

ERCST Reflection Note

European Hydrogen Bank – Second Auction and Next Steps

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1. Introduction

The European Hydrogen Bank (Hydrogen Bank) was firstly announced by the EU Commission President Ursula von der Leyen in her 2022 State of the Union address and officially established in 2023. It has the following declared purposes:

- (i) Kickstarting and scaling up the hydrogen market within the European Economic Area (EEA) by addressing the cost disparity between the higher production costs of renewable hydrogen and the lower prices buyers are currently willing to pay, therefore de-risking investments, while also facilitating the connection between supply and demand.
- (ii) Attracting and coordinating renewable hydrogen imports into the EU market, through a dedicated mechanism currently under development.
- (iii) Promoting transparency and streamlined information-sharing to support the coordinated development of hydrogen markets and associated infrastructure.
- (iv) Coordinating existing EU, EU Member States and international hydrogen financing mechanisms

This Reflection Note aims to critically assess the design and outcomes of the first two auctions of the Hydrogen Bank, identifying lessons learned and critical issues to be taken into account for its future development. The reflection note includes remarks and considerations that emerged from ERCST event ‘European Hydrogen Bank – Second Auction and Next Steps’ which took place on June 9, 2025.

2. Overview of the First and the Second Auctions

In both auctions funding has been awarded as a fixed premium in €/kg of certified¹ and verified renewable fuel of non-biological origin (RFNBO) hydrogen produced. Projects submitted their bids specifying the minimum fixed premium (in €/kg of RFNBO hydrogen) they would need to make their hydrogen production viable. Bids have been ranked by price, from the lowest to the highest premium requested and projects were selected in order of ascending bid price until the total reverse auction budget was exhausted. Selected projects are expected to sign a grant agreement with the European Climate, Infrastructure and Environment Executive Agency (CINEA)². Payments will be made once hydrogen production begins, and will be proportional to actual volumes produced, up to a set annual and total cap.

¹ According to the Renewable Energy Directive (RED II) RFNBO definition

² Agency of the European Commission, established on April 1, 2021, to manage EU programs that support decarbonization and sustainable growth. CINEA is responsible for running and evaluating the EU-level hydrogen auctions under the Innovation Fund.

2.1 First Auction

The first Hydrogen Bank auction was launched in November 2023 and closed in February 2024³. It represented a test for the EU Commission, introducing a new funding mechanism based on competitive bidding/reverse auction.

- It awarded nearly €720 million in funding to seven renewable hydrogen projects across Europe, selected from a pool of 132 bids. Six of the seven projects signed their grant agreements in October 2024.
- The successful bids offered prices between €0.37 and €0.48 per kilogram of renewable hydrogen produced.
- Collectively, the selected projects are expected to produce 1.52 million tonnes of renewable hydrogen over their first ten years of operation, potentially avoiding more than 10 million tonnes of CO₂ emissions.

2.2 Second Auction

The second Hydrogen Bank auction presented new Terms and conditions⁴ compared to the first auction. In particular:

- **New resilience requirements:** The auction prioritized projects that demonstrate greater resilience to supply chain disruptions and geopolitical risks, with an emphasis on local sourcing and domestic manufacturing of critical components.⁵
- **Evaluation based on industrial competitiveness:** In addition to environmental performance, projects were evaluated based on their potential to boost Europe's industrial base and global competitiveness, in line with the objectives of the Net-Zero Industry Act.
- **Higher maturity level requirements:** Applications were required to demonstrate a higher level of technological maturity and readiness for commercialization compared to the first auction eg. The requested amount of the 'Completion guarantee'⁶, was risen from 4% to 8% of the requested grant amount.
- **Revised price ceiling:** Ceiling price reduced from 4.5 € (first auction) to 4 €/kg.
- **Dedicated maritime budget:** €200 million of the total auction budget was specifically reserved for projects aimed at supplying renewable hydrogen to the maritime industry.

The second Hydrogen Bank auction was launched in December 2024 and closed in February 2025⁷.

³ https://energy.ec.europa.eu/topics/eus-energy-system/hydrogen/european-hydrogen-bank_en

⁴ https://climate.ec.europa.eu/document/download/b996825e-cd36-44c1-895d-a780062f626d_en?filename=2024%2009%2025%20Final%20TC_2nd%20Round%20RFNBO%20H2_IF_TCforPUBLICATION_Clean.pdf

⁵ projects have to limit the sourcing of electrolyser stacks with surface treatment or cell unit production or stack assembly carried out in China to not more than 25% (in MWe).

⁶ A completion guarantee is a financial security provided by project developers to ensure that, if selected for funding under the Hydrogen Bank, their project will be built and start producing renewable hydrogen on time—or risk forfeiting the guarantee.

⁷ https://energy.ec.europa.eu/topics/eus-energy-system/hydrogen/european-hydrogen-bank_en

- It awarded €992 million to 15 renewable hydrogen projects across the European Economic Area (EEA), selected from 61 bids.
- General topic: 12 of the selected projects will produce renewable hydrogen, with bid prices ranging from €0.20 to €0.60 per kilogram.
- Maritime basket: The dedicated budget for maritime off-takers led to the selection of three additional projects, which received a total of €96.7 million in grants, with bid prices ranging from €0.45 to €1.88 per kilogram.
- Subsidies across all 15 projects range from €8 million to €246 million, covering a support period of up to 10 years.
- All together, the projects are expected to produce nearly 2.2 million tonnes of renewable hydrogen over a decade, potentially avoiding more than 15 million tonnes of CO₂ emissions.

Category	First Auction	Second Auction
Launch Date	November 2023	December 2024
Closing Date	February 2024	February 2025
Maximum price ceiling	€4.5/kg	€4/kg
Total Budget Awarded	~€720 million	€992 million
Number of Bids Received	132	61
Number of Projects Selected	7	15
Grant Agreements Signed	6 (as of October 2024)	To be confirmed
Bid Price Range (€/kg H ₂)	€0.37 – €0.48	€0.20 – €0.60 (general topic); €0.45 – €1.88 (maritime)
Total Renewable H ₂ Production (10 years)	1.52 million tonnes	Nearly 2.2 million tonnes
CO ₂ Emissions Avoided (10 years)	Over 10 million tonnes	More than 15 million tonnes
Maritime-Specific Projects	No	3 projects (€96.7 million total)
Auction as a service	Germany €350 million	Austria €400 million, Spain €400 million, Lithuania €36 million

Table 1: comparison of the first auction and the second auction

3. Learnings and considerations from the first and second auctions

- **Reverse Auction and Cost Discovery:** in both auctions the winning bids were significantly below current market prices, suggesting strong competition among project developers and/or optimism about future cost reductions. However, such low prices raise concerns about the realism and bankability of the proposed business models, especially in the absence of long-term offtake agreements or reliable demand signals.
- **Geographic Concentration and Electricity Costs:** a consistent outcome across both auctions is the geographical concentration of awarded projects in regions with access to low-cost renewable electricity, namely the Iberian Peninsula and the Nordic countries. This trend underscores the decisive

role of electricity costs in hydrogen project viability. The second auction saw slightly broader distribution, with two projects in Germany and one in the Netherlands, but regional imbalance remains a concern.

- **Technology Choices and Market Signals:** in the first auction, PEM electrolyzers emerged as the dominant technology, followed by alkaline electrolyzers. While full technological details from the second auction are not yet disclosed, the choice of technology provides insights into developer preferences, load flexibility, and perceived bankability. Continued monitoring of technology trends is essential to assess the development of the electrolyser market and supply chain resilience.
- **Auctions-as-a-Service and Scalability:** the Auctions-as-a-Service mechanism⁸ has shown increased success, growing from one participating Member State to three in the second round. This mechanism reduces administrative complexity and accelerates access to EU-level funding, offering a promising pathway for scaling hydrogen deployment. However, broader adoption will depend on improving coordination between national and EU-level strategies, including compatibility with State aid rules.

4. Key takeaways from the discussion

- **Hydrogen Bank ambition and funding available:** the Hydrogen Bank is a positive step, offering both CAPEX and OPEX support which is essential to de-risk long-term investments, especially under high capital costs and economic uncertainty. However, the Bank is underfunded relative to its ambition. Its budget must be significantly increased to align with EU-wide hydrogen deployment targets. As it stands, the Bank's expected impact on renewable hydrogen production is relatively limited, estimated at just 0.15 to 0.2 million tonnes per year. This falls far short of the EU's 2030 target of 10 million tonnes annually (Hydrogen Strategy), and even further from the 20 million tonnes per year envisioned under the REPowerEU plan.
- **Role in market development and Dependence on RED III sub-quotas:** the Hydrogen Bank currently focuses on the supply/production side. It must be complemented with measures that drive long-term market stability and demand. Additionally, the Bank's effectiveness currently depends on external drivers such as Renewable Energy Directive sub-quotas⁹ and penalties, actual market demand, and buyers' willingness to pay a premium.

⁸ The auction-as-a-service mechanism under the EU Hydrogen Bank enables the European Commission to operate a single, centralized auction for hydrogen projects. Initially, the EU allocates its budget to support eligible projects through this auction. Member States can opt to participate by contributing their own national funds, which are awarded to projects in their territory without the need to organize a separate auction. Participation by Member States is voluntary, and project developers who specify their interest in using the "auction-as-a-service" mechanism in their bid are eligible for selection. Funding provided by Member States is treated as State aid.

⁹ RED III sets specific targets to boost the use of RFNBOs in industry and transport. In industry, at least 42% of hydrogen must come from RFNBOs by 2030, rising to 60% by 2035, with a yearly renewable energy increase of 1.6 percentage points. Member States may apply a 20% discount on the 2030 RFNBO target if they meet overall EU

- **Financing flexibility:** cumulation of Hydrogen Bank's support with other funding instruments (e.g., national subsidies, state aid) should be allowed to help projects reach Final Investment Decisions (FIDs). Combining funds could ensure projects moving forward, therefore reducing the risk of stranded public investments and project failure. Another option might also be for the Hydrogen Bank to provide counter-guarantees to attract private capital and reduce overreliance on public funding. The impact of new financing instruments like the Clean Industrial Deal State Aid Framework (CISAF) should also be assessed, particularly in relation to complementarity and flexibility in blending with Hydrogen Bank support.
- **Low-Carbon Hydrogen:** there is a clear early-stage need for low-carbon hydrogen to complement renewable hydrogen and ensure sufficient volumes for hard-to-abate sectors. The low carbon hydrogen delegated act is therefore crucial to provide legal certainty to project developers. Some industry sectors, such as ammonia and steel, cannot begin their decarbonisation transition without access to low-carbon hydrogen, making it an indispensable intermediate solution. For example, in the ammonia sector, producing low-carbon ammonia via low-carbon hydrogen enables emissions reductions in fertiliser and chemical production where renewable hydrogen supply is still limited. In the steel sector, early adoption of hydrogen-based direct reduced iron (DRI) production often starts with low-carbon hydrogen to enable gradual replacement of coal-based processes and meet regulatory timelines, especially where renewable electricity constraints limit green hydrogen availability.
- **Electricity Prices & competitiveness:** competitive electricity prices are a fundamental enabler of renewable hydrogen production. Countries such as the Iberian Peninsula and the Nordics hold a natural advantage in this regard. For instance, Spain's sun-abundant regions can achieve electricity prices as low as €20/MWh, while Germany's average industrial power prices remain around €65 - 80/MWh. The challenge lies in unlocking infrastructure and market access to fully capitalize on this potential and ensure cost-effective hydrogen can flow across borders. Additionally, countries like France, with decarbonised power mixes, should not be excluded from auctions due to narrow eligibility criteria. Allowing electrolytic low-carbon hydrogen can for example increase electrolyser load factors and amortise costs and enable base-load supply for industrial clients. Electricity prices directly affect the cost of renewable hydrogen produced via electrolyzers and must therefore be considered a strategic lever in hydrogen deployment.
- **Auction Design/Selection criteria:** the bidding price remains the dominant selection criterion. Environmental, social, and resilience criteria are weakly integrated. Given the realities of the EU economic regulatory environment other criteria may need to be considered, with a more detailed discussion in Conclusions. Introducing CO₂ abatement per euro as a selection criterion would help ensure subsidies achieve meaningful decarbonisation outcomes is one such approach which ERCST does not necessarily find it compatible with a market economy, but which, given the EU overall

renewables goals and limit fossil hydrogen use. In transport, RFNBOs must make up at least 1% of fuels by 2030. The Directive allows double-counting and multipliers for hard to abate transport sectors.

regulatory framework and DNA, may be necessary. In this context, lessons from the Netherlands' SDE++ scheme should be recalled, where auction design and price-setting mechanisms have evolved to better match industry needs. The Hydrogen Bank must consider pricing not just for spot hydrogen (currently estimated at €4-6/kg) but also for base-load hydrogen supply, which can reach €11-13/kg. This is a critical factor for industrial off-takers requiring reliability.

- **Sector-Specific or Geographical – Specific Support:**
 - Sector-specific calls (e.g., for steel, ammonia, and other energy-intensive industries under the ETS) could support hydrogen market development in hard to abate sectors, given their unique technological and economic constraints such as (i) high energy costs and regulatory compliance burdens, (ii) lack of demand for low-carbon products, (iii) strong international competition from cheaper non-EU producers.
 - Similarly, introducing geographically targeted auctions could support hydrogen market development in Central and Eastern Europe and Southern Europe, ensuring a more balanced rollout.
- **Auctions-as-a-Service Mechanism:** this mechanism reduces administrative burden and avoids duplication for both governments and project developers. Therefore, more EU countries should use this option for faster and simpler access to public funds.
- **Comparison with the US model:** the Hydrogen Bank was partly a response to the US Inflation Reduction Act and its \$3/kg tax credit¹⁰. However, the EU instrument lacks the simplicity and scale of the US model and struggles to match its impact.

5. Way forward

A third European Hydrogen Bank auction is scheduled for the end of 2025, with a budget of up to €1.1 billion, split across three topics:

- €400 million for RFNBO and/or electrolytic low-carbon hydrogen
- €400 million for RFNBO hydrogen only
- €200 million for RFNBO and/or electrolytic low-carbon hydrogen for maritime applications

The draft Terms and Conditions were published in July and are currently under public consultation. The deadline for feedback is 14 September 2025.

What will happen after the third auction? The EU Hydrogen Bank was initially allocated a total budget of €3 billion. With the upcoming third auction, this funding will be fully committed. The EU Commission will

¹⁰ Section 45V establishes that project eligibility for tax credits and other financial incentives depends on hydrogen's life-cycle greenhouse gas (GHG) intensity. The tax credit or investment tax credit amount reduces as carbon intensity increases. For example, a tax credit of up to 3 dollars is granted to the cleanest hydrogen (producing less than 0.45 kg CO₂e/kg H₂) while no credit for hydrogen exceeding 4 kg CO₂e/kg H₂.

assess the potential for additional funding based on the hydrogen sector's response to the auctions. For now, the long-term future of the Hydrogen Bank remains uncertain.

6. Conclusions

- As a market-based instrument, the Hydrogen Bank can only be effective if strong and predictable demand-side signals are in place. Without sufficient demand, it risks falling short on its objectives.
 - The first priority must therefore be the implementation of robust EU regulatory frameworks that enable demand to emerge. Instruments such as RED III, CBAM, hydrogen standards, Guarantees of Origin (GO) and carbon pricing mechanisms are essential to translate supply-side incentives into real market uptake.
 - The second priority is ensuring a technology-neutral approach. In the early market phase, low carbon hydrogen is indispensable to complement renewable hydrogen and ensure sufficient and timely supply for industrial decarbonization.
- The funding volume remains limited relative to the scale and the ambition required to meet Union-wide hydrogen deployment targets. A substantial increase in budget is therefore necessary. Additionally, allowing cumulation with other EU and national instruments (eg. state aid, CISAF) would improve project bankability and reduce the risk of stranded investments.
- Sector-specific or geographically targeted auctions could help address regional disparities and support key industries facing international competition and high decarbonisation costs.

One other priority is ensuring industry needs can be met within the context of the EU societal approach and regulatory framework. This deserves a more detailed discussion, as a solution becomes necessary, but one which goes against a market approach.

In principle, the Hydrogen Bank should maximize the amount of hydrogen produced with the amount of funds available, and it does that through a reverse auction. However, there are indications that stakeholders feel that the Euro/kg of H₂ as the only test will not ensure adequate/equitable access to H₂ and that other tests or approaches may need to be considered, that would ensure that the use of H₂ produced is distributed among hard to abate sectors.

ERCST feels that, in principle, the economic reverse auction should suffice, but that more complex approaches that will detract from economic efficiency may be made necessary by the EU approach to decarbonization.

The EU is not following decarbonization moving up the MAC curve, but decarbonization of all sectors in parallel, which is not a market economy solution, and detracts from the EU ETS approach. In this

situation different sectors will have to compete for the hydrogen available as feedstock, with different willingness/ability to pay, according to the business case in the respective sector.

In a market economy, two main outcomes are possible. One is the classic economic analysis which says that certain sectors are simply not competitive in the EU, will not access H₂, and will need to relocate. Socially, politically and realistically that is neither possible, nor desirable.

This brings us to a different approach which is a managed market, which leads to a loss of efficiency. Given the government intervention in the market outlined above several solutions can be outlined, which have to be examined due to the existing market intervention.

- Allocation of hydrogen to different sectors by a central regulatory body. That is probably the least desirable solution.
- Sector-specific or geographically targeted auctions could help address regional disparities and support key industries facing international competition and high decarbonisation costs.
- Auctions mechanisms based on bid price and on project contribution to decarbonisation. The selection of the bids based mainly on price overlooks other important factors such as CO₂ abatement potential, grid flexibility, or supply reliability. Considering introducing criteria such as CO₂ abatement per euro as selection criteria would better align public funding with industrial needs and climate goals. This may be a temporary solution until a real market in hydrogen feedstock develops and a solution is put in place to create demand for low carbon products. That solutions will require a strong political will and/or a G20 level of international consensus, which is, for the moment not in the cards.