Clean Hydrogen Partnership

Clean Hydrogen JU General Presentation

Slides provided to Dr. A. Stubos for Greek-Bavarian collaboration in EU frameworks in the field of Hydrogen energy technologies

June 2022

EUROPEAN PARTNERSHIP

Co-funded by the European Union

Clean Hydrogen Joint Undertaking

EU Institutional Public-Private Partnership (IPPP)

To facilitate the transition to a greener EU society through the development of hydrogen technologies

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Legacy Fuel Cells and Hydrogen JU

A combined private-public of **more than 2 billion Euro** has been invested from 2008 to 2020 to bring products to market readiness

FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

Hydrogen Europe
Industry grouping
>350 members
50% SME

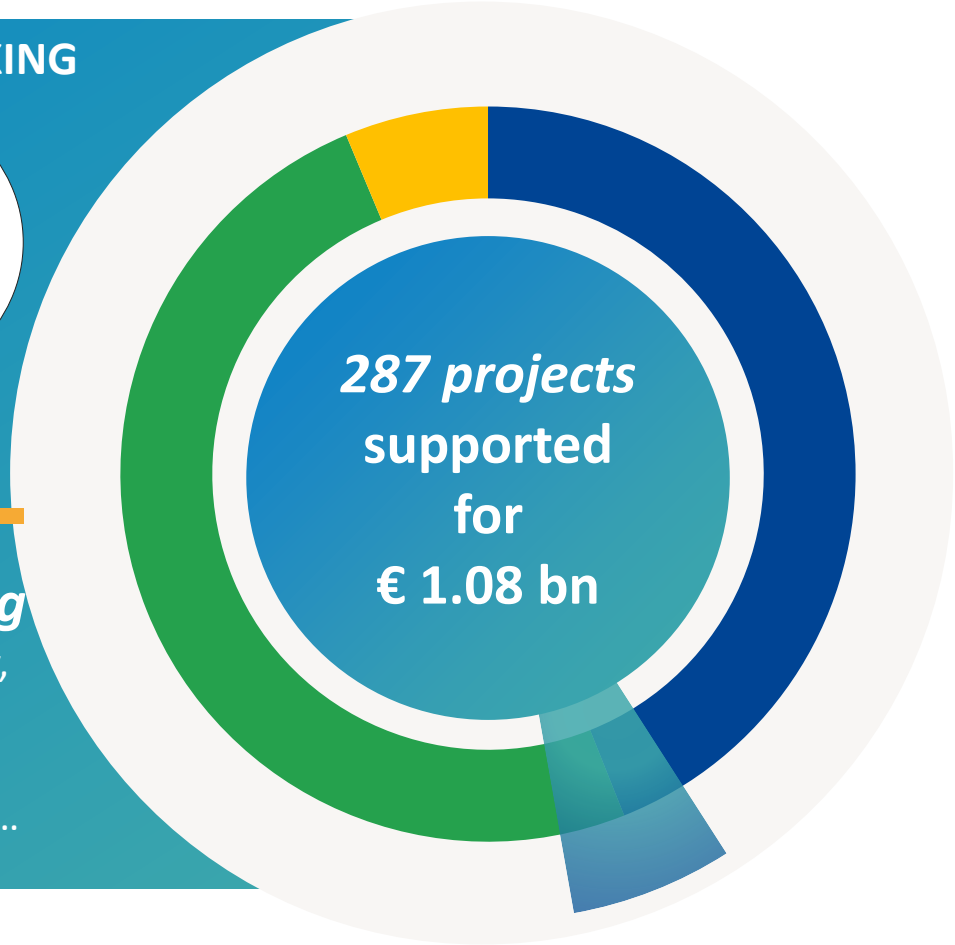
European Commission

Hydrogen Europe Research
Research grouping
100 members

Energy
H_2 production and distribution
H_2 storage
F/C for CHP

Transport
Road vehicles
Non-road vehicles
Refueling infra
Maritime, rail and aviation

Cross-cutting
standards, safety, education, consumer awareness, GoO…



45 %
€ 481 mn
153 projects

41.4 %
€ 443 mn
77 projects

6.3 %
€ 67 mn
48 projects

7.3 %
€ 79 mn
7 projects

- Similar leverage of other sources of funding: € 1.08 bn

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Clean Hydrogen JU

- Council Regulation establishing the Joint Undertakings under Horizon Europe
  (adopted 19 November 2021 & into force 30 November 2021)

- Budget: **1 billion EURO** from Horizon Europe (to commit until 2027 and implement until 2031)
- Governance: Governing Board (three members: Commission, HE, HER) + advisory bodies (SRG, SG)
- *Need also to collect independent opinions of the wider scientific community, through a scientific advisory workshop (during H2Week/H2Forum)*

Research & Innovation Activities (SRIA multi-annual doc)

- Renewable hydrogen production
- Hydrogen transmission, distribution and storage
- End-use technologies in transport, buildings and industry (incl. fuel cells, burners, boilers, etc.)

Clean Hydrogen JU Objectives

Support a sustainable hydrogen economy, contributing to EU's climate goals

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

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EU Hydrogen Strategy launched on 8th July 2020

Objectives in 3 phases with the Hydrogen Alliance to support the investment agenda

Phase 1: 2020-2024

- 6GW of renewable H_2 electrolysers
- 1 million tonnes renewable H_2
- Replace existing H_2 production
- Regulation for liquid H_2 markets
- Planning H_2 infrastructure

Phase 2: 2025-2030

- 40GW renewable H_2 electrolyser
- 10 million tonnes renewable H_2
- New applications in steel & transport
- H2 for electricity balancing purposes
- Creation of "Hydrogen Valleys"
- Cross-border logistical infrastructure

Phase 3: 2030-2050

- H_2 technologies matured and deployed at large scale in hard to abate sectors.
- Expansion of hydrogen-derived synthetic fuels
- EU-wide infrastructure network
- An open international market

Clean Hydrogen Alliance to support the EU investment agenda

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Clean Hydrogen Partnership

What is the Clean Hydrogen Alliance?

European Clean Hydrogen Alliance

- Launched on 8th July 2020
- Mission to create a project pipeline for a massive role-out of EU Clean Hydrogen technology
- Involving all active stakeholders in the clean hydrogen ecosystem, bringing together supply and demand

The blueprint estimates investments of €430 billion by 2030

- Hydrogen Production
- Transmission & Distribution
- Mobility Applications
- Industrial Applications
- Energy Applications
- Residential Applications

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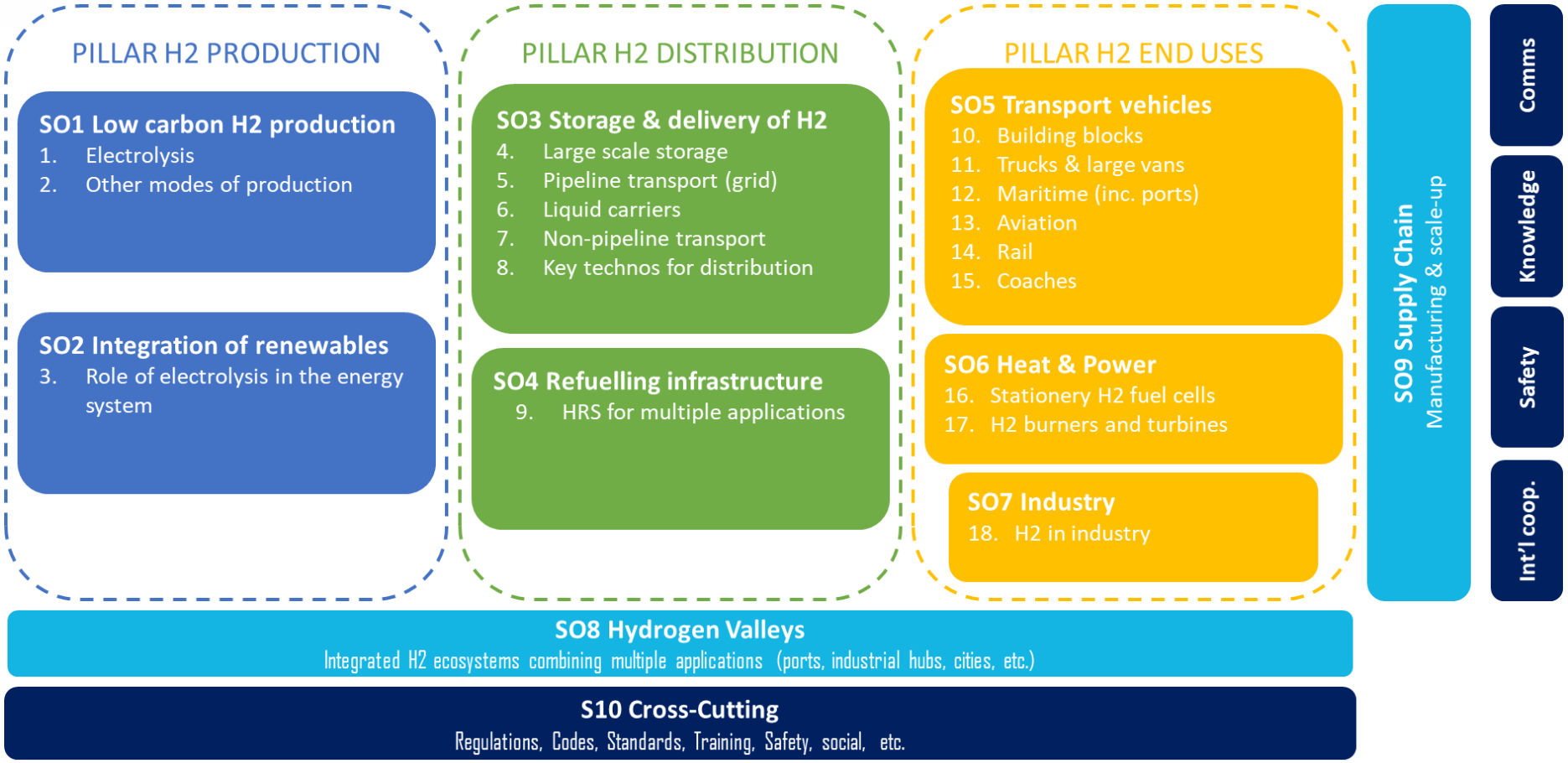
Research and Innovation priorities in Clean Hydrogen JU



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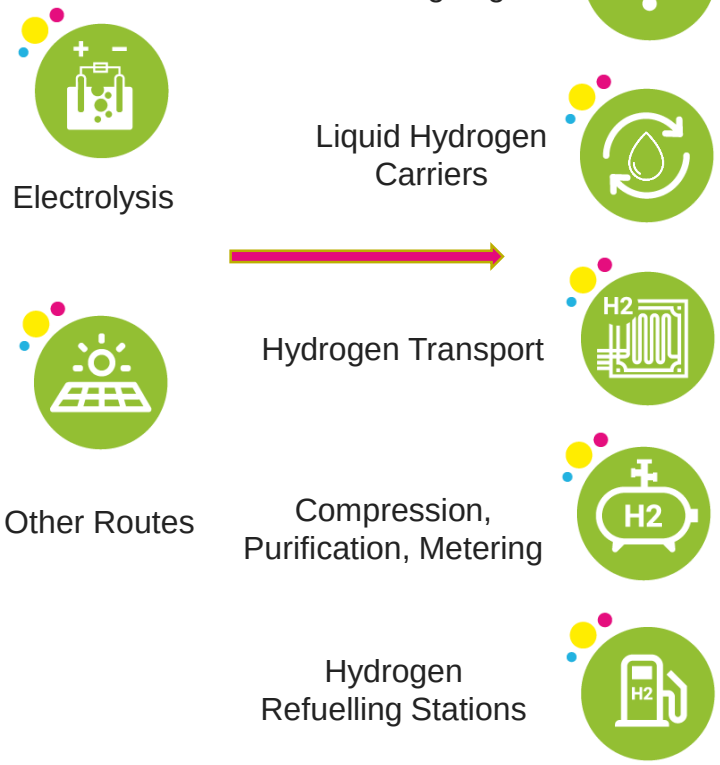
Research & Innovation Activities

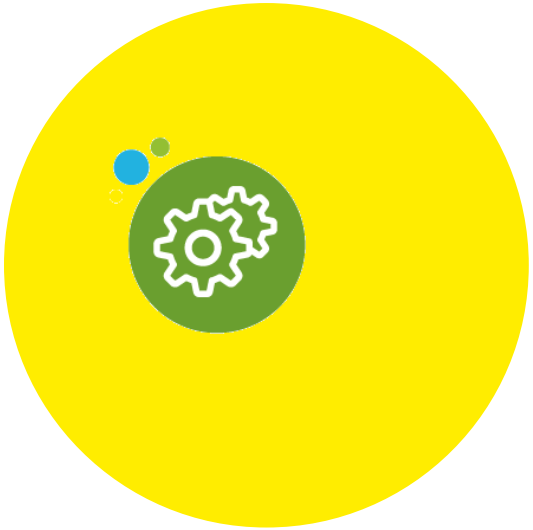
Clean Hydrogen Partnership



Production | **Distribution and Storage** | **End-use** | **Horizontal Activities**

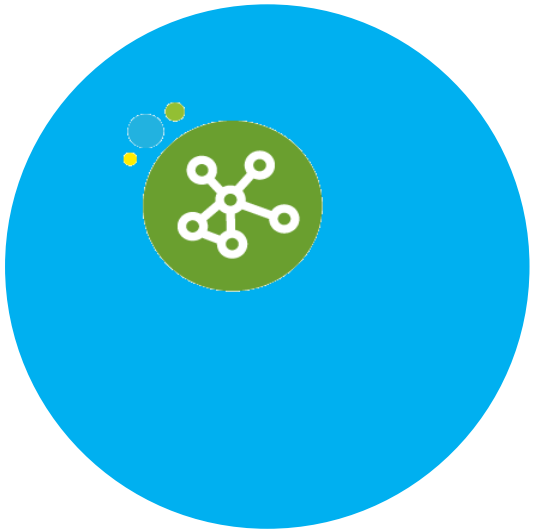
Scientific Priorities

Reaching out to the wider scientific community



The research and innovation activities of the Clean Hydrogen Partnership range from early research actions to large scale demonstrations.

The Clean Hydrogen Partnership relies on the wider scientific community (in addition to its member, Hydrogen Europe Research) to provide its expertise and suggestions on its research and innovation agenda.



Its independent opinions and advice will be gathered annually during H2 Week/Stakeholders Forum therefore further explored in the upcoming partnership.