



Hydrogen
Europe

The European Hydrogen Bank

Kickstarting the European hydrogen market

Hydrogen Europe Position Paper

March 2023

1. Introduction

Renewable and low carbon hydrogen are a fundamental part of the solution to decarbonise EU's energy system and reducing its energy dependency. To reach these objectives, the European Union has set itself ambitious targets for the production and consumption of hydrogen and its derivatives by 2030.

There is no doubt that renewable and low-carbon hydrogen will become competitive compared to emission-intensive hydrogen, conventional fuels, and carriers like oil, coal, and gas in the long term. However, the upscaling of the technologies and the development of large-scale projects face several market and regulatory risks. Therefore, the hydrogen sector needs concrete public support and a coherent regulatory framework until it can achieve full-scale competitiveness in the global market. Years ago, the EU provided incentives and an enabling regulatory framework for the upscale of wind and solar technologies, making them the sound business case they are today. The same needs to happen with hydrogen.

Hydrogen Europe welcomes the European Commission's announcement regarding the creation of a Hydrogen Bank, that will act as a major funding scheme to ramp up the hydrogen value chain. It will be a market-making tool supporting both the domestic production and consumption of renewable and low-carbon hydrogen and the import of hydrogen and its derivatives, helping to achieve European targets for decarbonisation.¹

This position paper firstly presents a set of criteria that should be considered when designing hydrogen support schemes and then provides specific recommendations on both domestic and international pillars of the Hydrogen Bank (as conceptualised by DG CLIMA and DG ENER, respectively) in the context of ongoing discussions.

2. Key design criteria for hydrogen support schemes

Hydrogen Europe believes the following aspects are key for the design of support to both domestic production of hydrogen and hydrogen imports to the EU.

- 1. Simplicity & Speed.** The support schemes must be simple in order to increase investor confidence, reduce administrative and legal burdens, and reduce the cost of financing, which is critical for capital intensive projects. This will be key to reducing the cost gap between producers and offtakers, which is the ultimate goal of the scheme. To foster production scale up and cost reduction, support schemes should reward the production output in a simple manner, with a fixed premium (e.g., EUR/Kg of hydrogen produced). Governments should provide a clear timeline for upcoming auctions allowing industry good investment planning (e.g. a rolling auction planned for 3 years).
- 2. Fair competition.** For the efficient use of available public funds, funding can be allocated through a competitive bidding process, in the form of auctions. However, projects could also

¹ The REPowerEU Plan (May 2022) accounts for the consumption of 20Mt of renewable hydrogen and derivatives. This target is to be met with 10Mt produced in the EU and 10Mt imported from outside of the EU.

be supported through other mechanisms that do not involve auctions as the entry barriers can be quite high and they will tend to favour large companies with more financial capabilities. This is particularly relevant to continue supporting small projects.² The establishment of EU-wide schemes should not prevent or discourage Member States from developing their own support mechanisms (whether hydrogen production support schemes or national Carbon Contracts for Difference (CCfDs) schemes for hydrogen offtake).

- 3. Priority to renewable hydrogen and derivatives and recognition of low-carbon hydrogen's decarbonisation potential.** Due to different cost structures and financing needs, renewable and low-carbon hydrogen³ should be supported within separate, dedicated windows respectively, with more means for the former to help achieving the renewable binding targets in European legislation.
- 4. End-use sector prioritisation.** The support for hydrogen production, imports, and consumption should be a means for sectors to decarbonise and also to reach the binding consumption targets under the Renewable Energy Directive (RED). In that regard, the sectors addressed by the binding targets (industry and transport) should be a priority. Hydrogen producers competing in the auction should accompany their application with bilateral agreements or commitments from offtakers who are willing to purchase that hydrogen or derivative. Those commitments would be intentional, non-binding, to reduce legal/contractual complexity, especially for the first round of auctions. Because of different cost structures and the availability of different sectors to purchase clean hydrogen, specific auctions per end-use (e.g., steel, ammonia, sustainable aviation fuels) could also be envisaged, creating competition on a level-playing field. This could be particularly important in the early market phases when access to renewable and low-carbon hydrogen is still limited.
- 5. Support for both EU production and imports.** Support should be provided to renewable and low-carbon hydrogen produced both domestically and internationally. To allow both options and ensure a fair level playing field, the competitive processes should be carried out through two different funding schemes, one for the domestic pillar, and another for the international one.
- 6. Don't forget infrastructure!** In the mid to long term, mechanisms should be rolled out in combination with hydrogen infrastructure deployment so that the import of hydrogen from third countries can also compete in the EU's hydrogen market. The infrastructure, however, will not be funded through this scheme, but rather through the Connecting Europe Facility (CEF) and other regulated activities.
- 7. It's not all about price: ensuring EU value creation.** The EU is laying down the foundations for a new market, where EU industries have the potential to impose themselves as global leaders. In the context of fierce international competition and ambitious support mechanisms to industrial players implemented abroad, the EU support schemes should ensure concrete incentives to create value in the EU, to the benefit of its industry and citizens (promoting highest standards in terms of quality, efficiency, circularity of materials, job creations, etc.).

² Small projects are characterised by local components, in which, often SMEs are involved in the development of the project (onsite hydrogen production at a refuelling station). In order to align the definition of 'small' with European legislation (ETS), the threshold of 5 tonnes production/day (or 1,800 tonnes per year) could be used.

³ Renewable hydrogen as defined in the Renewable Energy Directive and Low carbon hydrogen as it will be defined in the Decarbonised gases and Hydrogen Package. In both cases, GHG emissions need to be below 3.4kgCO₂/kgH₂

The Hydrogen Bank concept of the European Commission

The European Commission has announced the creation of a Hydrogen Bank, an EU public support measure to kickstart the hydrogen economy. As proposed by Commission President von der Leyen, the Bank would at least partially be funded through the EU ETS Innovation Fund, with two main pillars:

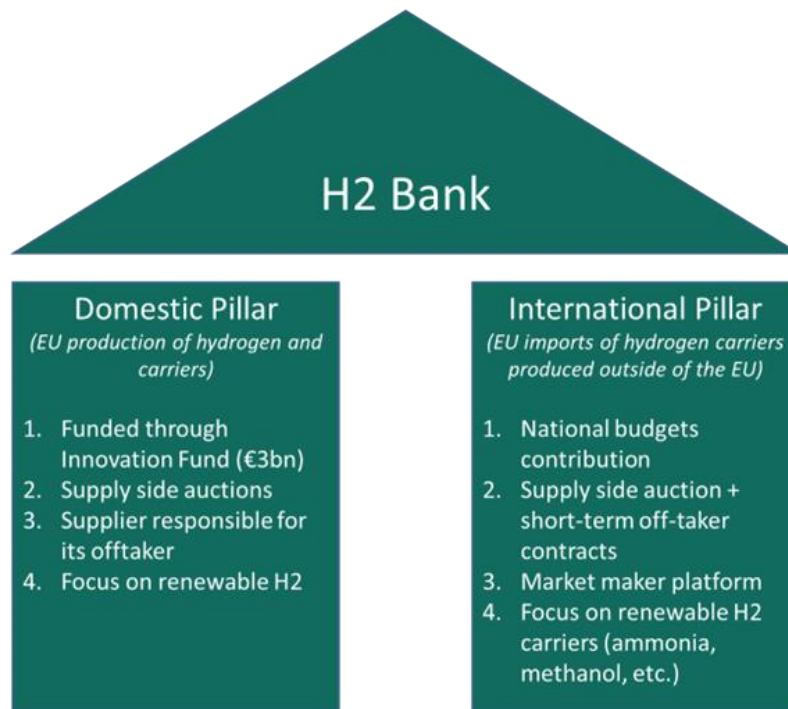


Figure 1: European Commission's concept of a Hydrogen Bank. Source: Hydrogen Europe based on information so far provided at various stakeholder meetings. January 2023

Following this, in December 2022 the European Commission published a public consultation for stakeholders to provide input on **competitive bidding schemes for hydrogen under the Innovation Fund, consisting in the domestic pillar of the Hydrogen Bank.**

Hydrogen Europe responded to the survey⁴ in January 2023. Based on that first input, **Hydrogen Europe suggests the recommendations presented in the next sections.**

⁴ Hydrogen Europe response to the EC consultation on the Competitive Bidding schemes for hydrogen under the Innovation Fund, January 2023 [Link](#)

3.1. Domestic Pillar and the competitive bidding scheme under the EU ETS Innovation Fund

The following aspects should be considered:

1. **Scope:** The Innovation Fund call should focus on a supply side auction only, in a first instance.
2. **Type of support:** The support should take the form of a simple fixed premium (determined via a competitive bidding process and consisting in a fixed sum of money awarded per kg of hydrogen produced). Today's lack of a reference price for renewable and low-carbon hydrogen and the fact that hydrogen can be used in various applications (all of them exposed to different market prices/variables) makes it difficult to choose a reference price to enforce Contracts for Difference (CfDs). Therefore, the first auctions, at least, should be rewarded with a fixed premium, like the feed-in-tariffs for renewable energy or the US production tax credit. CfDs could be considered at later stage when a meaningful reference price can be agreed upon. The selected projects in the first waves would benefit from expectedly higher strike prices (and therefore – funding) than in later ones, due to expectedly gradual cost drop – thus rewarding frontrunners.
3. **Compatibility with State aid:** Some degree of cumulation should be allowed in the first auctions (e.g., until 2025 auctions), since the most mature projects in the pipeline are very likely to have received support already (e.g., under IPCEIs, GBER or CEEAG). And it is important to consider that projects approved under IPCEI in 2022 were designed back in 2019/2020, thus their cost structures have changed significantly (inflation, supply chain constraints); what might have been viable back then, is not anymore. Therefore, to forbid cumulation now would inhibit the more advanced projects from bidding for funding under the Hydrogen Bank. For later auctions (after 2025 auctions), cumulation of direct state aid should not be allowed (not considering those compensating indirect costs under the EU ETS).
4. **Type of eligible products:** The domestic pillar should only support pure⁵ hydrogen produced domestically, regardless of whether it is then used as hydrogen or turned into a derivative. Both renewable and low-carbon hydrogen should be eligible. However, due to different cost structures and financing needs, they should be supported within separate, dedicated windows. The support should prioritise renewable hydrogen – via a larger window – also with a view to helping achieve the binding consumption targets set in the revised RED. The support under the smaller, low-carbon hydrogen window should be in line with the definition of low-carbon hydrogen⁶, that it also includes waste-based hydrogen, pyrolysis, and any other forms of low-carbon production pathways.
5. **Length of support and production volume:** A minimum of 15 years support should be considered for projects. This will ensure sufficient financial visibility and amortisation for production assets. Size of eligible projects should be in line with the revised ETS Directive, i.e., hydrogen production capacity of at least 5 tonnes per day (or 1,800 tonnes per year). As highlighted in section 2.2, smaller projects could also be supported through other mechanism that do not involve auctions as the entry barriers can be quite high and auctions tend to favour large companies with more financial capabilities.

⁵ Pure in the sense that it is not a derivative. This does not refer to specific degree of purity.

⁶ In Proposal of Directive 2021/0425. See also footnote 3.

- 6. Geographical coverage:** The support should target hydrogen produced (and then consumed) within the EEA (European Economic Area, i.e., EU Member States + Iceland, Norway, and Liechtenstein).
- 7. End-use:** Participating producers should support their bids with commitments and bilateral agreements from offtakers who are willing to purchase that hydrogen. Those commitments can take the form of non-binding memoranda of understanding or letters of intent to reduce legal/contractual complexity, especially for the first round of auctions. The EC should consider the varying commitment timeframes due to consuming sectors' specificities (differences between industrial and transport offtakers) and the cases of integrated sites where the hydrogen consumer and producer are part of the same company (in which case no agreement is needed). The funding should be a means to reach strategic, climate (targets for decarbonisation under RED, FuelEU maritime and ReFuelEU aviation), and energy (system integration, energy security) objectives. In that regard, the sectors addressed with binding targets under those regulations should be a clear target of the Hydrogen Bank.
- 8. European value:** Through a 'European standards' approach, the Hydrogen Bank could promote domestic hydrogen that tackles strategic objectives beyond emissions reduction such as security of supply, economic development, job creation and circularity. The aim would be to ensure that European industry across the hydrogen value chain remains globally competitive, offering the highest quality, reliability and efficiency of products and their constant improvement, while adhering to the robust European social, safety, environmental and sustainability standards. For example, whereas electrolyser manufacturing plants are at risk of relocating to other regions like China and the US, the Bank would help to level the playing field and contribute to a new push for European industry. This could be done in line with EU policies and WTO principles, by focusing on standards to be met in terms of quality, circularity, sustainability of the equipment and materials used in the project and their contribution to economic development and jobs creation in the EU. However, establishing transparent and measurable criteria will take time and stakeholder consultations should not delay the roll out of the first auctions. Criteria should be based on the learning from the IPCEI waves Hy2Tech and Hy2use.
The European Commission could require some or all the following requirements to improve the ranking of the bids:
 - i. Demonstrate significant contribution to job creation and centres of excellence, similar to requirements outlined in IPCEIs; and
 - ii. Meet certain sustainability requirements such as recycling obligations and a maximum CO2 footprint for the manufacturing of hydrogen producing technologies (e.g., electrolysers). Starting to cover downstream products like electrolysers or fuel cells under the CBAM in the future would further reinforce this aspect and provide an equal footing for EU manufacturers.
- 9. Budget:** A budget of €3bn has been announced. Considering a support level of €3/Kg for a duration of 15 years, the €3bn would be sufficient to support the annual production of only 66,667 tonnes of hydrogen. This is lower than what a single average EU steel plant would need to decarbonise its processes, representing less than 1% of the European target to produce 10Mtons of renewable hydrogen. We believe that a budget of at least €3bn per year should be considered. Beyond the Innovation Fund, other funding sources should be looked at, such as unused Recovery and Resilience Funds and the CBAM. The provided fixed premium should be indexed to inflation to cover for potential future increases of energy, raw materials, and

operational work. This is a particularly important tool to cover cost changes between allocation of support and commissioning date.

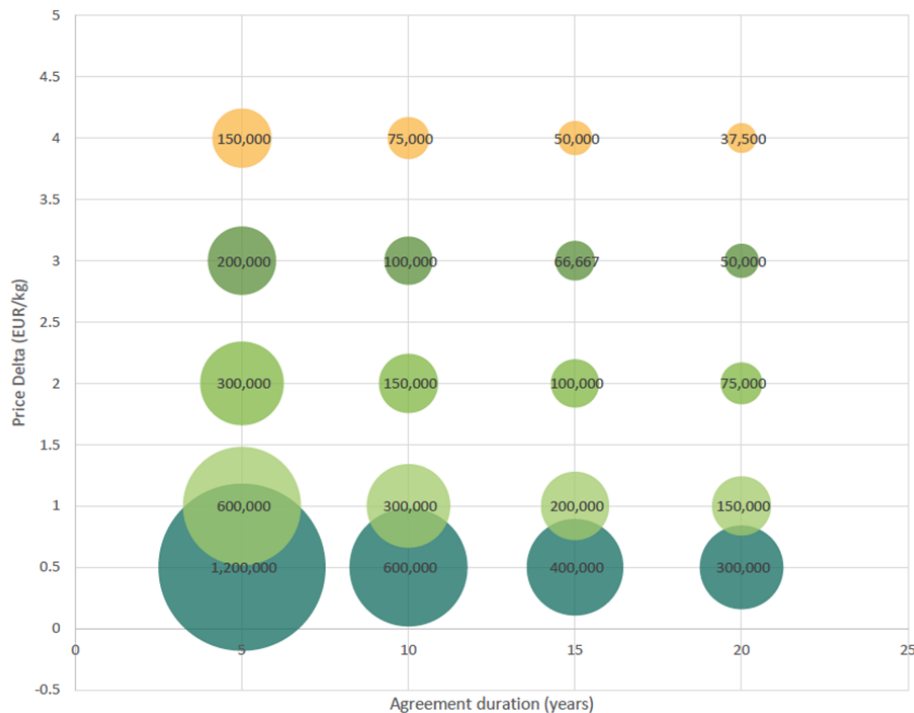


Figure 2: Amount in tonnes of H2 supported with €3bn based on duration and premium. Source: Hydrogen Europe

3.2 International Pillar and mechanism being designed by the European Commission's DG ENER

- 1. Simplicity:** The mechanism should ensure simplicity, offering a design that minimises the exposure of importers to volume and price risks. A fit-for-purpose and relatively quick option to deploy the international leg of the Hydrogen Bank could be building on existing and legally viable instruments, such as H2Global. In this way, the EU could already get inspiration from a legal entity established in the European market. The entity will be able to purchase and resell hydrogen and its derivatives in Europe, according to the necessities of Member States willing to participate in the global auctions.
- 2. Scope:** Contracts should be awarded with a double auction process, as proposed in the H2Global model.
- 3. Type of support:** On the supply side, the support should be paid as a **simple fixed premium** (determined via a competitive bidding process and consisting in a fixed sum of money awarded per kg of hydrogen – or derivative – produced). On the demand side, hydrogen and its derivatives should be auctioned and awarded to the offtaker willing to pay the highest price for the product, through separate windows for different sectors (industry, transport, etc.). The priority windows would be selected by the government financially supporting the mechanism, according to its strategic needs.

4. **Type of eligible products:** For imports, auctions could target both low-carbon and renewable hydrogen in the form of hydrogen derivatives, synthetic fuels and pure hydrogen (whether transported in a Liquid Organic Hydrogen Carrier (LOHC), in liquid form on ships, or in pure gaseous form via pipeline). Considering the significant differences between pure hydrogen and each of those synthetic fuels and derivatives, different auctions through separate windows should be organised for these respective products to ensure fair competition.
5. **Length of support:**
 - a. Supply: the producer and the EU should agree on a fixed duration of support, privileging long-term contacts (minimum 15 years) to allow predictability for the supply side, incentivising frontrunners that will comply with RFNBOs requirements for Europe;
 - b. Demand: the contracted prices could be fixed for a shorter duration (e.g., 5 years). This would allow consumers to adapt to the market and adjust their cost structure accordingly.
6. **Geographical coverage:** the support should target hydrogen and derivatives originating from outside EU and EEA countries, imported to EU and EEA countries for their consumption. Products traded should be delivered at pre-defined points, which might change based on the specific auction rounds and the hydrogen necessities of the Member States pooling resources for the scheme. Following a similar logic than explained in point 8 of section 3.1, the targeted projects should comply with basic social and sustainability standards, mirroring EU level playing field. The mechanism should also ensure that offtakers in land-locked regions can also profit from those auctions (even if they do not have direct access to harbours).
7. **Budget:** the budget should be formed, at least in the first stages of the scheme, by contributions of Member States that are willing to use imported hydrogen and derivatives. This will provide flexibility on the level of support and can also focus on a narrower list of delivery points. Overtime, the mechanism can become more “European”, with a common EU budget. Just like under the domestic pillar, the provided fixed premium should be indexed to inflation to cover for potential future increases of energy, raw materials, and operational work.



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