

Hydrogen sustainability and circularity activities

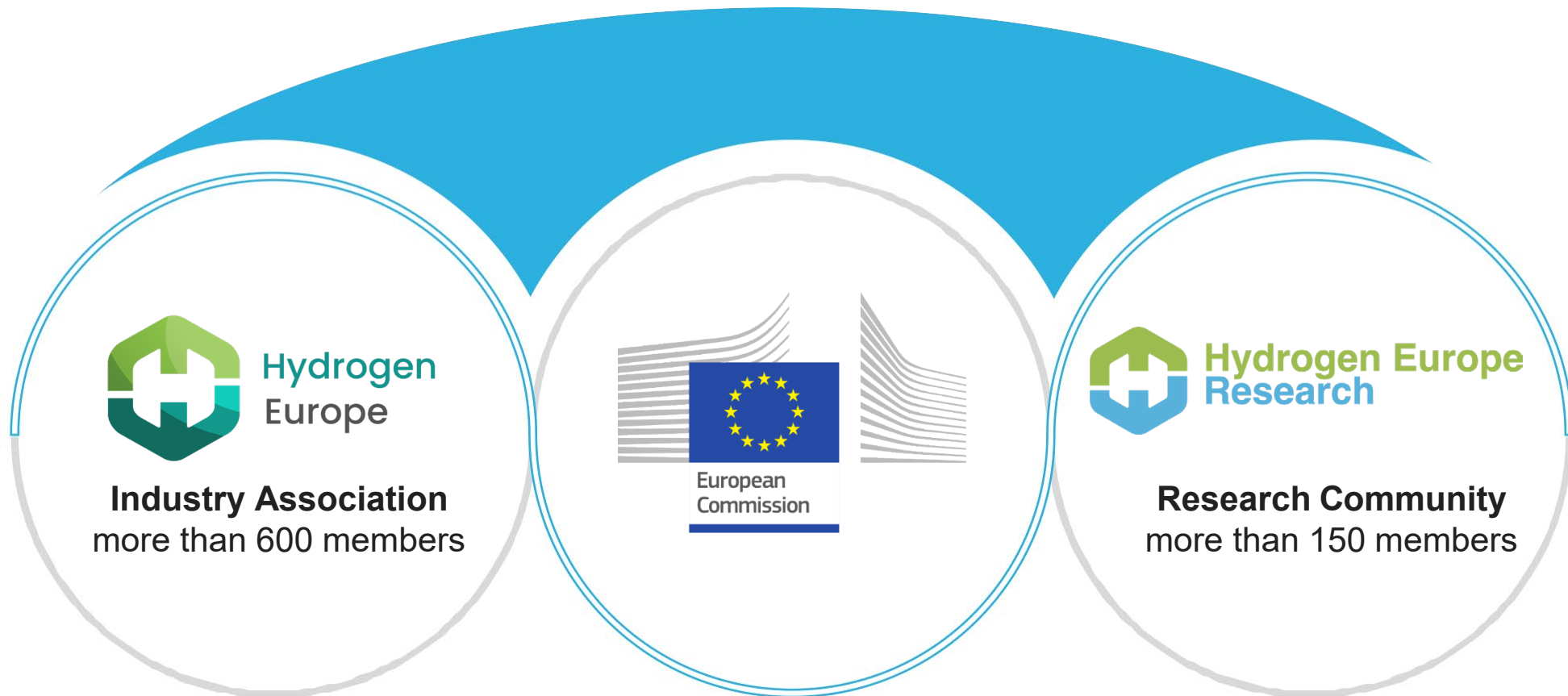
Online webinar
8 May 2025

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Communications



Clean Hydrogen Joint Undertaking

Institutionalised European Public-Private Partnership







1 billion EURO from Horizon Europe* to implement R&I activities and facilitate the transition to a greener EU society through the development of hydrogen technologies

*** additional 200 million EURO for Hydrogen valleys (under RePowerEU)**

Clean Hydrogen JU Objectives

General

-  Support the implementation of the Commission's **Hydrogen Strategy**
-  Stimulate **research and innovation on clean hydrogen** production, distribution, storage and end use applications
-  Strengthen the **competitiveness of the EU clean hydrogen value chain**
-  Contribute to the EU ambitious **2030 and 2050 climate ambition incl Green Deal**

Specific

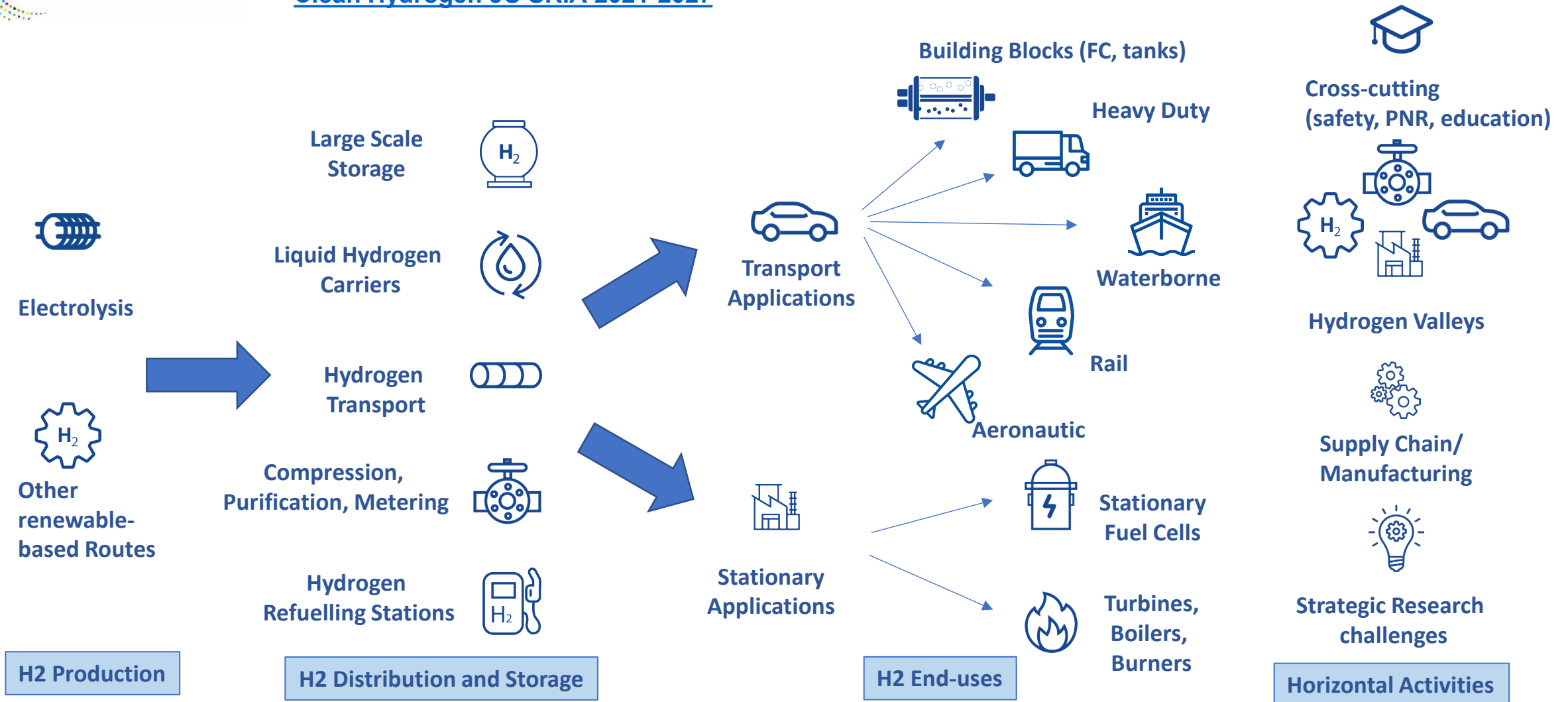
-  Improve the **cost-effectiveness, efficiency, reliability**, quantity and quality of clean hydrogen solutions across **entire value chain**
-  Strengthen the **knowledge/capacity of scientific and industrial actors** along the Union's hydrogen value chain while supporting the **uptake of skills**
-  Demonstrations of clean hydrogen solutions with a view to **local, regional and Union-wide deployment**, aiming to involve stakeholders in all Member States and across **entire value chain**
-  Increase **public and private awareness, acceptance** and uptake of clean hydrogen solutions



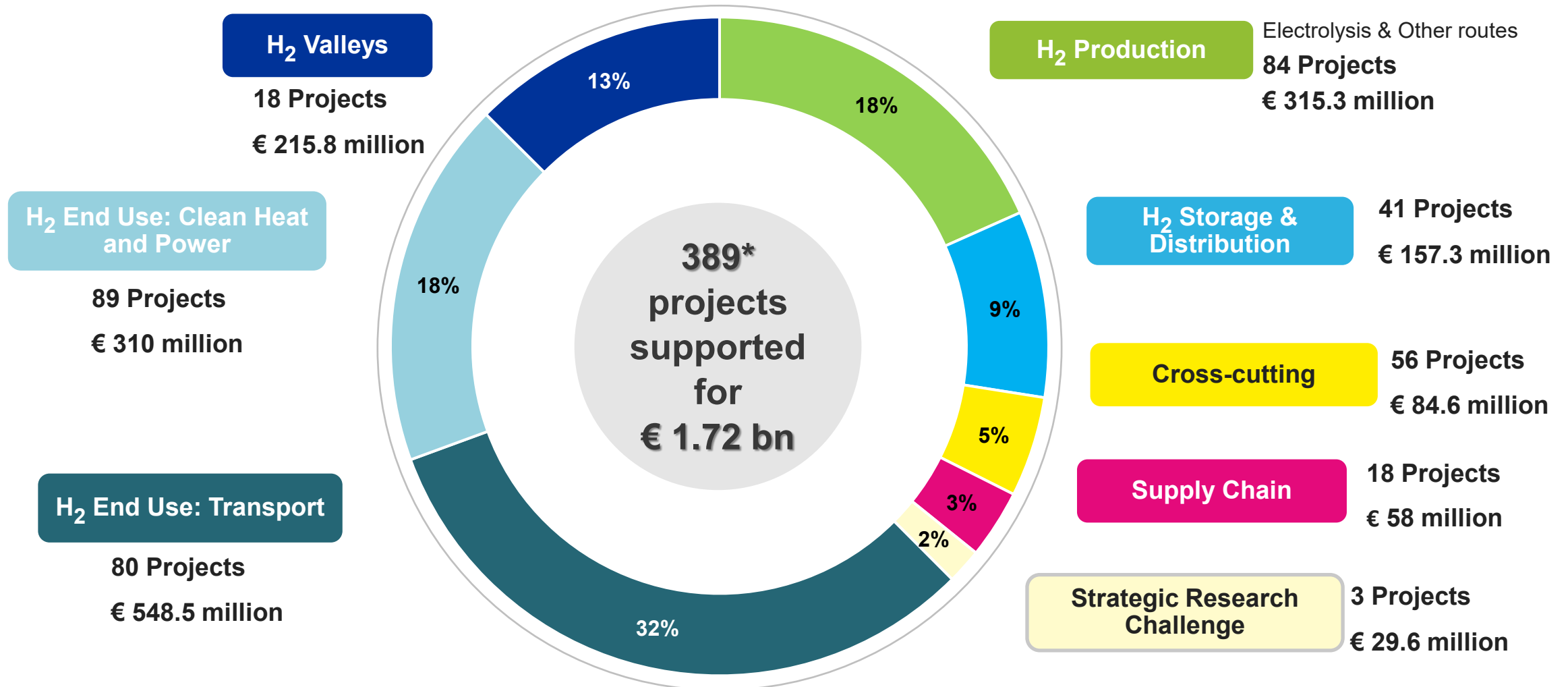
Strategic Research & Innovation Agenda

Clean Hydrogen JU SRIA 2021-2027

4



Clean Hydrogen JU Projects



** Not all projects from Call 2024 are included as they are still under grant preparation*

Other Activities

Additional **activities at programme level** are necessary to fulfil the Clean Hydrogen JU objectives



- Feedback to policy/Fact-based Studies (*procurements/tenders*)
- Developing Synergies with other partnerships and programmes
- Regulations, Codes and Standards
- European Hydrogen Safety
- **European Hydrogen Sustainability and Circularity**
- Knowledge management
- Competitiveness incl SMEs and Startups
- International Cooperation
- Communication activities



Clean Hydrogen Partnership Projects on H₂ Sustainability and Circularity

Examples of cross-cutting projects dealing with hydrogen sustainability and circularity



HORIZON 2020

SH₂E

Guidelines for Life Cycle Sustainability Assessment and Prospective Benchmarking

SUSTAINABILITY ASSESSMENT OF HARMONISED HYDROGEN ENERGY SYSTEMS

THE PROJECT

ENVIRONMENTAL DIMENSION ECONOMIC DIMENSION SOCIAL DIMENSION

eco-design

Guidelines for Hydrogen Systems and Technologies

eGHOST

BEST 4Hy

HOME PROJECT PARTNERS NEWS CONTACT NEWSLETTER LOGIN

SUSTAINABLE SOLUTIONS FOR RECYCLING OF END-OF-LIFE HYDROGEN TECHNOLOGIES

HORIZON EUROPE

HyPEF
TRACING CLEAN HYDROGEN

HOME ABOUT IMDEA ENERGY RESEARCH TECHNOLOGY NETWORKING PEOPLE AND TALENT COMMUNICATION

HyPEF: Promoting an environmentally-responsible Hydrogen economy by enabling Product Environmental Footprint studies

Summary

Fuel cells and hydrogen (FCH) systems are increasingly considered in energy and climate policies, roadmaps and plans all over the world. In order to avoid past criticalities, such as those leading to a climate emergency situation, sustainability criteria are being progressively implemented in these initiatives, e.g., by promoting low-carbon renewable hydrogen in Europe. In this regard, science-based criteria and procedures are required to guarantee the environmental suitability of FCH products, reporting their life-cycle environmental profile according to the principles of transparency, traceability, reproducibility, and consistency for comparability. While these principles are aligned with those of the general methodological guidance for Product Environmental Footprint (PEF) studies, further specification is required to effectively implement them when addressing FCH products. Hence, the HyPEF project aspires to support and promote the establishment of an environmentally-

NHyRA

NHyRA aims to deliver reliable measurement and quantification methods, new data and rigorous calculation-based models in order to determine H₂ releases from the H₂ value chain and assess its potential climate impact.

Co-funded by the European Union

Clean Hydrogen Partnership

This project has received funding from the Clean Hydrogen Partnership under Grant Agreement No 101137770. This Partnership receives support from the European Union's Horizon Europe Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research.

Development of non-fluorinated (PFAS-free) components for fuel cells and electrolyzers

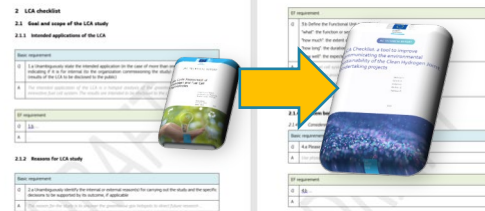
3 NEW projects: PROMISERS, ECOPEM and FASTCH2ANGE

Cooperation with the JRC



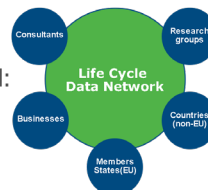
LCA checklist

- To ensure a minimal level of completeness and documentation of LCA studies of hydrogen-related projects, in collaboration with the SH2E project



Data network activities

- Guidelines on developing life cycle inventory datasets
- Three EF-compliant datasets developed and externally reviewed:
 - Proton-exchange membrane (PEM) Water Electrolyser
 - Proton-exchange Membrane
 - Anode for PEM electrolysis cell



Expert workshops



Expert workshop on Environmental Impacts of H2 (in 2022)

With the support of:

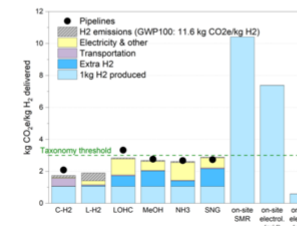


Better understanding and knowledge of the environmental impacts of hydrogen and hydrogen releases



Sustainability of hydrogen delivery

- Understand whether **transporting hydrogen could make sense from an environmental perspective**, and if so, which is the option with the lowest impact among the impact categories



- Conceptual framework assessing and monitoring social risks and impacts related to hydrogen technologies

European Hydrogen Sustainability and Circularity Panel

➡ **Expert group** supporting the Clean Hydrogen Partnership on hydrogen **sustainability and circularity** at the Programme and projects level

Objectives



Enhancing the **integration of environmental, social and economic sustainability considerations** into the EU hydrogen value chain, with a focus on transitioning towards a **circular economy**

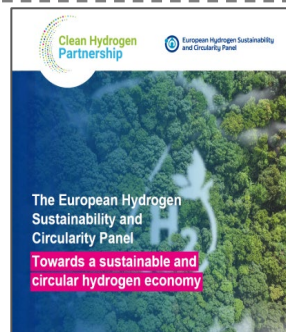


Promoting and disseminating knowledge for a more sustainable and circular culture within the Clean Hydrogen JU programme and beyond

Report available

(with results after first 18 months of activities):

https://www.clean-hydrogen.europa.eu/media/publications/final-report-european-hydrogen-sustainability-and-circularity-panel-ehscp_en



➡ **New tender/continuation for up to 4 years - published today**

https://www.clean-hydrogen.europa.eu/apply-funding/procurements_en

For further information
<https://www.clean-hydrogen.europa.eu/>

