INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update Dec 2024 – May 2025: European Commission

Name	Patrice Millet
Contact Information	patrice.millet@ec.europa.eu Tel: +32 229-85140
Covered Period	December 2024 to May 2025

1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

The Clean Industrial Deal

The Commission adopted on 26 February 2025 a communication (COM(2025) 85 final) entitled **"The Clean Industrial Deal: A joint roadmap for competitiveness and decarbonisation"**. The Clean Industrial Deal (CID) is the business plan to accelerate decarbonisation and competitiveness for European industry - by boosting innovation and reinforcing resilience. CID focuses on:

- **Energy-intensive industries:** to safeguard competitiveness from high energy costs and unfair global competition
- **Clean-tech sector:** to allow it to expand in the EU as it is a key enabler of competitiveness and decarbonisation

It is structured around 6 core business drivers:

- Affordable Energy with the adoption of the Affordable Energy Action Plan: Europe's energy prices are higher than those of trading partners, impacting competitiveness, especially for energy-intensive sectors.
- Lead Markets: Lack of stable and predictable market demand for clean tech products.
- Financing: Not enough investments to support decarbonisation, electrification and competitiveness of the industry.
- Circularity and Access to Materials: High dependence of EU industry on critical raw materials. Materials are not reused sufficiently; precious materials are being thrown away.
- Global Markets and International Partnerships: The EU has scarce primary materials needed for the clean transition. There is a global race for access to markets, raw materials and new technologies.
- Skills Enhancement: Businesses need access to workers with the right skills. Offer quality jobs and ensure just transition.
- Simplification: Complex regulations and administrative barriers can hinder industrial growth and the implementation of clean technologies; in particular by speeding up permitting for industrial decarbonisation projects.

Hydrogen has a central role to play in decarbonising the EU energy system, in particular in the hard to abate sectors where electrification is not yet a viable option.

A clear regulatory framework is essential. The Commission will therefore adopt the delegated act on low carbon hydrogen, to clarify the rules for producing low carbon hydrogen in a pragmatic way, providing certainty to investors.

To de-risk and accelerate the uptake of hydrogen production in the EU, the Commission will launch a third call under the Hydrogen Bank in Q3 2025 with a budget of up to EUR 1 billion and encourage Member States to use the auctions-as-a-service platform provided by the Commission, for example by facilitating the use of unspent EU funds.

Moreover, the launch of the Hydrogen Mechanism under the European Hydrogen Bank in Q2 2025 will mobilise and connect off-takers and suppliers, linking participants with financing and de-risking instruments to facilitate aggregation of offtakers' demand for hydrogen and hydrogen-derived fuels in hard-to-decarbonise industrial sectors and transport, e.g. in the maritime and aviation sectors.

To prepare the review of the delegated act on renewable fuels of non-biological origin, the Commission is launching a study to assess the effectiveness of the hydrogen framework and identify possible barriers to the upscaling of renewable hydrogen. The Commission also continuously supports stakeholders in the certification process, notably with a regularly updated online Q&A.

The Hydrogen and gas markets decarbonisation package

The EU hydrogen and gas decarbonisation package, consisting of Directive (EU) 2024/1788 and Regulation (EU) 2024/1789, was adopted in May 2024. It also introduces a new regulatory framework for dedicated hydrogen infrastructure.
EU countries have until mid-2026 to transpose the revised Gas Directive into national law.

The revised rules create a level-playing field, based on EU-wide rules, for the hydrogen market and infrastructure and remove barriers that hamper their development. They also create the right conditions for some of the existing natural gas infrastructure to be decommissioned and if needed repurposed for hydrogen, which will lead to cost savings and support decarbonisation at the same time.

The package also sets out clear rules on energy imports, such as a requirement to adopt EU-level or MS-level agreements on the operation of hydrogen import pipelines. The package also empowers the Commission to establish a pilot mechanism to support the market development of renewable and low-carbon hydrogen. It will also use the information collected to provide insights on infrastructure development and facilitate financial support.

Additionally, the recast Gas Directive introduces a system of requirements and certification of low-carbon hydrogen, complementing the revised Renewable Energy Directive (EU/2023/2413).

Low-carbon hydrogen refers to hydrogen the energy content of which is derived from **non-renewable sources**, which meets the GHG reduction threshold of 70 % compared to 94 g CO2eq/MJ that is set out in the methodology for assessing their GHG savings from renewable fuels of non-biological origin ('RFNBOs) and recycled carbon fuels under the EU Renewable Energy Directive.

Delegated Act on low-carbon hydrogen

As per the Directive (EU) 2024/1788, the Commission has to adopt a methodology for evaluating the emission savings of low-carbon fuels. In line with the legal mandate, this

methodology must be aligned with the approach established for renewable fuels of non-biological origin (RFNBOs) and recycled carbon fuels (RCF), including the coverage of indirect emissions and distinction between rigid and flexible inputs for hydrogen production. The Delegated Act will cover all relevant production pathways (e.g. hydrogen produced from low-carbon electricity and hydrogen produced from natural gas applying CCUs) and create a level playing field between various forms of hydrogen. The act will provide the last missing element for the methodology to identify what qualifies as low-carbon hydrogen.
The deadline for adopting the methodology is 5 August 2025.
Upon finalisation, the text of the delegated act will be passed to the European Parliament and the Council of Ministers for a 2-month scrutiny period. If the Parliament and the Council do not object during this time, the delegated act is formally published in the Official Journal and enters into force.

ENNOH

The revised Gas Regulation establishes the European Network of Network Operators for Hydrogen (ENNOH) to support the cost-efficient development and operation of hydrogen pipelines in the EU. This association for the EU-level cooperation of hydrogen transmission network operators will be responsible for the:

- development of draft network codes for hydrogen to ensure the optimal management of the Union hydrogen network, and
- Development of hydrogen ten-year network development plans (TYNDP) in cooperation with ENTSO-E and ENTSOG in the framework of the EU-level integrated network planning. ENNOH will take over completely this task from ENTSOG as of 1st January 2027.

On 16 May 2025, the European Commission published its Opinion on the statutory documents of ENNOH, including its draft articles of association, rules of procedure and list of members. The future hydrogen transmission network operators will be now in charge of adopting and publishing by early July the final statuary documents.

Renewable hydrogen

In September 2024, a guidance on the RFNBO targets for industry and transport was published. It explains the calculation of the targets, their scope and the interlinkage between the 2 targets for industry and transport.

A compliance certification system is in place, with six internationally operating certification schemes having applied for EU recognition. Before recognition, the schemes undergo a dedicated in-depth assessment. Schemes that meet all the relevant criteria are recognised via Commission Implementing Decisions. In January 2025 the European Commission approved three certification schemes for Renewable Fuels of Non-Biological Origin (RFNBOs). These certifications, namely ISCC EU, CertifHy, and REDcert, can play a critical role in ensuring the sustainability and traceability of RFNBOs, which are essential for achieving the EU's climate and energy goals.

2. Hydrogen and Fuel Cell R&D Update

Call for Proposals 2025 of Clean Hydrogen JU

The Call for Proposals has an indicative total budget of EUR 184.5 million, including EUR 80 million to be directed exclusively towards Hydrogen Valleys topics according to the REPowerEU Plan. It also includes EUR 20 million from United Kingdom appropriations. Synergies with other European partnerships and programmes as well as with Member States and regional programmes are at the core of a number of topics.

A total of 19 topics are part of the Call for Proposals, including 7 on renewable hydrogen production, 3 on hydrogen storage and distribution, 3 on transport and one on clean heat and power. In addition, 3 topics will support cross-cutting issues. This call also includes 2 Hydrogen Valleys topics, as usual, both for large- and small-scale configurations.

The Call for Proposals closed on 23 April 2025. The Clean Hydrogen JU received an unprecedented high interest with 212 proposals submitted[1]. With this Call, the Clean Hydrogen partnership enters its technology upscaling phase, it will fund projects to achieve cost-effective renewable hydrogen production, develop cost-effective hydrogen storage solutions or deliver reliable, scalable fuel cell systems for heavy-duty vehicles and maritime applications. In addition, the Call also allocates €80 million from the RePowerEU Plan for the continued development of Hydrogen Valleys across Europe. Evaluation results are expected to be communicated in August 2025.

Results of the Call for Proposals 2024 of Clean Hydrogen JU

The Clean Hydrogen Partnership has awarded EUR 154.6 million in grants through its 2024 Call to date[2], supporting 26 groundbreaking projects that aim to accelerate the development and deployment of hydrogen technologies across Europe. These projects address key challenges in hydrogen production, storage, distribution, and application, playing a vital role in enhancing the EU's industrial competitiveness and advancing hydrogen technology readiness.

Covering the entire hydrogen value chain, the projects bring together partners from 33 countries, fostering research collaboration and innovation that will reshape energy systems across key sectors - from industry to transport and stationary applications. Project include 5 new Hydrogen Valleys receiving a combined grant of EUR 57.5 million.

Hydrogen Valleys Facility

In June 2024, the Clean Hydrogen JU launched a tender to set-up and run a 'Hydrogen Valleys Facility' aiming at accelerating the number of hydrogen valleys in Europe. The facility includes project development assistance to support Hydrogen Valleys at different level of maturity. The facility will include activities aiming to ensure that the knowledge gathered, and the lessons learnt from Hydrogen Valley projects (including skills) are retained, collected, analysed and widely disseminated and used in a structured and efficient way. The Facility will also be used to maintain and update the Mission Innovation Hydrogen Valley Platform. The Hydrogen Valleys Facility will be launched as part of the Hydrogen Valleys Days[3] in June 2025

3. Demonstration, Deployments, and Workforce Developments Update

[1] https://www.clean-hydrogen.europa.eu/call-proposals-2025-closed_en

[2] https://www.clean-hydrogen.europa.eu/media/news/clean-hydrogen-partnership-boosts-innovation-26-new-cutting-edge-projects-2025-05-07_en

[3] https://www.clean-hydrogen.europa.eu/media/news/save-date-hydrogen-valley-days-second-edition-2025-01-28_en

Clean Hydrogen Partnership is supporting 21 Hydrogen Valleys across Europe

Building on the successful work of the Clean Hydrogen Partnership with regions and on the learnings of the BIG-HIT project supported under the Call for Proposals 2015 of the Clean Hydrogen Partnership, support to Hydrogen Valleys has been included in all JU Call for Proposals since 2019. Hydrogen Valleys have been identified in the RePowerEU plan as essential in order to scale up Europe's hydrogen economy.

Acknowledging the role of the Clean Hydrogen JU in initiating the concept of Hydrogen Valleys and of its initial support, the European Commission allocated to the Clean Hydrogen Partnership an additional €200 million through RePowerEU, to double the number of Hydrogen Valleys in Europe by 2025. Altogether, the Clean Hydrogen JU has supported to date 21 hydrogen valleys projects[4] across 19 European countries, out of which 20 projects are still ongoing. Together they represent project costs for more than 1.3 bill EUR with a JU total funding of just above 250 MEUR.

JIVE 2: Nordic Roadshow Showcases Hydrogen's Role in Sustainable Public Transport

This spring, Sweden hosted the Nordic leg of the hydrogen bus roadshow as part of the JIVE (Joint Initiative for hydrogen Vehicles across Europe) projects, supported and funded by the Clean Hydrogen Partnership. A zero-emission hydrogen fuel cell bus toured four Swedish cities - Stockholm, Gothenburg, Ljungby, and Växjö - offering a real-world demonstration of how climate-friendly public transport is already achievable today.

The roadshow is the latest in a series organized under the JIVE projects, which have deployed 300 hydrogen buses across Europe. Following previous roadshows held in Eastern Europe between 2022 and 2024, this year's event marks the fourth and final roadshow, with both Sweden and Finland participating.

The deployment of over 300 fuel cell buses across 16 European cities—alongside a dramatic cost reduction from €1.5 million to under €625,000 per bus—highlights how JIVE and JIVE 2 are advancing European industrial leadership and enhancing the EU's global competitiveness in the clean mobility sector.

REVIVE Project Concludes its Successful Demonstration of Hydrogen Fuel Cell Refuse Trucks Across Europe[5]

The REVIVE project has successfully concluded as the largest European deployment of hydrogen fuel cell refuse trucks. Operating 11 vehicles across seven cities in the Netherlands, Belgium, and Sweden, the project demonstrated hydrogen's potential to decarbonise urban waste collection. Over its course, the trucks covered over 72,000 km and collected 13,140 tonnes of waste, avoiding an estimated 68 tonnes of CO_2 emissions. The initiative highlighted key benefits including environmental impact, public engagement, and green job creation, while also addressing challenges like infrastructure and cost. Insights and data gathered through REVIVE, along with collaboration with similar EU projects, have laid the groundwork for broader adoption of hydrogen technology in heavy-duty transport across Europe.

HyScale Project: Delivers Breakthrough in Eco-Friendly Electrolyser Design,

[4] https://www.clean-hydrogen.europa.eu/get-involved/hydrogen-valleys_en

[5] https://www.waterstofnet.eu/_asset/_public/Revive/REVIVE-Final-Press-Release-FV_DEF.pdf

Moving Closer to Industrial-Scale Green Hydrogen Production[6]

The HYScale project is successfully advancing green hydrogen production by developing high-performance materials that eliminate the need for critical raw materials (CRMs) and PFAS. It focuses on scaling up Anion Exchange Membrane water electrolyser (AEMEL) technology to create a cost-effective and durable 100 kW prototype stack. The project has successfully demonstrated that lab-developed materials can perform reliably at larger scales. Key innovations include a PFAS-free membrane (AionFLX™), a flow-field-free cell design for improved manufacturability, and cost-optimized components. With partners across seven EU countries, including major research institutions and industry players, HYScale is moving toward industrial validation (Technology Readiness Level 5), helping Europe progress toward its climate goals by enabling scalable, clean hydrogen energy solutions.

FLEX4H2 Milestone: Ansaldo Energia's GT36 Turbine Achieves 100% Hydrogen Operation[7]

As part of the FLEX4H2 project, Ansaldo Energia has achieved a major technological milestone by successfully demonstrating that its GT36 gas turbine combustor can operate on 100% hydrogen fuel. Conducted at a high-pressure test facility in Cologne, Germany, the trials confirmed the GT36's ability to seamlessly transition between natural gas and hydrogen, showcasing its exceptional fuel flexibility. This success highlights the potential of GT36's sequential combustion technology to support a fully decarbonized power sector, marking a critical step in advancing hydrogen-fueled power generation

4. Events and Solicitations

Publications

Update report on Hydrogen Valleys and the Mission Innovation Hydrogen Valley Platform[8] (June 2024)

The report examines the current landscape of the clean hydrogen sector by **analysing data from Hydrogen Valleys worldwide over the past three years**. It explores the evolution of the Hydrogen Valley concept and community, along with the essential conditions required for their growth. Additionally, the report addresses emerging challenges confronting both Hydrogen Valleys and the broader clean hydrogen sector, while proposing forward-looking solutions.

Study on Sustainable Supply Chain and Industrialisation of Hydrogen Technologies[9] (October 2024)

[6] https://www.hyscale.eu/2025/05/12/in-the-press-hyscales-innovation-in-the-spotlight-following-press-release/
[7] https://www.ansaldoenergia.com/about-us/media-center/power-generation-news-insights/detail-news/gt36-sequential-combustion-technology-achieves-100-hydrogen
[8] https://www.clean-hydrogen.europa.eu/media/publications/making-it-happen-hydrogen-valleys-progress-evolving-sector_en
[9] https://www.clean-hydrogen.europa.eu/media/publications/study-sustainable-supply-chain-and-industrialisation-hydrogen-technologies_en

The study highlights Europe's position in the renewable hydrogen sector, emphasising its leadership in electrolyser manufacturing and cutting-edge R&D. Despite these strengths, the report identifies challenges such as reliance on critical raw materials (CRMs), limited production capacity, and regulatory hurdles. To boost Europe's competitiveness and sustainability, the study recommends enhancing circularity, increasing manufacturing scale, closing technology gaps, and securing long-term regulatory and financial support. Strengthening supply chains is vital to Europe's energy transition and to compete globally in hydrogen technologies.

Final Study – Technical Assistance to Generate Synergies with Member States and Regions[10] (November 2024)

The "Technical Assistance to Generate Synergies with Members States and Regions" ran from January 2023 until June 2024. It successfully supported the Clean Hydrogen Partnership in finalising 10 Memoranda of Cooperation (MoCs) with National and Regional Managing Authorities (MAs).

Study on Hydrogen Production via Direct Seawater Electrolysis (January 2025)[11]

Direct seawater electrolysis offers a sustainable alternative to freshwater use in hydrogen production. The study highlights progress in electrode materials, catalysts, and system design, while comparing direct and indirect seawater electrolysis. Key challenges - such as corrosion, chlorine evolution, and low efficiency - are analysed, alongside recent advances in selective catalysts and membranes. Although no current research or industrial projects show clear advantages of direct over indirect methods, the findings suggest direct seawater electrolysis could be viable for specific applications in the hydrogen economy.

Final Report - European Hydrogen Sustainability and Circularity Panel[12] (EHSCP) (April 2025)

This report summarises the activities of the European Hydrogen Sustainability & Circularity Panel (EHS&CP) during its first twelve months of operation, from February 2024 to February 2025. It outlines the panel's key findings, including the evaluation of Clean Hydrogen Joint Undertaking (JU)-funded projects, and highlights critical gaps in how sustainability and circularity (S&C) are addressed - particularly around environmental, circularity, and social dimensions. The report also presents strategic recommendations aimed at strengthening S&C integration across hydrogen projects, funding frameworks, and governance structures.

Reports on technology progress assessment:

The Joint Research Centre published two annual reports in the frame of the European Clean Energy Technologies Observatory, serving the need for progress assessment:

- Water Electrolysis and Hydrogen in the European Union – 2024 Status Report on Technology Development, Trends, Value Chains and Markets

[10] https://www.clean-hydrogen.europa.eu/media/publications/final-study-technical-assistance-generate-synergies-member-states-and-regions_en
[11] https://www.clean-hydrogen.europa.eu/knowledge-management/collaboration-jrc-0/clean-hydrogen-ju-jrc-deliverables_en
[12] https://www.clean-hydrogen.europa.eu/media/publications/final-report-european-hydrogen-sustainability-and-circularity-panel-ehscp_en

- Fuel Cell Technology in the European Union – 2024 Status Report on Technology Development, Trends, Value Chains and Markets

The two have been accompanied by more concise policy brief on Energy efficiency of water electrolysers for hydrogen production, providing policymakers with clarifications about the techno-economic concepts influenced by the energy efficiency of electrolysers systems such as the multiple definitions and metrics used by manufacturers.
On materials topics, the JRC has published report Substitution and reduction of critical and strategic raw materials in clean energy technologies, with a chapter dedicated to fuel cells and electrolysis, identifying the most effective substitution solutions within each stage of development to fully exploit the innovation potential, and highlighting some possible trade-offs involved.

Events & Initiatives

Workshop on Hydrogen and Ammonia Combustion Technologies (Kobe, Japan) – 26 March 2025[13]

The Clean Hydrogen Partnership and Japan's NEDO co-hosted a crucial workshop in Kobe to advance international collaboration on hydrogen and ammonia combustion technologies. Building on their 2024 cooperation agreement, the event gathered industry leaders, researchers, and policymakers to explore innovative clean energy solutions. A major highlight was the discussion of eight JU-funded hydrogen combustion projects, focusing on overcoming technical challenges to enable 100% hydrogen operation in turbines, boilers, and burners. The workshop emphasised the importance of continued research, cross-border collaboration, and the Clean Hydrogen JU's role in accelerating progress, driving innovation, and fostering mutual benefits for both industries and research communities.

Webinar on Hydrogen Sustainability and Circularity – 8 May 2025[14]

The webinar featured insights from the European Hydrogen Sustainability and Circularity Panel (EHS&CP), established by the Clean Hydrogen Partnership. The panel shared its findings and discussed key challenges in advancing hydrogen sustainability. The session highlighted clean hydrogen's role in decarbonising transportation, focusing on storage, resource efficiency, and circularity. Scaling up hydrogen technologies supports both environmental goals and innovation.
Additionally, experts provided insights on hydrogen life cycle analysis (LCA) and eco-design from the SH2E and eGHOST projects, complemented by contributions from the Joint Research Centre (JRC) on hydrogen sustainability.

Hydrogen Valleys Days 2025

[13] https://www.clean-hydrogen.europa.eu/media/news/advancing-hydrogen-combustion-technologies-through-international-collaboration-2025-03-26_en
[14] https://www.clean-hydrogen.europa.eu/media/news/webinar-hydrogen-sustainability-and-circularity-2025-03-20_en

Following the success of the inaugural edition, the Clean Hydrogne has announced the second edition of the Hydrogen Valley Days, taking place in Brussels on 24-25 June 2025[15].

5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

Innovation Fund

The latest calls of the Innovation Fund (IF24 NZT and Batteries) opened on 3 December 2024 and closed for applications on the 24 April 2025.

The IF24 NZT call had a budget of €2.4 billion, divided in topics of large, medium, and small-scale projects, for clean tech manufacturing, and for pilots. It received 359 applications, collectively requesting EUR 21.7 billion, from 28 EEA countries. Projects in the full hydrogen value chain (including renewable and low carbon hydrogen production, derivatives and e-fuels production, electrolyser manufacturing, fuel cells, etc) are eligible under the IF24 NZT call. Results will be public on Q4 2025. All projects that meet the evaluation criteria will receive a STEP Seal awarded the Commission, regardless of whether they are selected for funding.

As announced in the Clean Industrial Deal, the plans to commit EUR 6 billion from the Innovation Fund in 2025, including for clean tech, battery manufacturing, the European Hydrogen Bank and industrial decarbonisation.

The European Hydrogen Bank

In 2022, the Commission launched the European Hydrogen Bank to support the scale-up of production and deployment of renewable hydrogen across Europe, contributing to the decarbonisation of European industry. It consists of a domestic and an international leg and the mechanism to scale up the hydrogen market. Under the domestic leg, funding is awarded as a fixed premium in €/kg of verified and certified renewable fuel of non-biological origin (RFNBO) hydrogen produced.

A second renewable hydrogen auction opened on 3 December 2024 and awarded up to €1.2 billion support to renewable hydrogen producers located in the European Economic Area (EEA), contributing to the further creation of a European market for renewable hydrogen by de-risking investments with public support.
This call for proposal included two topics subject to separate competitive bidding procedures:

- a general topic to support the production of RFNBO hydrogen regardless of the sector in which it will be consumed (€1.0 billion); and,
- a specific topic for the production of RFNBO hydrogen to be used in the maritime sector (€200 millions).

The auction was heavily oversubscribed, as it attracted 61 bids from 11 countries, requested four times the available budget and all bids taken together account for a total electrolyser capacity of around 6.3 GWe.

On 20 May 2025, the Commission announced the selection of 15 renewable hydrogen production projects for public funding across the European Economic Area (EEA). The projects, located across five countries, are expected to produce nearly 2.2 million

[15] https://www.clean-hydrogen.europa.eu/media/news/save-date-hydrogen-valley-days-second-edition-2025-01-28_en

tonnes of renewable hydrogen over ten years, avoiding more than 15 million tonnes of CO_2 emissions. The hydrogen will be produced in sectors such as transportation, the chemical industry, or the production of methanol and ammonia. They will receive a total of €992 million in EU funding, from the Innovation Fund sourced from the EU Emissions Trading System (ETS).
The winning bidders, awarded after the second European Hydrogen Bank (EHB) auction, will produce the renewable hydrogen in Europe with a subsidy that will help to close the price difference between their production costs and the market price and accelerate the deployment of cleaner fuels.
The selected projects will be now invited to prepare their grant agreement with the European Climate, Infrastructure and Environment Executive Agency (CINEA). Agreements are expected to be signed by September/October 2025. Projects must reach financial close within 2.5 years and enter into operation within 5 years.

In parallel, Spain, Lithuania, and Austria are allocating up to €836 million in national funding for projects in their countries through the 'Auctions-as-a-Service' feature. This allows Member States to identify and fund eligible projects in their territories that meet the auction's qualification criteria but cannot be funded by the Innovation Fund due to budgetary limitations. 'Auctions-as-a-service' is open to all Member States, enabling them to benefit from the EU-level auction platform and award national funding to additional projects with simplified procedure.

As announced in the CID, the Commission will launch a third auction for under the European Hydrogen Bank with a budget of up to EUR 1 billion before the end of 2025.

The international leg of the Hydrogen Bank is focusing efforts on a Team Europe approach to pool financial resources from Member States.

Under the Hydrogen Mechanism, the Commission is supporting the market development of hydrogen and accelerate investments. This mechanism is provided for under the Regulation (EU) 2024/1789 for internal market rules for gas and hydrogen. It will support the development of the European hydrogen market by (i) connecting off-takers and suppliers, (ii) informing on hydrogen infrastructure needs and (iii) connecting with the financial institutions to incentivize investments. The Hydrogen Mechanism is will be activated in mid-2025 – it will be opened for registrations in June; start of operations is planned for September.

Important Projects of Common European Interest (IPCEI) on Hydrogen

4 IPCEIs on hydrogen are now up and running, Hy2Tech, Hy2Use, Hy2Infra and Hy2Move representing huge public investments of €18.7 billion. The 4 IPCEIs correspond to a total of 116 active projects from 16 Member States and covering the entire value-chain from hydrogen production technologies, fuel cells technologies, hydrogen infrastructure, hydrogen storage and pipelines and hydrogen applications in industry and end use applications in mobility. The Commission is now focussing on monitoring the implementation of those projects and identifying the barriers and challenges to the deployment of the hydrogen market.

6. Regulations, Codes & Standards, and Safety Update

Hydrogen Incidents and Accidents Database HIAD

The Joint Research Centre of the European Commission (JRC) published a new version of the, available on the JRC portal dedicated to major accidents and hazard MAHB: https://minerva.jrc.ec.europa.eu/en/shorturl/capri/hiadpt. At the same link an online dashboard is also available. The new version is updated to end of 2024, and has been enriched with all historical events publicly available, occurred during road transport of hydrogen since early 1960.

EU – OECD Hydrogen Fuel Risks Webinar Series

On 11 March 2025, the Commission and the OECD organised 4th webinar on Hydrogen Fuel Risks. The fourth meeting of the EU Technical Working Group for Seveso Inspections (TWG 2) and OECD Working Party on Chemical Accidents focused on the challenges, safety considerations, and regulatory standards associated with using ammonia as an energy carrier for hydrogen. Participants highlighted the importance of collaboration among policy experts, industry stakeholders, and safety professionals to ensure safe and effective implementation.[16]
Since 2023, the Commission - JRC's Major Accident Hazards Bureau (MAHB) – collaborates with partners in chemical accident risk management within the OECD on organisation of a series of webinars focused on the different aspects of managing the risks associated with hydrogen fuel. JRC Major Accident Hazards Bureau has published on its website programmes, available presentations and reports from the four webinars that have taken place from 15 September 2023 to 11 March 2025.[17]

International Hydrogen Safety Conference ICHS

The 2025 edition of the ICHS will take place in September 22-26, in Seoul. More than 200 paper contributions were submitted and peer-reviewed, and the final programme will be ready soon. The IPHE and the European Commission are endorsing the ICHS, and the JRC is member of the Organising and of the Scientific Committees.

European Hydrogen Safety Panel

The European Hydrogen Safety Panel (EHSP) initiative was launched by the JU in 2017. The mission of the EHSP is to assist the JU both at programme and at the project level in assuring that hydrogen safety is adequately managed, and to promote and disseminate hydrogen safety culture within and outside of the JU Programme.
The EHSP is composed of a multidisciplinary pool of experts grouped in ad-hoc working groups (task forces) according to the tasks to be performed and to expertise. Collectively, the members of the EHSP have the necessary scientific competencies and expertise covering the technical domain needed to make science-based recommendations to the Clean Hydrogen JU.
In 2024, the Clean Hydrogen JU concluded a service framework contract for the provision of support for coordinating and managing the EHSP, strengthening its coordination, activities, and impact. The framework contract Clean Hydrogen/OP/Contract 353 entered into force on 18 December 2024, and the activities are expected to start before summer 2025.

[16] https://minerva.jrc.ec.europa.eu/en/shorturl/minerva/hydrogen_fuel_risks_webinar_part_4

[17] https://minerva.jrc.ec.europa.eu/EN/content/minerva/32adb4dd-5e93-11ee-9891-0050563f0167/eu_oecd_hydrogen_fuel_risks_webinar

7. International cooperation

Mission Innovation - Clean Hydrogen Mission (CHM)

Piero Venturi from DG Research and Innovation is the Director of the Clean Hydrogen Mission (CHM).

CHM is one of seven flagship Missions within Mission Innovation and aims to catalyse action, investment, and knowledge exchange between member countries to accelerate the clean hydrogen transition. CHM is a multilateral forum of member countries and the European Commission. It consists of six co-leaders (Australia, Chile, European Union, Spain, United Kingdom, United States) and fourteen members (Austria, Canada, China, Finland, Germany, India, Italy, Japan, Republic of Korea, Morocco, Norway, Netherlands, Saudi Arabia, United Arab Emirates). CHM also maintains strong partnerships with other international organisations such as CEM H2, IPHE, IEA Hydrogen's TCP, UNIDO, CHP. What makes the CHM unique is its global coverage and the fact that it brings together members willing to mobilise joint efforts to develop a global hydrogen economy.

New goal:

CHM worked in late 2024 and early 2025 to develop a new goal, which will be published shortly. This update will help guide CHM's activities in 2025 and beyond to advance clean hydrogen as a key decarbonisation driver for the transport, industry and energy sectors. The new CHM goal is as follows: "The Clean Hydrogen Mission catalyses international collaboration in research and innovation for the development of a global clean hydrogen value chain. By demonstrating commercially viable hydrogen technologies by 2030, we will enable hydrogen to complement electrification and drive deep decarbonization in hard-to-abate sectors."

Annual report 2024:

CHM published its first annual report in March 2025. CHM's highlights in 2024 include:

- The publication of three reports: 1. Member Survey on research and Innovation Priorities highlighting the main research and innovation challenges to be addressed to build a globally competitive hydrogen economy, 2. Hydrogen Valleys Blueprint, a short brochure showcasing examples of hydrogen valleys from different regions around the world, such as Latin America, the Middle East, East Asia, and the South Pacific, 3 Guidebook on Clean hydrogen in Cities which aims to help cities better understand the benefits and possible challenges of clean hydrogen applications and support the implementation of hydrogen projects in urban areas.
- The organisation of several virtual and in-person events to share knowledge on hydrogen technologies and network with various stakeholders such as international organisations, research institutes, industrial companies, cities.
- The signature of three Memoranda of Understanding with the Clean Hydrogen Partnership, IPHE and UNIDO to reinforce strategic ties.
- Collaborative work via the two CHM working groups focusing on end-use and production, led respectively by the United States and the United Kingdom.

Work plan 2025 and already launched actions:

In February 2025, CHM shared a work plan featuring 13 actions with its members. This plan is designed to meet the CHM's objective while aligning with the specific needs of each member. In 2025, CHM will be pursuing efforts in the following initiatives: 1. Research & Innovation to drive forward the identified R&I priorities, 2. Demand creation to help stimulate demand especially in hard-to-abate sectors, 3. Hydrogen Valleys to expand the number of integrated hydrogen projects and help them get past the FID stage, 4. Hydrogen Skills to support the creation of an hydrogen workforce, 5. Industry engagement to support the uptake of hydrogen technologies in industry.
Several activities have already been launched in 2025:

- The End-Use Workshop, organised by the UK and Chile on 27 March, which brought together 160 participants. The event highlighted research and development projects focusing on hydrogen end-use applications.
- The production of the R&I global priority report based on the results of the R&I survey carried out in 2024. It explores the opportunities and barriers associated with each R&I priority and sets out an action plan to move the priorities forward.
- The coordination of H3 Priority Action “Research and Innovation” together with the Breakthrough Agenda. This action involves several organisations such as IEA H2 TCP, IPHE, IRENA and UNIDO and aims to increase the number of clean hydrogen research and demonstration projects in various sectors and regions, with mechanisms for rapidly sharing the lessons learned.

Key messages and actions for MI-10 and beyond

One of this year's milestones is the MI-10 meeting in Busan in August 2025. CHM will use this event as a platform to present results, make announcements and strengthen its links with players wishing to contribute to the hydrogen transition. The following table outlines various possible actions that will either be implemented at MI-10 or at a later date.

Joint actions with key partners	● Joint actions with other Missions (IBM, NIM, GPFM, UTM) focusing on sector-coupling activities involving hydrogen ● Actions with CEM counterpart on hydrogen integration in developing economies and sustainability analysis
Presentation of **new results**	● Update of the report on patent data relating to fuel cell and hydrogen technologies by CSIRO ● Side-event with UNIDO and MOTIE on hydrogen demonstration projects and their key role in clean hydrogen adoption
Strengthening of strategic links	● Signature of MoU with H2 EU Research
Promoting **CHM's strengths**	● CHM co-leader Chile to host major hydrogen and energy events in Santiago in 2025 ● CHM acts as knowledge broker thanks to its members and the tools they have implemented