



THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE



Cross-sectoral Synergies: The role of hydrogen valleys

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Hydrogen Europe in Numbers

530+ Members

We encompass the entire value chain of the hydrogen ecosystem: from production, distribution to end uses, including Industry, EU regions & H2 National Associations and Global Partners.

45+ Employees

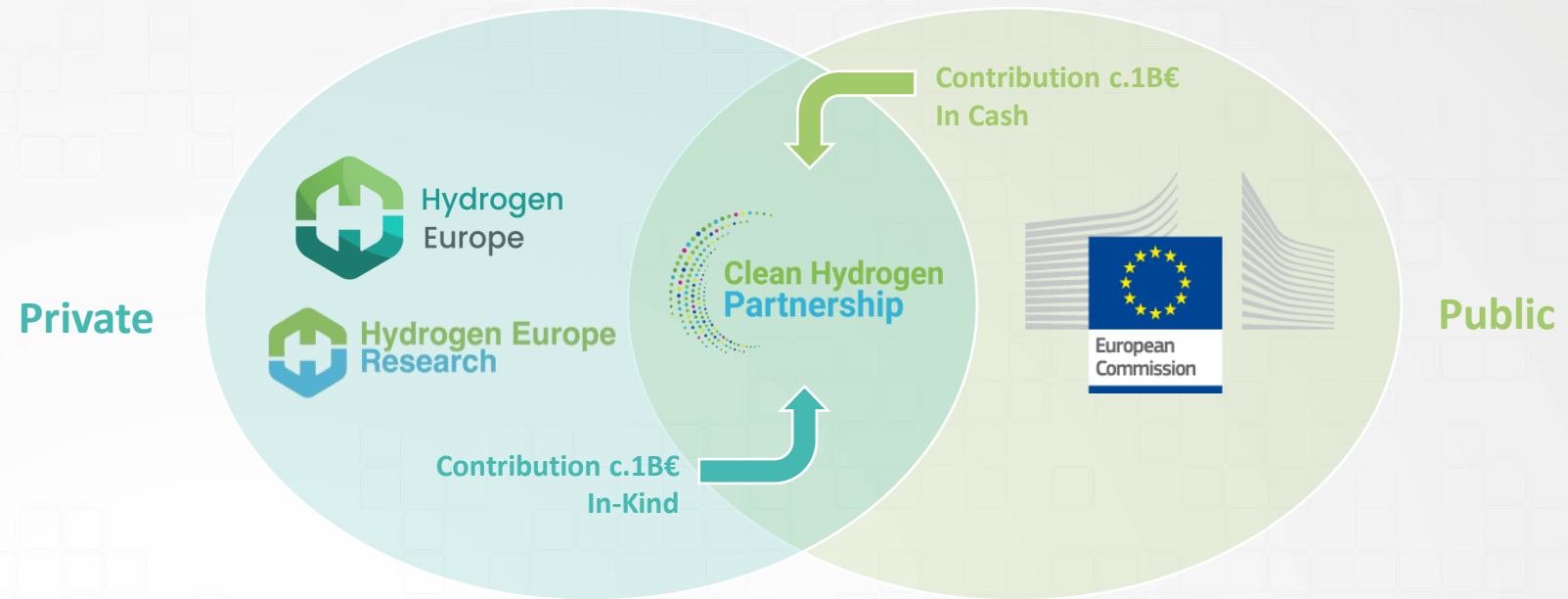
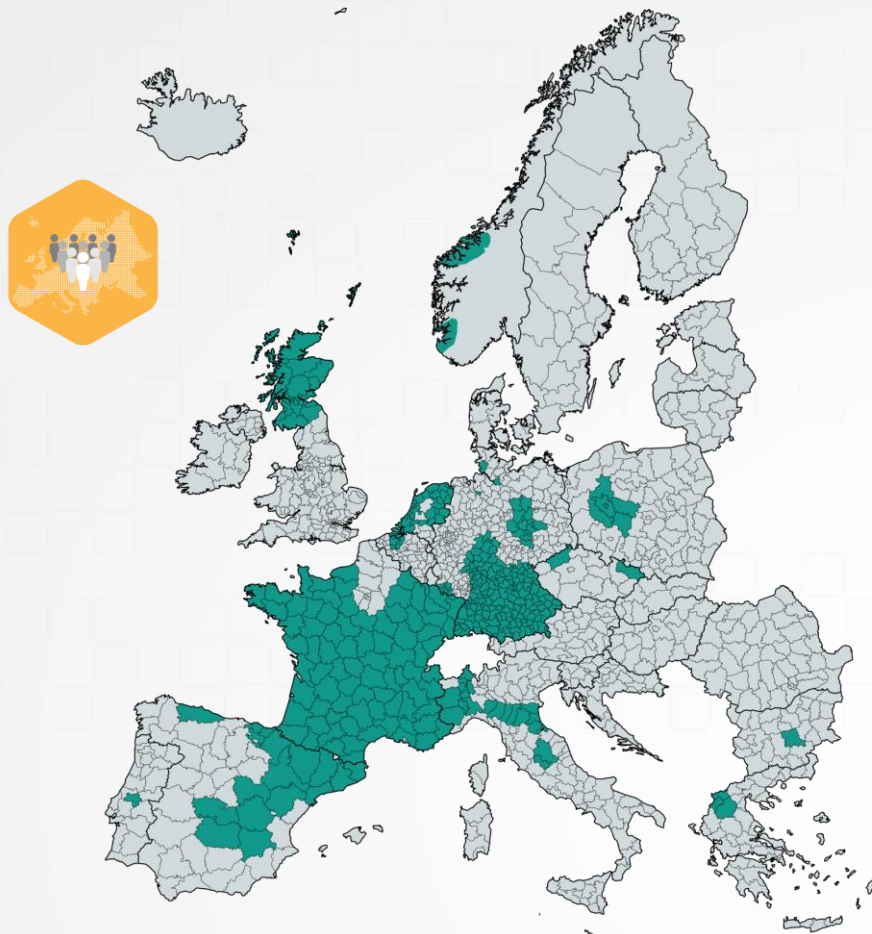
140k+ Followers on Social Media

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Hydrogen Europe's commitment to H2 valleys development

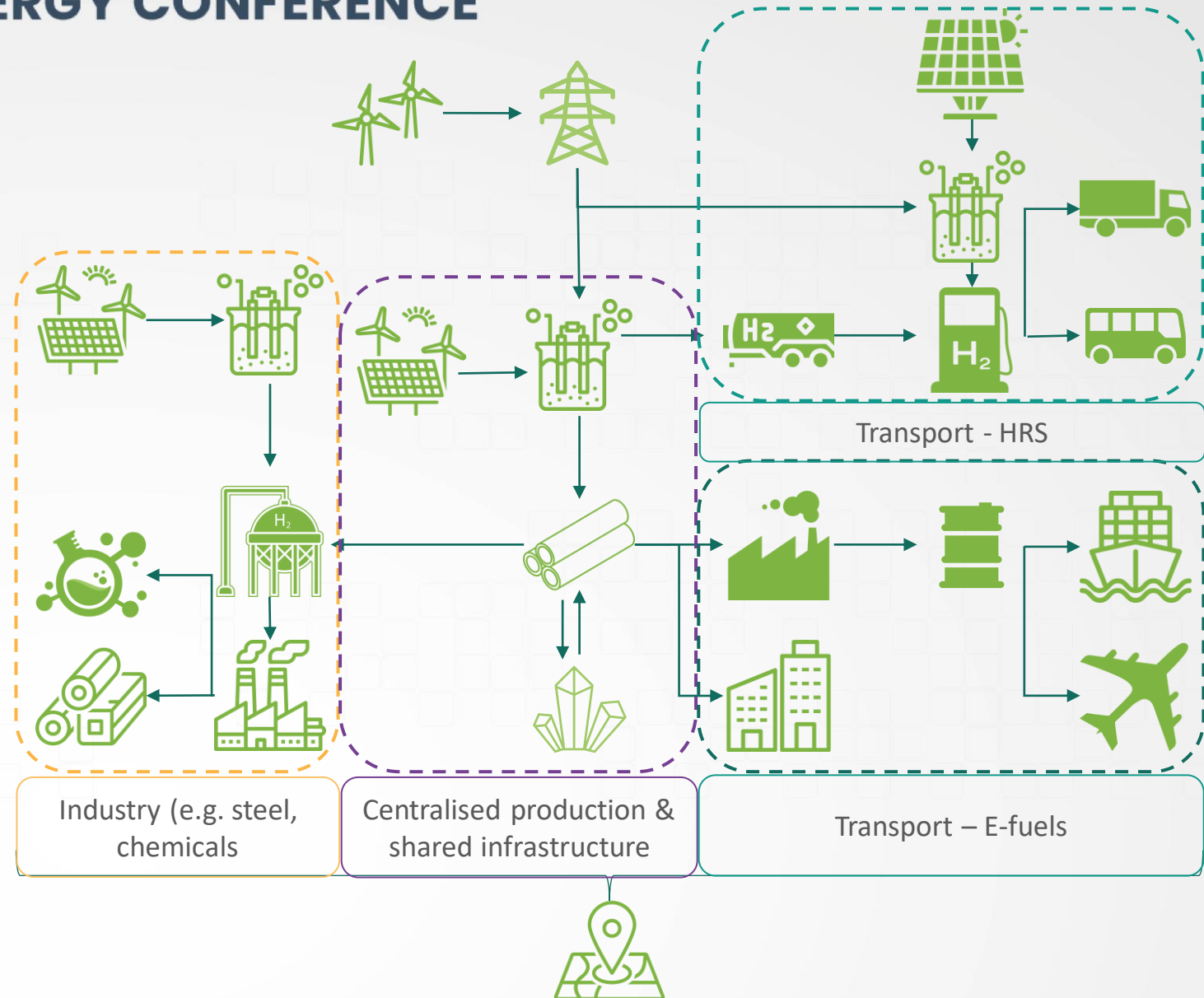


By bringing together **42 regions** in the Regional Pillar and supporting the **Clean Hydrogen Partnership as a private partner** Hydrogen Europe is committed to the supporting hydrogen valleys deployment.



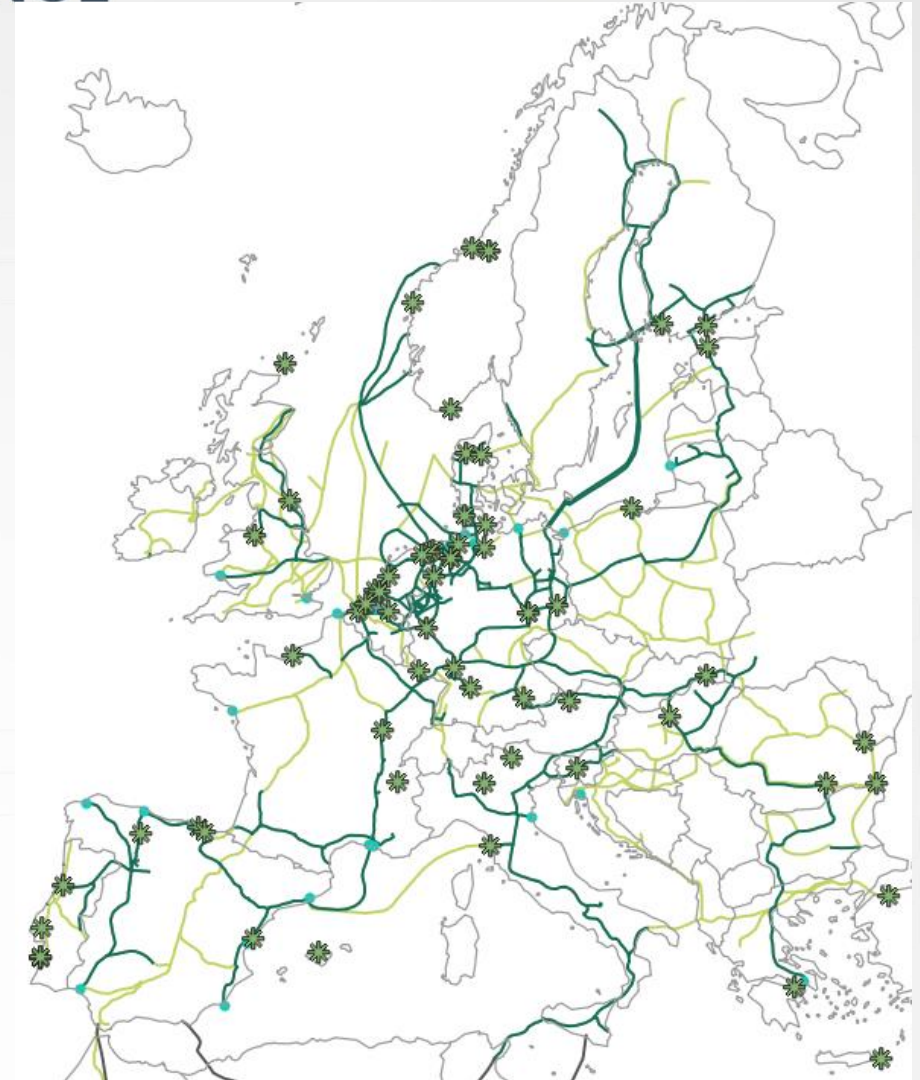
Hydrogen Valleys

- Large-scale investment (>10M€)
- Clear regional scope
- Demonstration/pre-commercialisation
- Multiple end-uses
 - Transport
 - Energy
 - Industry
- Shared infrastructure
 - Pipelines, storage sites, HRS



Interconnection of Valleys

- Hydrogen valleys projects are being developed all across Europe:
 - Mission Innovation H2V target for 2025: 100 globally
 - 90 valleys
 - 65 in Europe
- Bottom-up local ecosystems ensuring decarbonisation of industry, energy & mobility
- To ensure European decarbonisation by 2050, linking these separate ecosystems, through trans-European networks is key!



Hydrogen Valleys in Europe and European Hydrogen Backbone, Courtesy of Mission Innovation & Guidehouse



Challenges & opportunities Ahead

Challenges

- Coordination problems – ecosystems with 30+ entities;
- Connectivity within valleys and between valleys – difficult to access funding for infrastructure;
- Synergies between public & private funding lacking e.g. bureaucracy of state aid rules, interaction of funds, etc.
- Active role of regulatory authorities in permitting and supporting projects.

Opportunities

- Deployment of hydrogen ecosystems across Europe
- Involvement of regional stakeholders, awareness raising
- Decarbonisation of local economies through hydrogen
- **Optimisation of energy infrastructure and system integration of renewable energy sources**



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What do we mean by sector integration ?

Then we need to link this clean energy to as many end-uses in the H2 valleys to maximize their local decarbonization potential through sector integration...



European Strategy on Energy System Integration

Refers to linking the various energy carriers - electricity, heat, cold, gas, solid and liquid fuels - with each other and with the end-use sectors, such as buildings, transport or industry.



Hydrogen is the main vector in H2 valleys to enable Sector Integration!



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Upcoming risk of relying solely on electricity solutions

Congested EV charging infrastructure



Congested Power grid



Oversupply of variable renewable energy at certain times



Lack of variable renewable energy at other times

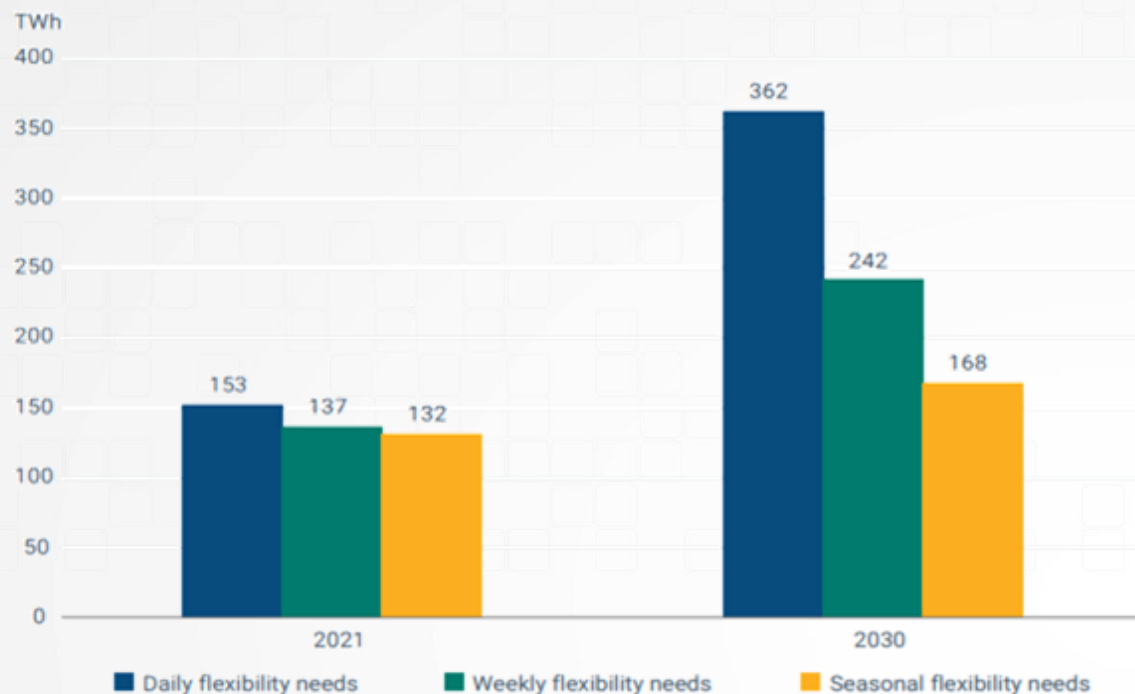
- What is the role of H2 storage in the process of sector integration?

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ACER latest report: flexibility needs will **DOUBLE** by 2030

Figure 5 Daily, weekly and seasonal flexibility needs in 2021 and 2030 in Europe



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Hydrogen
E-fuels
Methane
LNG
Electricity



Energy

SECTOR COUPLING

- We can't afford wasting valuable renewable energy
- We need customer acceptability of new tech
- Sectoral integration and storage can help integrating variable renewables and new electrical appliances without putting all the burden on behavioral demand response
- We need to capitalize on the existing infrastructure (reuse of gas and oil infrastructure)
- A two-infrastructure approach is cheaper than one!





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Thank you for your attention!



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Joint Declaration on Hydrogen Valleys

- Signed on 1st March 2023 by Hydrogen Europe, Hydrogen Europe Research, S3 H2V Partnership & European Commission.
- Reinforce the research and innovation agenda to accelerate deployment of H2 valleys;
- Continued investments in R&I via the Clean Hydrogen Partnership
- Maximise funding impact to strengthen synergies
- Promote knowledge sharing and matchmaking to successfully deploy projects;
- Stimulate development of education & skills;
- Lead the deployment of valleys to grow a European and global hydrogen economy.

