Clean Hydrogen Partnership

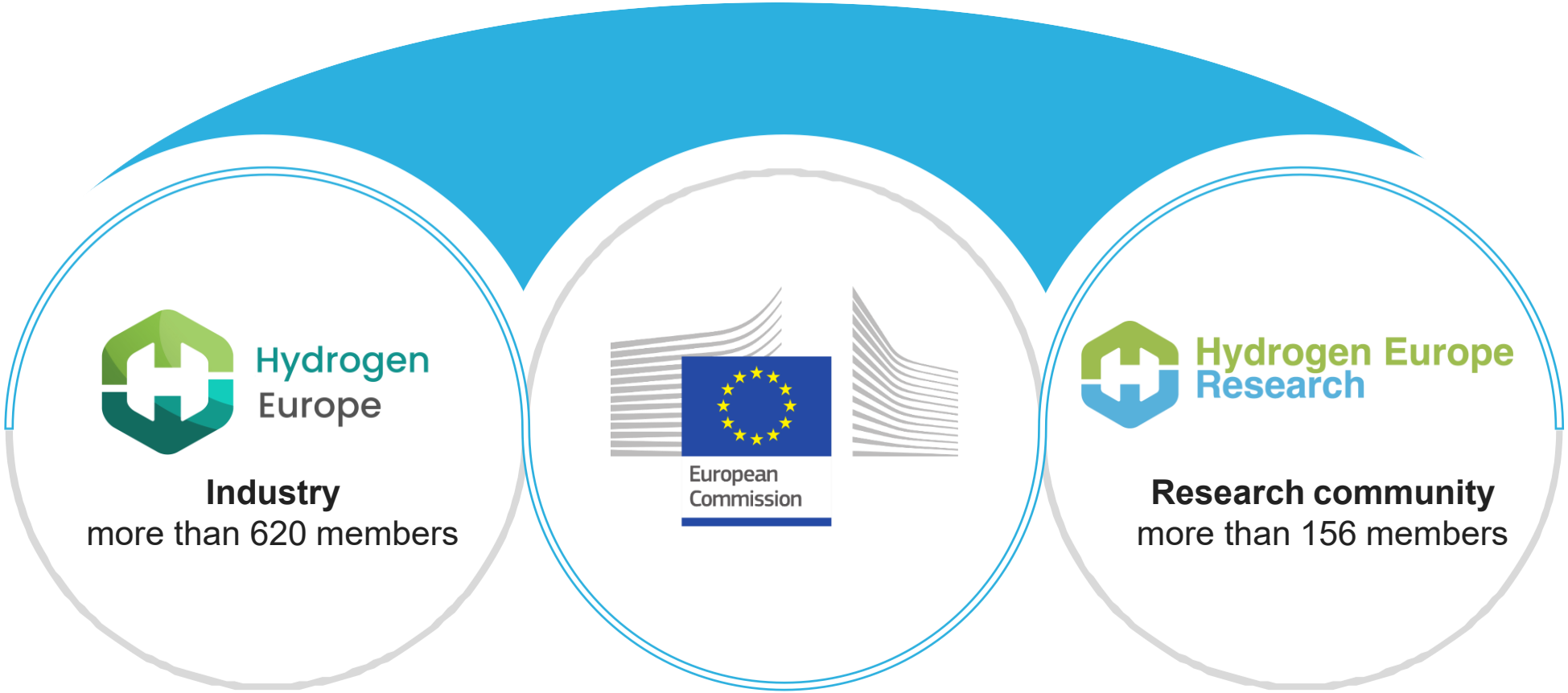
# Catalyzing green hydrogen markets through EU policy and procurement, case steel industry

How can R&D efforts better integrate with procurement, certification, and policy tools to accelerate demand creation?

Renata Kadric, Synergies Officer
Clean Hydrogen Partnership

# Clean Hydrogen Joint Undertaking/Partnership

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)***



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# 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



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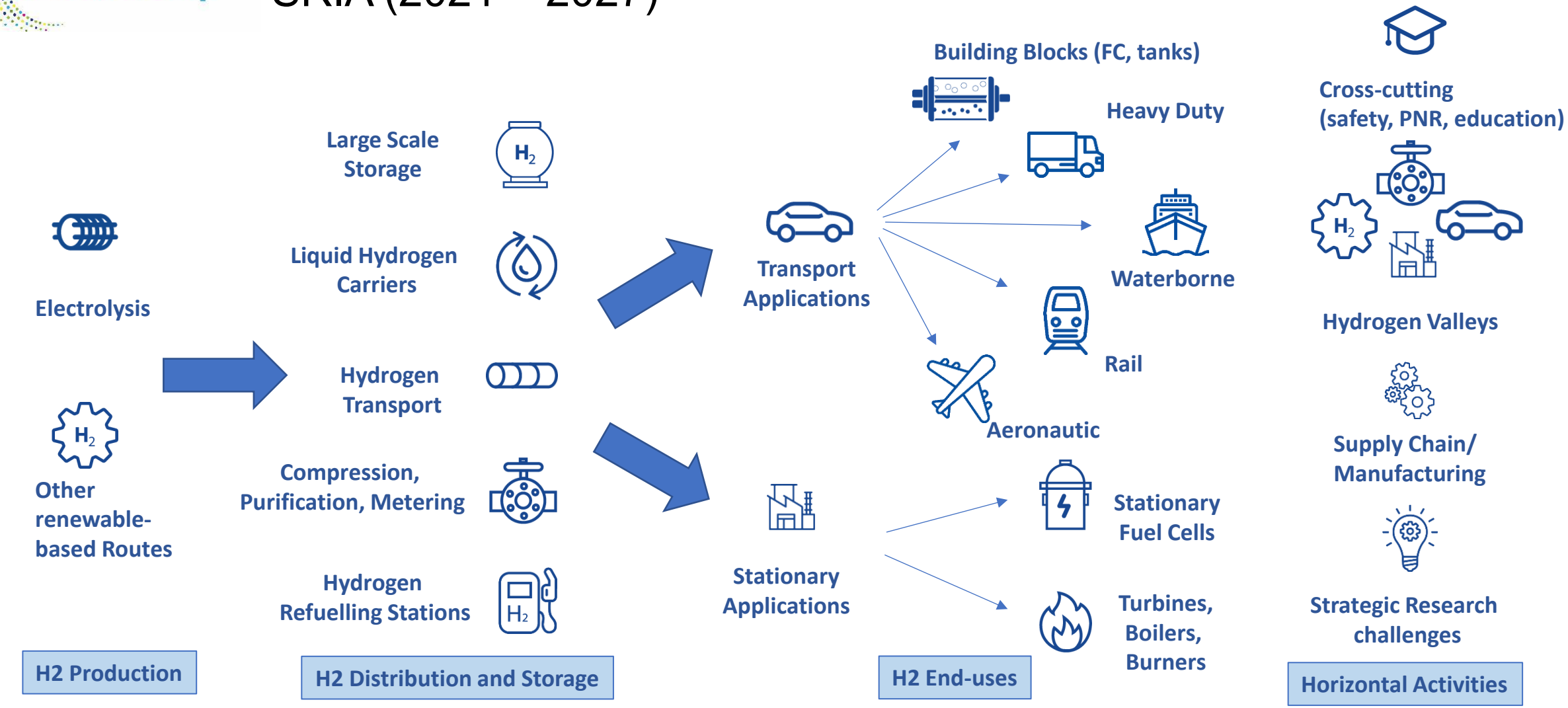
# Strategic Research & Innovation Agenda

SRIA (2021 – 2027)

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Clean Hydrogen JU SRIA 2021-2027

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# Clean Hydrogen JU Programme (incl FCH JU legacy)

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**$H_2$ Valleys**

18 Projects

€ 215.8 million

**$H_2$ End Use: Clean Heat and Power**

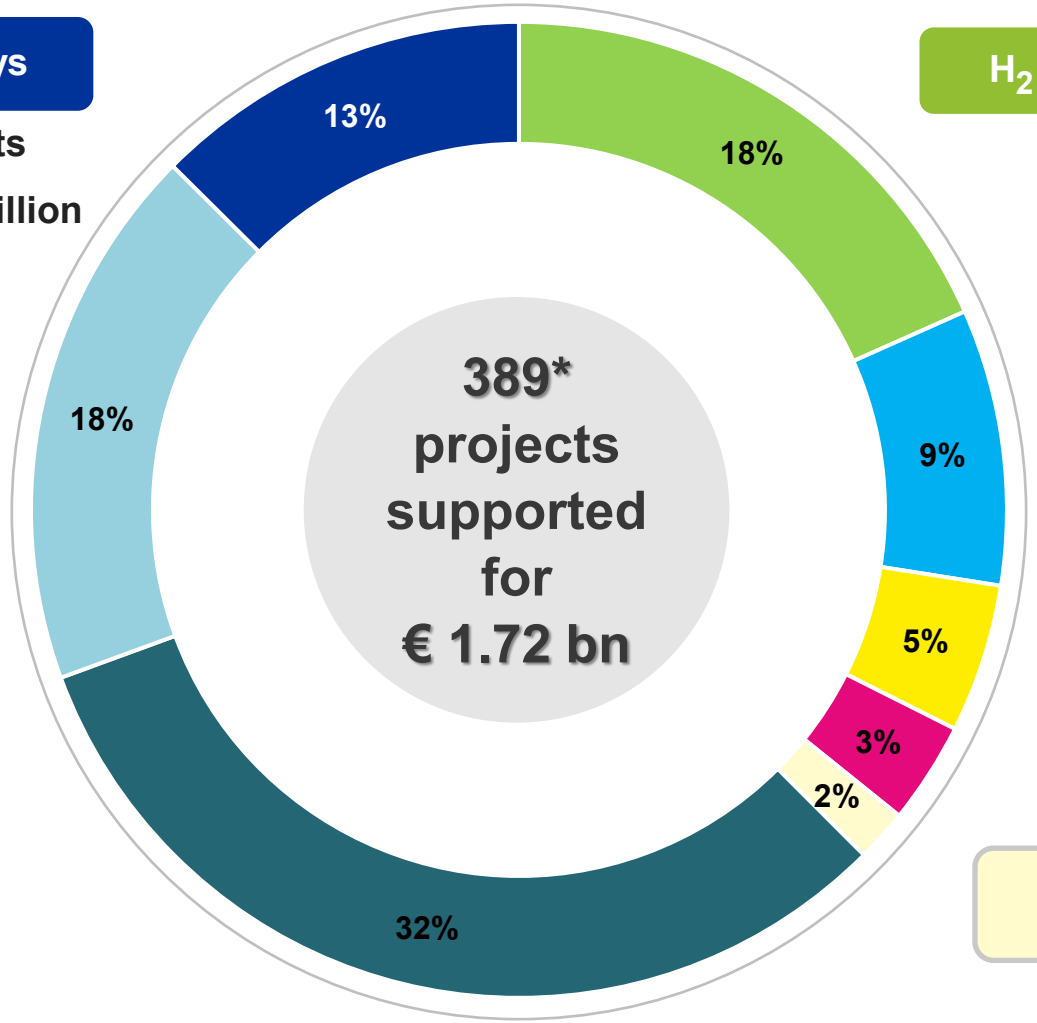
89 Projects

€ 310 million

**$H_2$ End Use: Transport**

80 Projects

€ 548.5 million




**$H_2$ Production**

Electrolysis & Other routes

84 Projects

€ 315.3 million

**$H_2$ Storage & Distribution**

41 Projects

€ 157.3 million

**Cross-cutting**

56 Projects

€ 84.6 million

**Supply Chain**

18 Projects

€ 58 million

**Strategic Research Challenge**

3 Projects

€ 29.6 million

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

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# Project example - SYRIUS

## SOEC HYDROGEN INTEGRATION AND CIRCULAR USE IN STEELMAKING PROCESS

**Project duration**

1 Jan 2025 - 30 Jun 2029

**Project locations**

Italy

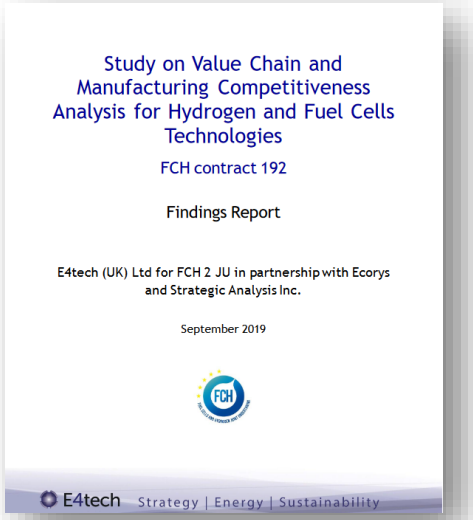
**EU contribution**

€9 999 165

**10 partners from Italy, Netherlands, Belgium, Germany, Finland and Estonia**

The SYRIUS project, spanning 54 months, aims to revolutionize this landscape by integrating a 4.2 MWel Solid Oxide Electrolysis Cell (SOEC) for producing 100 kg/h of green hydrogen into a real Electric Arc Furnace (EAF) plant. Hydrogen will feed a 280tsteel/h – 84 MWth slab reheating furnace, demonstrating the potential to reduce steel reheating process CO2 emissions by 5,600 t/year during the project and up to 100% with full hydrogen feeding.

# Creating evidence based through dedicated fact-based studies of the JU




- Value chain assessment
- Manufacturing competitiveness
- Future growth scenarios


- Supply chain resilience
- Competitiveness challenges
- Strategic recommendations

✓ Used as evidence based -> consideration of **Hydrogen as a European Strategic Value Chain** -> eventually leading to **Important Projects of Common European Interest** on Hydrogen

# What is needed next ?

## Further Scale-Up and Automate Manufacturing

## Strengthen Financial Incentives


## Intensify R&D for New Materials & Technologies

## Promote Knowledge Sharing and Collaboration

## Regulatory Clarity



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# Solid EU Hydrogen Strategy & Support Schemes

- 2020 EU Hydrogen Strategy
- 2021 Fit-for-55 package
- 2022 REPowerEU plan & Hydrogen Bank
- 2023 Two Delegated Acts on Renewable H2 and RFNBOs
- RRF: 2022 and 2024 IPCEIS on Hydrogen: Hy2Tech, Hy2Use, Hy2Infra, Hy2Move

# Leading to ambitious targets…

to install at least 6 GW of renewable hydrogen electrolysers by 2024 and 40 GW by 2030 in the EU.

to produce 10 million tonnes and import 10 million tonnes of renewable hydrogen in the EU by 2030.



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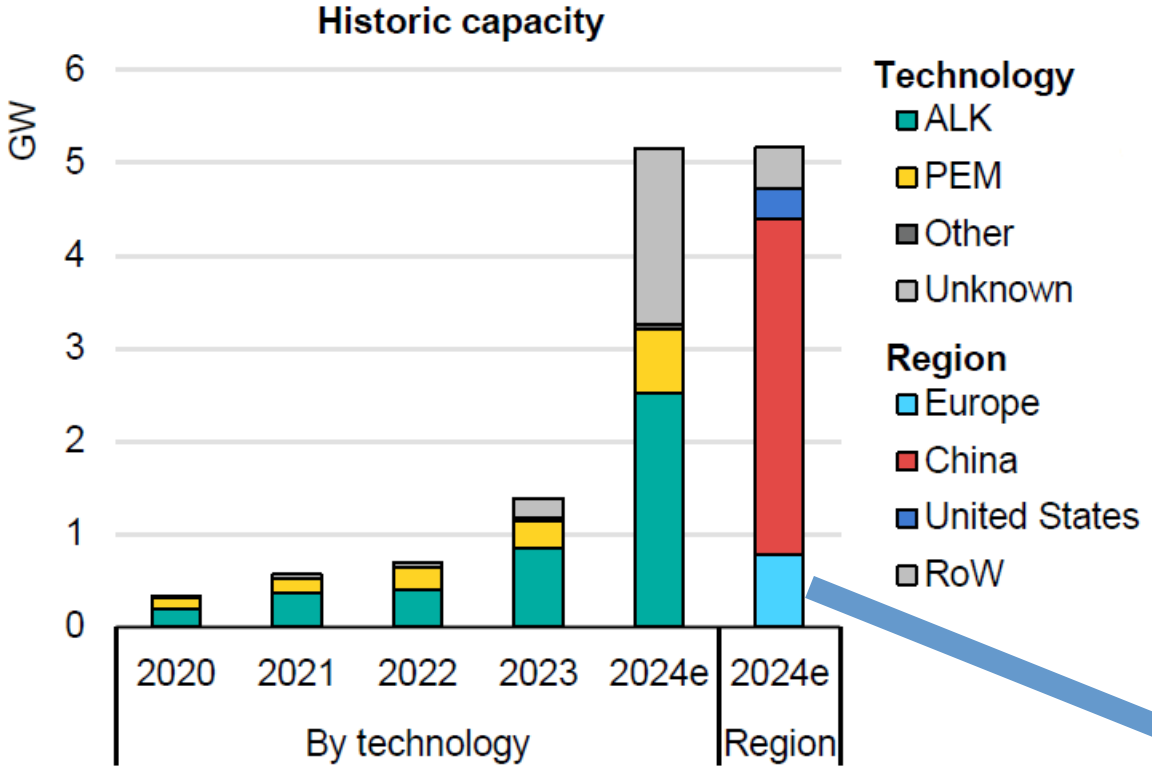
# … that constitute major challenges

**Installed electrolyser capacity increased from 1.4GW in 2023 to 5GW in 2024**


**700MW in Europe**

**out of which the Clean Hydrogen JU projects:**

- **Installed 43 MW**
- **Planned 400 MW**



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# CertifHy - Accelerating the Certification of Hydrogen

- Initiative undertaken by a consortium led by HINICIO, composed of the Association of Issuing Bodies (AIB), GREXEL, Ludwig Bölkow System Technik (LBST), CEA, and TÜV SÜD and financed by the Clean Hydrogen Partnership.
- The initiative started in 2014 and is now already in its third phase of implementation (as of 2020)
- First two phases:
  - CertifHy Scheme and the Green and Low-Carbon Hydrogen labels - basis for the first non-governmental Guarantee of Origin scheme for Hydrogen in the world.
- Third phase:
  - development of a new version of the CertifHy® Guarantees of Origin scheme
  - EU Voluntary Scheme recognized by the European Commission for the certification of hydrogen as a renewable fuel of non-biological origin (RFNBO)
  - CertifHy Stakeholder Platform and the Working Groups to co-construct the CertifHy schemes with 900+ individuals from 100+ companies all involved in the hydrogen industry in Europe and internationally



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# **Hydrogen Valleys** – multipliers and enablers of socio-economic synergies

21 Hydrogen Valleys supported to date – 5 additional grants being prepared

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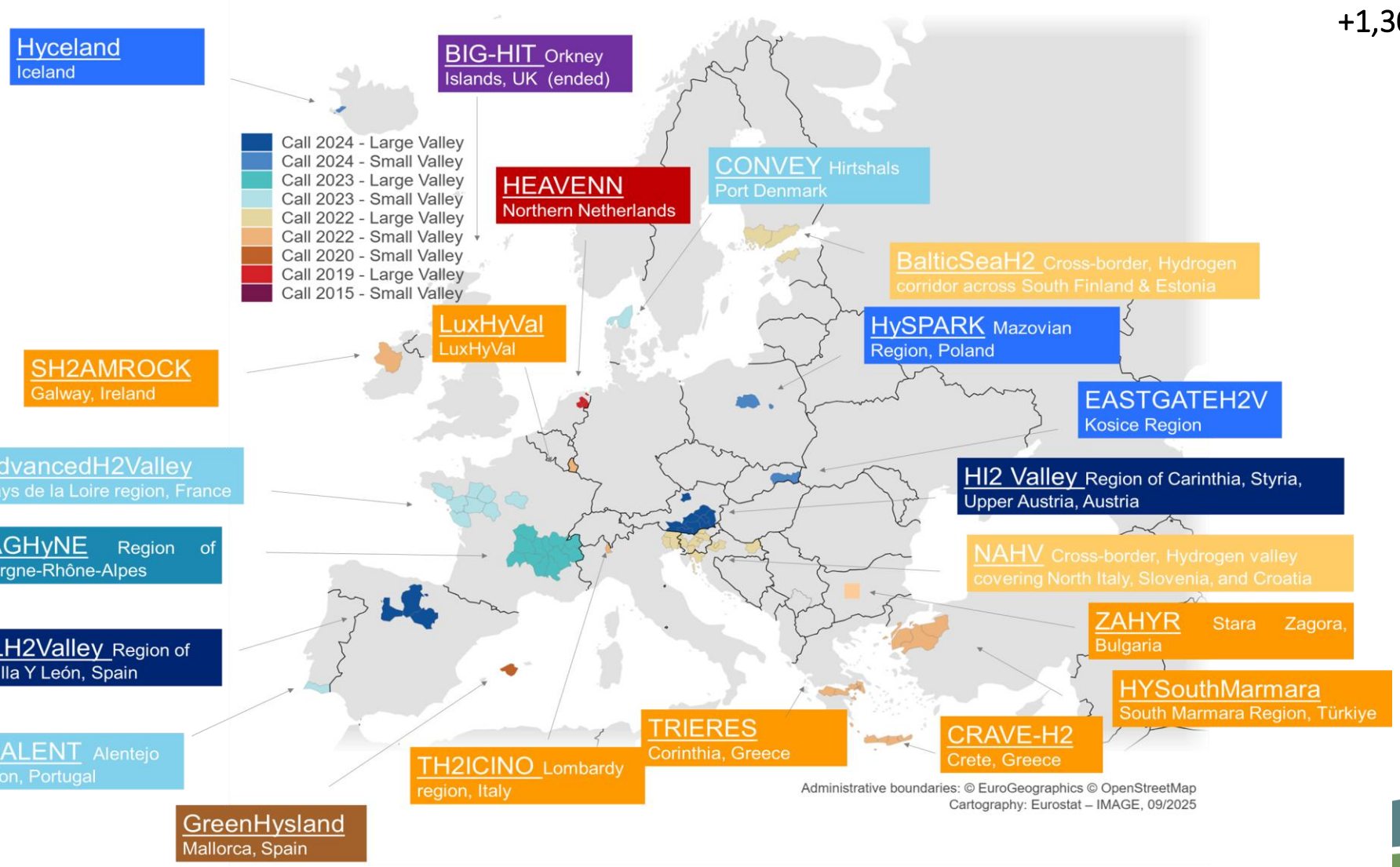


Investments
+1,300 million €

JU Funding
+250 million €

Hydrogen Valleys deployed across 19 European countries

+450 beneficiaries from 40 countries

# HI2 Valley – H2 valley with strong steel industry use cases

## Hydrogen Industrial Inland Valley

### Project duration

1 Jan 2025 - 31 Dec 2030

### Project locations

Austria (Upper Austria, Styria and Carinthia)

### EU contribution

€19 996 861

**42 partners from Austria, Denmark, Romania, Latvia, Poland, Netherlands, Slovenia, Czech Republic and Hungary**

- decarbonising key sectors through H2, drastically reducing emissions in the steel, chemical, and cement industries as well as in energy and mobility via displacement of fossil fuels – including reducing the reliance on natural gas - over 10,000 tpy of green hydrogen
- 17 local projects including voestalpine's 20 MW electrolysis plant and K1-MET's demonstration plant for production of green hot metal

# The H2V Facility addresses the support needs in the market with the aspiration of 50 Hydrogen Valleys operational or under construction in the EU by 2030

## The Hydrogen Valleys Facility

**State as of 2025**

**65**
EU Hydrogen Valleys on the **H2V Platform**

**14**
EU Hydrogen Valleys on the H2V Platform **operational/ under construction**

**Dedicated support via the Hydrogen Valleys Facility**

by Clean Hydrogen Partnership

1. Project Development Assistance
2. H2V Knowledge Portal
3. h2v.eu **H2V Platform**

Delivery partners: Roland Berger, worley, Inycom

The 2024 **European Commission Roadmap** for Hydrogen Valleys

2030 Aspirational target

**50** Hydrogen Valleys **operational/under construction** within the EU

Source: Roland Berger

# The H2V Facility will support individual Hydrogen Valleys via dedicated PDA support and the broader hydrogen community via tailored knowledge formats

## Objectives and scope

| | 1 Project Development Assistance | 2 H2V Knowledge Portal |
|---|---|---|
| **Objective** | Advance **Hydrogen Valleys** at different maturity stages **towards FID** | Develop **capacity building**, knowledge dissemination and upskilling **for $H_2$ practitioners** |
| **Scope** | Dedicated **PDA Services** in 4 areas<br>• Commercial Regulatory<br>• Technical Valley governance | **Knowledge materials** and **interactive formats**<br>• Dossiers, guidelines, templates<br>• Workshops, Lunch & Learn, Q&A sessions |
| **Target** | **Hydrogen Valleys** | **Broader hydrogen community** |

**3 H2V Platform** (h2v.eu)

- State-of-the-art **IT backbone** and **user interface**
- Enhancement of the **content** and **data quality**
- Platform as a **one-stop-shop**

Source: Roland Berger

# Questions?

## Check our website:

https://www.clean-hydrogen.europa.eu

## Contact us:

communications@clean-hydrogen.europa.eu