

Q1/2025

HYDROGEN & DERIVATIVES MARKET REVIEW

LOW-CARBON HYDROGEN HITS TURBULENCE
AMID ELECTROLYZER MARKET SHAKE-UP



Introduction

The first quarter of 2025 marked a notably challenging period for low-carbon hydrogen projects, witnessing a substantial decline in green hydrogen investments. Project Final Investment Decisions (FIDs) totaled 0.44 million tons of hydrogen capacity, with an alarming 70% of this attributable to grey hydrogen, highlighting the weakest performance in low-carbon hydrogen capacity additions since Q4 2022. Blue hydrogen FIDs effectively ceased, while green hydrogen plummeted to its lowest point since Q4 2022. Thus, not even 1 GW of electrolyzer FIDs were confirmed in Q1 2025. While the number of projects getting build is increasing, no large projects are going ahead.

This negative trend has catalyzed significant consolidation within the electrolyzer manufacturing sector. Elogen announced its exit from PEM electrolyzer manufacturing, opting instead to concentrate exclusively on R&D under its owner, LNG technology company GTT. Concurrently, Green Hydrogen Systems, plagued by persistent technological setbacks, filed for in-court restructuring in March 2025, illustrating the growing market pressures facing industry participants. The mobility sector fared even worse, starting with Nikola's initiation of Chapter 11 bankruptcy proceedings. Hyvia was forced into liquidation, HVS shifted to a licensing model to remain afloat, and Hyzon shareholders voted to dissolve the company altogether. Meanwhile, the stationary fuel cell space was not spared either, most notably, South Korea scrapped a \$414 million hydrogen fuel cell power project amid mounting cost pressures.

We expect the global disruption inflicted by the Trump administration's tariffs to continue exerting pressure on international markets throughout at least the next quarter. While these measures may ultimately act as a long-term catalyst for the green hydrogen market - particularly by encouraging domestic manufacturing and localized supply chains - the short-term effect is likely to intensify market consolidation. This development is expected to further widen the gap between the Asian hydrogen market and the rest of the world. In particular, capital projects in the United States are likely to be disproportionately affected, as their supply chains are typically globally diversified. With zero FIDs recorded for blue hydrogen in Q1, export-oriented blue hydrogen projects in the U.S. will likely face additional delays as supply chain uncertainty persists.

On a more positive note, total funding for hydrogen-related companies reached USD 3.75 billion in Q1 2025 - a notable decrease from USD 7.3 billion in Q1 2024, yet still substantially above the USD 0.99 billion recorded in Q1 2023.

Excluding grants and debt financing, the volume remained relatively stable, suggesting continued appetite from technology-oriented investors. Within this, the synthetic fuels and chemicals segment attracted the largest share, accounting for 46% of all company-level funding during the quarter.

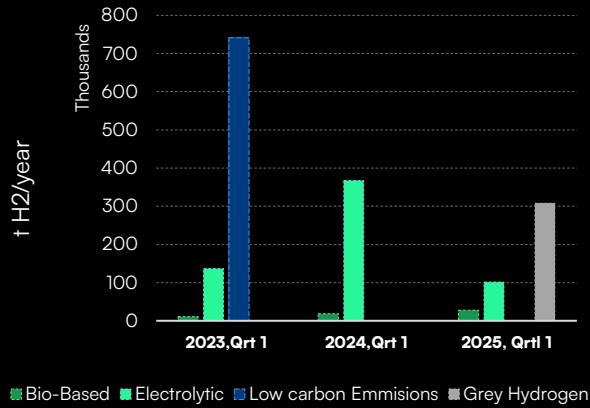
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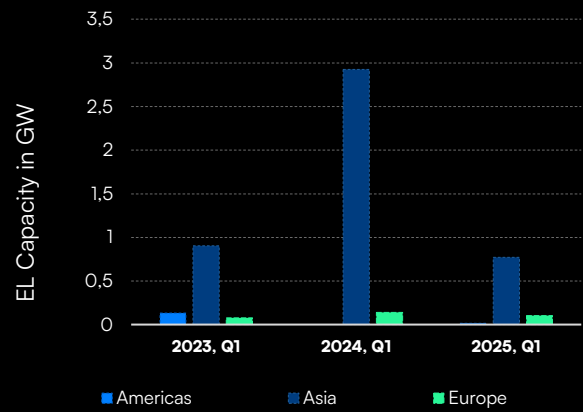


FID Tracker

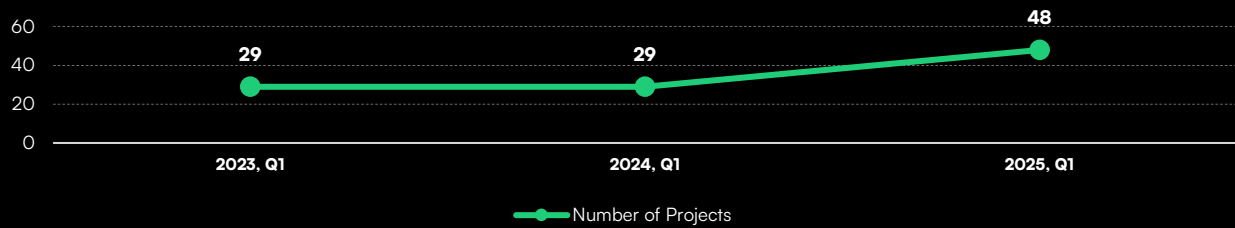
Trend of Low-Carbon Hydrogen Project FIDs:
Q1 Comparison (2023 - 2025)



Quarterly Electrolyzer Capacity with FID:
Q1 Comparison (2023 - 2025)

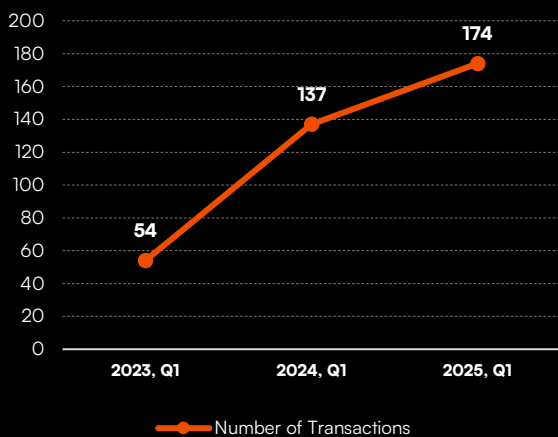


Projects with tracked FID

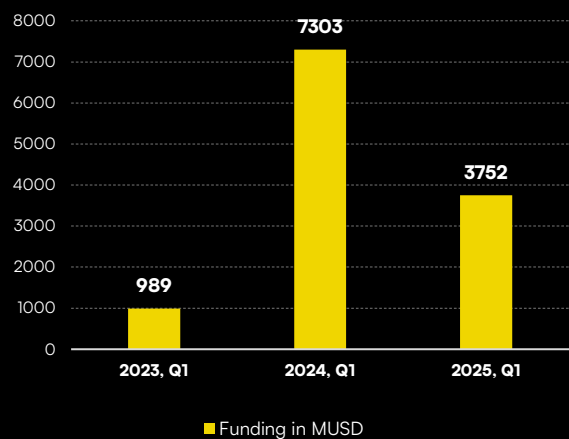


Investment Tracker

Traced Transactions



Total Funding in Million USD





Project Updates

Europe & Africa

- / **Pengerang Energy Complex:** MAIRE and NEXTCHEM will build a \$125m hydrogen unit in Pengerang, Malaysia, to support a biorefinery converting 650,000 tons of waste into low-carbon fuels by 2028.
- / **Lhyfe:** Announced the construction of its fifth green hydrogen production facility in France, and the first in the northern region.
- / **Torghatten Nord & GreenH:** Luxcara and GreenH will build a 20MW green hydrogen plant in Bodø, Norway, backed by \$11.5m in funding. From 2026, it will supply 3,100 tonnes of H₂ annually to two ferries on the Vestfjorden route.
- / **Stadtwerke Stuttgart:** Approved the development of a hydrogen production facility as part of the Green Hydrogen Hub Stuttgart, featuring 10 MW of electrolysis capacity and 1,000 tonnes/year output, to be commissioned by late 2026.
- / **Ecoplanta:** Developing a waste-to-renewable fuels plant in Spain to process 400,000 tonnes of municipal waste annually and generate 240,000 tonnes of renewable fuels and circular products by 2029.
- / **Norwegian Hydrogen:** Acquired Aker Horizons' green hydrogen project in Rjukan, Norway, and will continue development of the 25 MW production plant and took FID at the end of March.
- / **Romanian Authorities:** Presented the country's first electrolyzer plant in Cluj-Napoca with a capacity of 1,024 kg/day.
- / **Nigeria & China:** Signed a €7.6 billion green hydrogen energy cooperation agreement to facilitate transition from fossil fuels to clean energy in Nigeria.
- / **Freija:** Initiated FEED studies for a large-scale green e-methanol plant in Finland. The Norwegian developer has secured a 150,000 m² site in Nokia (Tampere region) and submitted an Environmental Impact Assessment (EIA) report.
- / **European Energy:** Successfully produced its first e-methanol at the Kassø Power-to-X facility in Denmark. The plant will ramp up to 42,000 tonnes/year capacity using Siemens Energy electrolyzers and locally sourced biogenic CO₂.
- / **Liquid Wind & Övik Energi:** Resumed development of the Örnköldsvik e-fuel project in Sweden.
- / **Power2X & Worley:** Partnered on engineering and project management for the eFuels Rotterdam facility - a world-scale plant focused on sustainable aviation fuel (eSAF) and ultra-low carbon fuels.



- / **Magnon Green Energy (Ence Group):** Planning a 250,000-tonne/year renewable methanol plant in Huelva, Spain. The facility will integrate CO₂ capture, green hydrogen electrolysis, and methanol synthesis.
- / **Oulu eSAF Plant:** Verso Energy announced Finland's largest hydrogen refining project, set to produce 80,000 tonnes/year of eSAF. The project represents a €1.4 billion investment and will create 250 jobs.
- / **Eni, Maire & Iren:** Launched permitting process for a waste-to-fuel facility that will convert 200,000 tonnes/year of non-recyclable waste into 110,000 tonnes of circular methanol.
- / **Air Liquide Egypt & United Energy Group:** Signed an MoU to explore production of low-carbon ammonia derived from renewable hydrogen.
- / **TotalEnergies** joins forces with **Air Liquide** to decarbonize its refineries in Northern Europe with Green Hydrogen.

Americas

- / **Clean-Seas West Virginia (CSWV):** Secured \$15 million in funding from **Huntington National Bank** and began construction of its first Plastic Conversion Network (PCN) facility in Belle, West Virginia, to convert waste plastic into clean fuels including hydrogen.
- / **Invenergy:** Began operations at its first clean hydrogen project in Illinois, USA. The five-acre site is designed to produce up to 40 tonnes of clean hydrogen per year.
- / **Transition Industries & Veolia:** Partnered to provide advanced water technology for the Pacifico Mexinol project in Sinaloa, Mexico-planned as the world's largest standalone ultra-low carbon methanol plant, with a capacity of 6,145 tonnes/day by 2028.
- / **Summit Carbon Solutions & Infinium:** Reached an agreement to supply up to 670,000 metric tons of captured CO₂ per year to a proposed eFuels facility in either North Dakota or South Dakota.
- / **Sempen:** Secured land at Brazil's Port of Açu to build a green ammonia facility with planned production of one million tonnes per year. Final investment decision (FID) is expected by 2028.
- / **United Airlines:** Reaffirmed its support for US sustainable aviation fuel (SAF) projects, regardless of ongoing legislative uncertainties.

Asia & Oceania

- / **Qazesta Fertilizers Ltd.:** A joint venture of QazaqGaz and ESTA Construction received government approval for a \$1.35 billion (grey) ammonia and urea plant in Mangistau, Kazakhstan, with annual output of 700,000 tonnes of urea and 42,000 tonnes of ammonia.

The background is a dark blue, textured surface with a marbled or stone-like pattern. It features various shades of blue, from deep navy to lighter, almost teal tones, creating a complex, organic texture. The lighting appears to come from the upper left, casting subtle highlights and shadows across the surface.

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FULL QUARTERLY
REVIEW.**

Link is in the comment section.