-takers significantly, thereby hindering the fast development of a functioning hydrogen market.

The recast of the Hydrogen Strategy is therefore a timely opportunity to recalibrate the approach. We welcome it and set out below our recommendations for a more pragmatic, and progressive framework that accelerates the ramp-up of the hydrogen market while maintaining decarbonisation priorities at the core of the Strategy.

[1] The EU has set ambitious intermediate targets on the road to 2050: -55% GHG emissions reduction by 2030 and -90% GHG emissions reduction by 2040 compared to 1990 levels.

Strengthen recognition for all types of hydrogen in the Strategy

EU's approach to hydrogen has been characterised by ambitious renewable hydrogen targets for a market that is yet to be created. In this context, very limited recognition has been paid to low-carbon alternatives, which have the potential of delivering the same amount of GHG emission reduction as renewable hydrogen, increasing the hydrogen volumes in the market both from a supply and demand perspective, while incentivising infrastructure deployment. The cost of this approach is becoming clear. EU hydrogen production still emits an estimated 70 to 100 million tonnes of GHG each year (Gas for Climate). By restricting low-carbon hydrogen, the framework leaves these emissions in place and delays decarbonisation in industrial processes where low-carbon hydrogen could already replace conventional fuels.

Rethinking the European Hydrogen Strategy in a technology-neutral way should be treated as a matter of priority, starting with the following:

- **Rethink the 10 + 10 Mt target ambition in light of market maturity**, backed by a public impact assessment of where the EU wants to stand in 2030 and beyond. This analysis will help provide confidence on the expected hydrogen market opportunity and form a basis against which progress can be tracked.
- **Make the production targets technology neutral**, with full recognition of all renewable (both RFNBO and bio-hydrogen) and low-carbon hydrogen, including: steam methane reformers retrofitted with carbon capture; autothermal reformers with carbon capture; methane pyrolysis with solid carbon as a co-product; electrolytic low-carbon hydrogen; and white hydrogen .
- **Adjust the RED industry target in its ambition and design** to better reflect market realities and enable cost-effective deployment, in line with Eurogas' detailed recommendations.
- **Maintain the current structure of the RED transport target and refinery route** as they act as an important investment signal for the deployment of hydrogen at national level.

Revise EU hydrogen production rules for renewable and low-carbon hydrogen

While multiple factors contribute to the gap between hydrogen ambitions and reality[2], an increasing number of market assessments suggest that the regulatory framework governing hydrogen production has become one of the main obstacles to market development. For renewable hydrogen, the production rules established under the Renewable Fuels of Non-Biological Origin (RFNBO) framework have significantly increased production costs and constrained project development. ACER (2025)[3] estimates that the average cost of RFNBO hydrogen remains significantly higher (EUR 8/kg) compared to just above EUR 2/kg for conventional

[2] Barriers to the development of a European hydrogen market should be assessed across the full value chain, taking into account the challenges affecting production, demand, and infrastructure. On the demand side, for example, delays and differences in the transposition of RED III across Member States create regulatory fragmentation, weakening investment signals and slowing the emergence of a truly integrated EU market.
[3] ACER, European hydrogen markets, 2025 Monitoring Report (page 40).

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hydrogen. With the incoming RFNBO criteria of additionality and hourly correlation, those costs are projected to rise even more.

For low-carbon hydrogen, the broader regulatory and market framework has failed to provide a credible pathway for investment and deployment. In the case of blue hydrogen, while we acknowledge that its deployment will also depend on the availability of CO_2 transport and storage infrastructure, market experience indicates that some of the main barriers currently stem from limited to no recognition in the EU's hydrogen regulatory framework. This despite the fact that low-carbon hydrogen can play an important complementary role in the development of the hydrogen market: it can contribute to GHG emission savings, support existing and stimulate new industrial demand, and facilitate the development of shared infrastructure. **A technology-neutral framework should therefore recognise the contribution of both renewable and low-carbon hydrogen,** while ensuring that both pathways meet robust and consistent GHG emission reduction criteria. As of now, uncertainty around the implementation and certification of the Low-Carbon Fuels Delegated Act remains, including interpretation guidance (Q&A document) still to be provided by the Commission, and the alignment with the necessary delay in the implementation of the EU Methane Regulation. This framework also fails to recognise the potential of solid carbon as emissions reduction material for hydrogen produced via methane pyrolysis.

The situation is equally challenging for biohydrogen – that is, hydrogen whose energy content is derived from biomass fuels, either through electrolysis powered by electricity produced from such biomass fuels or through the direct use of biomass-derived molecules. **The current regulatory framework should recognise biohydrogen as an eligible production pathway for renewable hydrogen**. Against this background, Eurogas underlines that an overhaul of the hydrogen production rules is urgently needed. This reset should happen as soon as possible to give the market the flexibility it needs, and should draw on Eurogas' detailed recommendations.

Ensure investment support for both hydrogen production and demand

The effective and swift creation of a hydrogen market in Europe will also depend on the existence on a number of enabling measures in the market. Without an adequate supporting framework, targets alone will not be able to materialize. Among the possible enabling measures, Eurogas proposes:

- The **European Hydrogen Bank (EHB)** scope should be expanded beyond electrolytic renewable hydrogen, to support bio-hydrogen, all types of low-carbon hydrogen and their derivatives. This support should remain separate to ensure both types of hydrogen are adequately incentivised. Eurogas recommends a budget increase for the EHB, as current funding seems insufficient. A larger share of the Multiannual Financial Framework (MFF) should be allocated to hydrogen development.
- **Contracts for Difference (CfDs)** should be enabled to help bridge the gap between renewable as well as low-carbon hydrogen, and conventional alternatives.
- The proposed **Investment Booster and Industrial Decarbonisation Bank**, as envisaged under the revision of the ETS Directive, should provide comprehensive support for both CAPEX and OPEX costs associated with industrial decarbonisation technologies, including all types of renewable and low-

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carbon hydrogen, to enable their deployment at scale and facilitate the cost-effective decarbonisation of industrial processes.

- **Long-term contracts** should be encouraged to enhance market stability and investment security.
- **State aid** support, including through the Clean Industrial Deal State Aid Framework, should be available for both renewable and low-carbon hydrogen and should be open to combinable with EU funding where this lowers total costs, unless there is a real risk of over-compensation. Additionally, existing State aid decisions by the European Commission require beneficiaries to transition to 100 % renewable hydrogen along a pre-defined timeline. Such de facto phase-out trajectories for low-carbon hydrogen are premature and prevent long-term offtake, and therefore FIDs. This approach should be reconsidered to ensure equal treatment of all hydrogen production pathways, especially as the EU hydrogen market is being created, and where low-carbon hydrogen has a significant role to play.
- The **Green Hydrogen Fund** , managed by the European Investment Bank[4], should be opened for all types of hydrogen.
- **Lead markets** should be implemented in a technology-neutral manner, ensuring a level-playing field across decarbonisation solutions, including all types of hydrogen.
- The **Important Projects of Common European Interest (IPCEI)** framework, including any future revision and new candidate projects, recognises both renewable and low-carbon hydrogen projects, to support a cost-effective industrial decarbonization.

Align infrastructure deployment with project ambition and market maturity

Infrastructure is a cornerstone for the emergence of a competitive hydrogen market. **Aligning infrastructure deployment with project ambition will unlock investment, strengthen supply–demand linkages and accelerate the transition toward a fully functioning market.** In the short term, scaling a competitive hydrogen market will likely require a gradual, cluster-based approach, while cross-border networks, including import corridors, are built to develop an interconnected European hydrogen backbone.

Greater recognition should be given to the role of hydrogen distribution infrastructure. Many industrial customers are connected to distribution networks rather than directly to the transmission grid. Distribution system operators are therefore the primary point of contact for a significant share of industrial demand, and are well placed to understand the needs of these customers and connect them. Their local presence and knowledge of regional demand make them essential to ensuring that hydrogen reaches industrial users who have no direct access to the transmission network. Recognising their role in the regulatory framework, including in network planning and development, would help ensure that hydrogen infrastructure is built in a coordinated way across all grid levels.

Hydrogen transmission, storage, terminals and bunkering facilities should be developed in parallel with distribution infrastructure, under proportionate and supportive regulatory frameworks, to ensure flexibility, supply diversification, resilience and a market-driven pathway towards a future European backbone.

[4] Green Hydrogen trust fund.

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The development of new hydrogen infrastructure faces high risks and uncertainty in investments due to the anticipatory nature of investments. Support would be justified by the positive externalities that sector coupling, and hydrogen would bring to the system and the lack of maturity of the sector. Introducing adequate support and de-risking mechanisms can also represent an essential enabler to unlock private investments. Tools like inter-temporal cost-allocation should be considered to support infrastructure investments, as foreseen under Article 5 EU Regulation 2024/1789.

Alongside the rollout of dedicated hydrogen infrastructure, accelerating the ramp-up of the European hydrogen market will require pragmatic transitional measures. In this context, **policy should support blending solutions in the existing gas infrastructure** and allow for the application of the mass balance principle for the accounting of hydrogen volumes towards relevant targets[5].

Energy system integration

Hydrogen is also a key enabler for energy system integration, connecting power, hydrogen and CO_2 markets.

For instance, renewable hydrogen produced through electrolysis enables surplus renewable electricity, particularly from wind and solar generation, to be stored and used when needed, supporting seasonal storage, security of supply, power system flexibility, and grid stability. Combined with large-volume underground storage, it can also reduce the need for costly electricity grid expansion.

At the same time, the scale-up of hydrogen derivatives such as chemicals or e-fuels, often requires reliable access to captured carbon sources. Considering the ongoing revision of the EU ETS and ongoing discussions on EU CO_2 transport and storage infrastructure, regulatory alignment is critical. Given the interdependence between hydrogen production and carbon management, the EU framework should recognise and enable the development of CO_2 transport and storage infrastructure as strategic for the hydrogen value chain.

Recognise the complementarity of imports in ramping up the EU hydrogen market

Energy diplomacy and cooperation with third countries are crucial for the EU's security of supply and should be placed on a standing footing, rather than conducted on an ad hoc, country-specific basis.

Such cooperation is also essential for hydrogen as **imports of this molecule and its derivatives will be needed to complement domestic production capacity** as demand grows beyond the 7-8 Mt currently consumed in the refining and ammonia sectors[6]. Imports will also be important for landlocked Member States with limited domestic renewable potential, such as Czechia. For these countries, cross-border trade, both with other Member States and with third countries, will remain essential to ensure the development of a cost-effective market.

Eurogas encourages imports through existing gas infrastructure, which can provide visibility on supply and demand and allow future needs and flows to be properly assessed. All volumes imported from third countries

[5] Please refer to Eurogas' detailed recommendations on hydrogen blending in the context of Implementing Regulation 2022/996 revision.
[6] As outlined in the Call for Evidence note accompanying the European Hydrogen Strategy revision.

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should comply with the EU production framework and with the GHG emissions savings criteria applicable to EU producers of renewable and low-carbon hydrogen. Provided these requirements are met, **volumes transported through the existing gas infrastructure should be eligible for target compliance within the EU**.

Growing import volumes through existing infrastructure will also send an investment signal for the development of dedicated infrastructure, which is essential for competitive and secure hydrogen imports. This should rely on realistic production and consumption scenarios and on coordinated planning and operation of the wider EU energy system, across energy carriers, infrastructure and consuming sectors, in order to meet the 2050 climate neutrality objective. Well-developed infrastructure, including import terminals, ammonia crackers, and dedicated storage and transport facilities, will be essential for the efficient conversion and distribution of hydrogen and its derivatives.

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