Local Hydrogen Hubs for PtX and Beyond

- deployment steps, opportunities and challenges

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Local hydrogen hubs for PtX and beyond

Welcome to hear from local H2 valleys and industry hubs, and discussion on the potential opportunities for them being the stepping stone for accelerated H2 deployment.

- Focus: Hydrogen valleys and local industry symbiosis –including renewables, hydrogen and its derivatives and CCU.
- Goal: Scalable models for economic profitability, paving the way for hydrogen deployment

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Agenda

- 10.00-10:10 Welcome from Clean Energy Transition Partnership (CETP) Åsa Bergerus-Rensvik, SWEA/TRI6 lead expert
- 10:10-10:20 Introduction:
  - Challenge of creating demand for green H2 Piia Moilanen, CLIC Innovation
  - Issues impacting implementation of H2 and CCU infra Isabel Cabrita, TRI3 lead expert
- 10:20-11:10 Three focused presentations from local ecosystems:
  - Finland /Turku area: Timo Oehlandt, Business Turku
  - Northern Norway: Monica Paulsen, Arctic Cluster Team (ACT)
  - Austria: Margherita Matzer, Austria hydrogen valley
- 11:10-11:25 Combining bioeconomy and hydrogen ecosystems, Pia Salokoski, CLIC Innovation.
- 11:25-11:55 Discussion
- 11:55-12:00 Summary

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Welcome

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Your hosts today:

Opening, introducing presenters

Hannele Holttinen, CLIC Innovation Ltd

RDI Lead for Energy Systems at CLIC Innovation, serving as CETP TRI6 Office.

Also Professor of Practice at Aalto University. A pioneer in wind integration in energy systems.

Welcome

Åsa Bergerus-Rensvik, SWEA/TRI6 lead expert

Programme Manager for Sustainable Industry at the Swedish Energy Agency, leading TRI6 within the CETP. Åsa has broad experience in industrial decarbonisation, circular economy and methane mitigation. She holds an M.Sc. in Biology and Earth Science

Discussion moderator

Pia Salokoski, CLIC Innovation Ltd

An energy and environment professional with 20+ years spanning industry, research and public innovation funding. Head of Energy at CLIC. Pia moderates the discussion and presents on combining bioeconomy with hydrogen ecosystems.

CETPartnership

What

CETPartnership is a multilateral and strategic partnership of national and regional research, development and innovation (RDI) programmes in EU/EEA Member States and non-EU/EEA Partner Countries.

Why

CETPartnership supports the implementation of the European Strategic Energy Technology Plan (SET Plan), with the ultimate objectives, in line with REPowerEU Plan, to:

- achieve a climate-neutral society by 2050
- diversify Europe's energy supplies
- strengthen Europe's clean energy value chains, making them more sustainable

How

CETPartnership leverages existing SET Plan initiatives, aligns with National Energy and Climate Plans and the Recovery and Resilience Facility (RRF). It consolidates RDI funding from national and regional sources for diverse energy transition technologies. Funding comes from national, regional agencies, and the EU Commission. Its goal: an industry-led transition making Europe a leader in clean energy innovation and implementation.

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30+ Countries

20+ EU Member States
+ 10 Associated Countries

47+ Funding Partners

Funding Agencies
& Ministries

Top-up

European Commission is the single biggest financing organisation

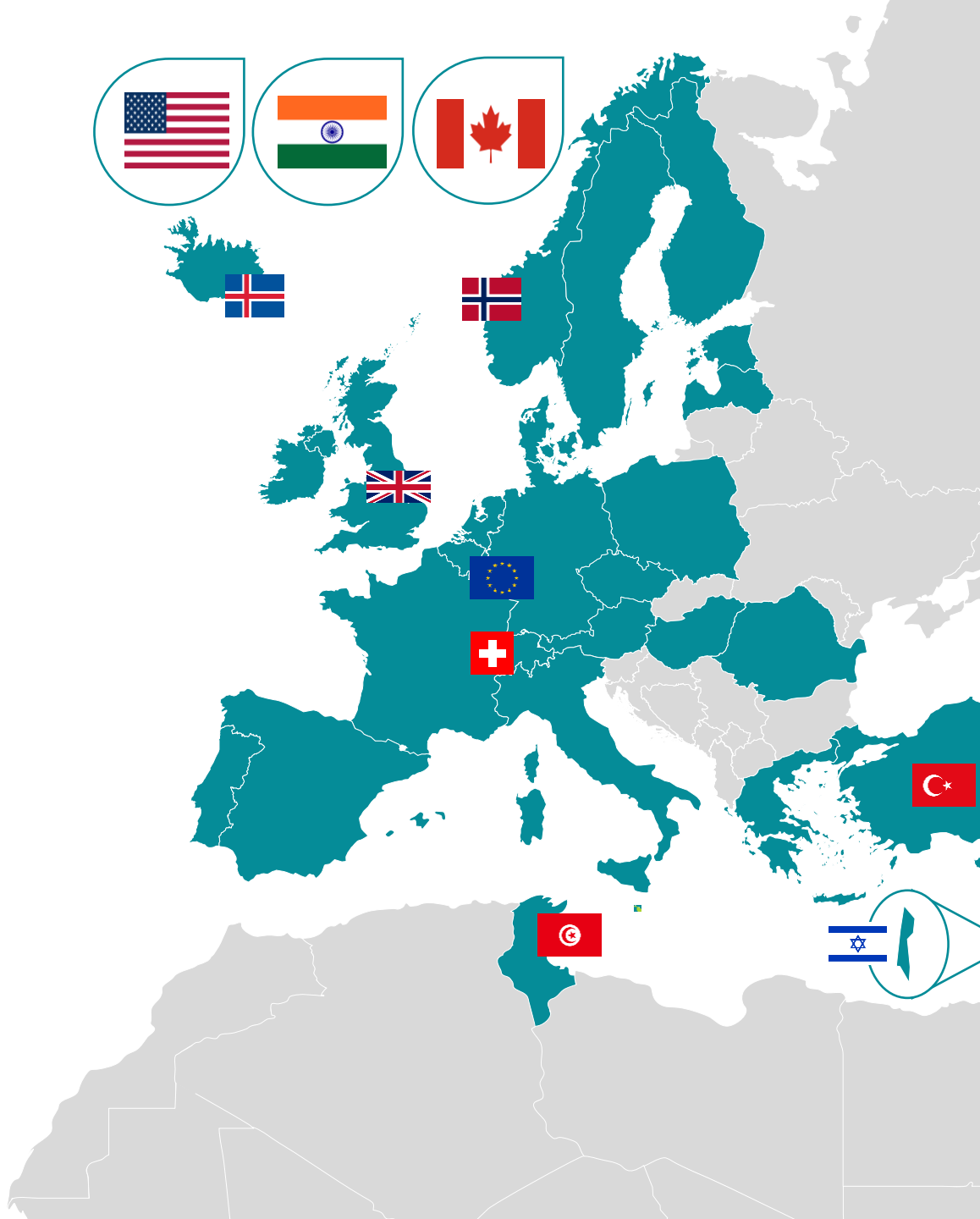
13 Coordination Units

Coordinator: BMK / SWEA

Annual Calls for RTDI Projects

100 – 140 M € per year
2022 - 2027

Call 2024
Total > 130 M €



Transition Initiatives (TRIs) -thematic focus areas

TRI 1: Integrated Net-zero-emissions Energy System

TRI 2: Enhanced zero emission Power Technologies

TRI 3: Enabling Climate Neutrality with Storage Technologies, Renewable Fuels and CCU/CCS

TRI 4: Efficient zero emission Heating and Cooling Solutions

TRI 5: Integrated Regional Energy Systems

TRI 6: Integrated Industrial Energy Systems

TRI 7: Integration in the Built Environment

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TRI6 Integrated Industrial Energy Systems

INTEGRATED INDUSTRIAL ENERGY SYSTEMS

INDUSTRIES
FOOD AND DRINK
CEMENT
PULP AND PAPER (FOREST INDUSTRY)
STEEL
CHEMICALS

REDUCING EMISSIONS FROM INDUSTRIAL PROCESSES

- Efficiency (utilising excess heat etc.)
- Circularity
- Electrification
- Green hydrogen: energy carrier and raw material in processes
- CCU (CO_2 to chemicals or long lasting products)
- Bio-CCU enabling negative emissions
- Reduction of emissions other than GHG

FLEXIBILITY FOR ENERGY SYSTEM

- Enabling flexible use of renewable electricity in industry
- Flexible use of electricity including flexibility from heat/process storage buffers
- Energy sector coupling in industry: power and heat networks and industrial symbiosis

ACCELERATING INDUSTRIAL DECARBONISATION

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CETPartnership Annual calls – preproposal dl in October

🧭 **What?**
EU co-funded call for clean energy R&D projects

🗓️ **When?**
Joint Call 2026 Opens June 2026

💶 **Budget:**
€80–140 million from 30+ countries

🌍 **Who funds?**
EU + national & regional agencies

⚡ **Why it matters:**
Supports innovation, cross-border cooperation & climate neutrality

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Introduction

Isabel Cabrita, Piia Moilanen

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Introduction, speakers:

H2 & CCU Infrastructure Challenges

Isabel Cabrita, TRI3

Chemical Engineer, Professor, and Researcher specializing in clean energy, particularly H2, renewable fuels, bioenergy, and sustainable industrial processes, involved with institutions contributing to national strategies and international energy committees.

Creating demand for green H_2

Piia Moilanen, CLIC Innovation

Manages RDI projects coordination, driving innovation and impact in the energy sector. She supports market deployment under the CETP. She holds an Lic. Tech in environmental engineering and an MBA.

TRI3 Knowledge Sharing Workshop

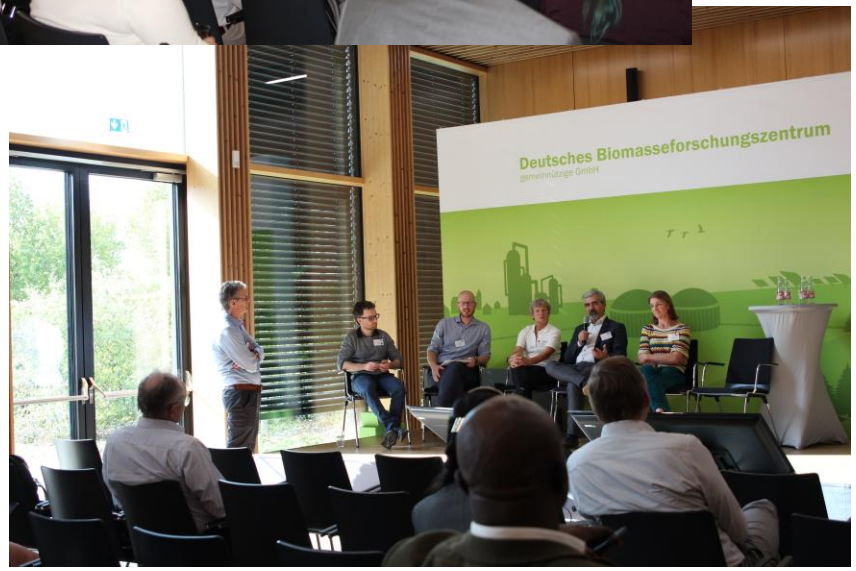
Outcomes focusing on issues impacting Implementation

Host: German Biomass Research Center (DBFZ)

70 participants

- Project presentations
- World Café to address cross-cutting topics
- Posters
- Networking

TRI3 Workshop: Outcomes focusing on issues impacting Implementation



- Need for a multi-disciplinar approach in developing new technologies
- Need for infrastructures, namely in the case of CO_2 to connect emissions to storage
- Need for new business models
- Important role of regulations
- The political framework crucial for implementation in a timely manner with appropriate regulations and incentives
- Consider societal aspects related to acceptance

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TRI3 Workshop. Identifying concerns related to the implementation

Developing project narratives that not only inform but inspire — showing why their work matters, who it serves, and how it contributes to a broader transition toward a more sustainable, equitable future.

- Important to communicate key findings adapting messages with audiences
  - Communicate science to build trust
- Societal change requires more than public outreach
  - Recognition of the importance of trust, participation, and ownership
- Identify expectations and how to address them at different times
- Motivate technology providers to be engaged during duration of projects
- Early and meaningful stakeholder engagement
  - More focus on dissemination and lifecycle analysis

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Lead Markets as Catalysts – Webinar (9th Oct) Takeaways

- Green steel needs low-carbon hydrogen, potentially big driver for H_2 demand
- By mandating green steel in public construction & infra, governments can create early demand, and unlock investment despite price premiums
- Trust & transparency matter, labels and standards for green steel and H_2 are key
- H_2 Valleys' role, to develop and pilot procurement criteria
- The webinar recording will be available soon

Is demand creation the key to scale H_2 valleys?

Summary of CETP webinar on 9th Oct (Lead Markets)

Case: H2 for…	Key Regulatory drivers that guarantee demand	Public procurement opportunities	Notes & other opportunities
Mobility 	RED III fuel quotas drive renewable fuels uptake in transport.	Zero-emission bus procurement rules support early demand;	Public procurement: extending to H_2 trucks & port equipment can accelerate adoption.
Industry 	ETS + CBAM pressure decarbonization (e.g., green steel),no specific green-steel quota yet.	State/municipal construction can mandate green steel in public projects	Long-term offtake contracts and standards (e.g., low-carbon steel labels) help bankability
NH3 & e-fuels 	FuelEU Maritime & ReFuelEU Aviation set RFNBO/e-fuel quotas, Create demand for H_2-based NH3/e-fuels.	Public ferries using H_2/green fuels can boost demand. Authorities can also require green fuels	Coordinate port bunker demand with e-fuel/NH_3 production. Biogenic CO_2 helps achieve GHG savings
Grid balancing 	No dedicated EU mechanism yet; existing flexibility markets are insufficient.	Limited direct levers today. Pilots via public TSOs/DSOs procurement can help.	Strategic Autonomy Policies?
Multi-use Valleys 	Regulatory quotas help establish predictable market conditions	Bundled public tenders (mobility + industry + municipal loads) can create scale.	Biogenic CO_2 helps achieve GHG savings

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Most likely value chain combinations in H_2 valleys

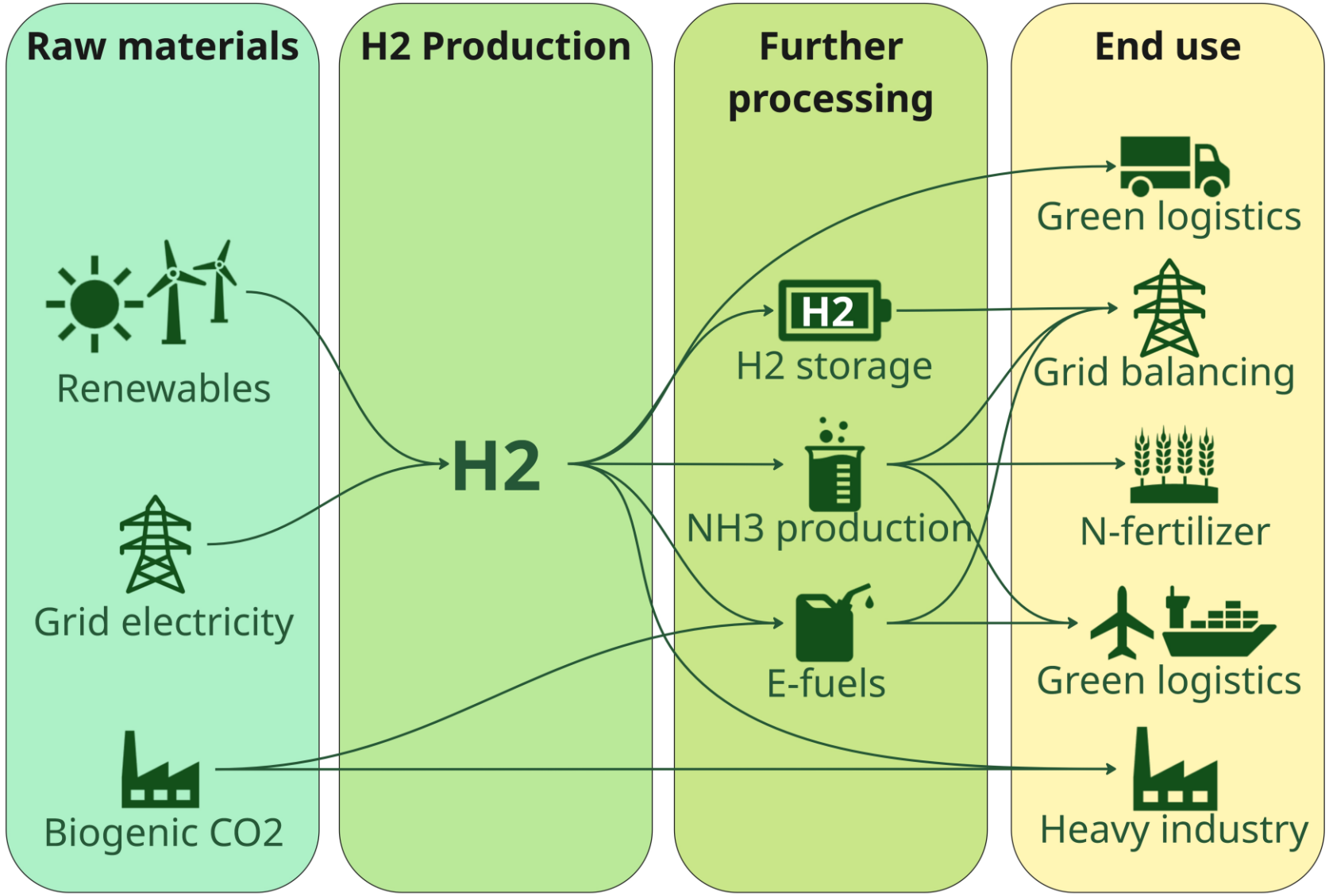
H_2 for Mobility
- Green H_2 for trucks, buses, and port logistics

H_2 for Industry
- H_2 replacing e.g. coal in direct reduced iron processes

H_2 for Ammonia & Derivatives
- Production of ammonia and e-fuels for shipping and aviation

H_2 for Storage & Grid Balancing (emerging)
- H_2 storage & dervatives as seasonal storage, combined with batteries

H_2 for Multi-use Valleys (emerging)
- Combining mobility, industry, grid balancing & even export in one ecosystem



Local H_2 Valley Case Presentations

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H2 Valley presentation:

Turku Hydrogen Ecosystem

Timo Oehlandt, Business Turku

Senior Advisor specializing in H2 economy & energy transition. Leads Turku's hydrogen network, fostering collaboration among companies, academia, and public actors to drive projects and innovation.

Northern Norway H_2 Valley

Monica Paulsen, Arctic Cluster Team (ACT)

Cluster Manager, driving green & digital transition in Northern Norway. With 15+ years in regional development and innovation, she leads ACT's 110-member network of industry, R&D, and investors. MSc in Technology & MBA.

Austria, H_2 Valley

Margherita Matzer, Austria hydrogen valley

BSc in Technical Physics and an MSc in Nanoscience. After working as a research assistant, joined WIVA P&G in 2022 as Senior Project Manager. Currently leads the H2 Industrial Inland Valley.

Discussion

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Discussion: Which value chains carry H_2 valleys beyond pilots?

- Panel format with questions from the audience as well.
- Panel Moderator, Pia Salokoski
- Start by answering the Mentimeter question. With this we would like to gather your reflections on where H_2 valleys are most likely to evolve.
- The questionnaire is anonymous. On the next Mentimeter page, you will also have the opportunity to provide open feedback or elaborate on your answer.
- The panelists will reflect on the Mentimeter results as part of the discussion.

https://www.menti.com/alr5j9gqd5ze

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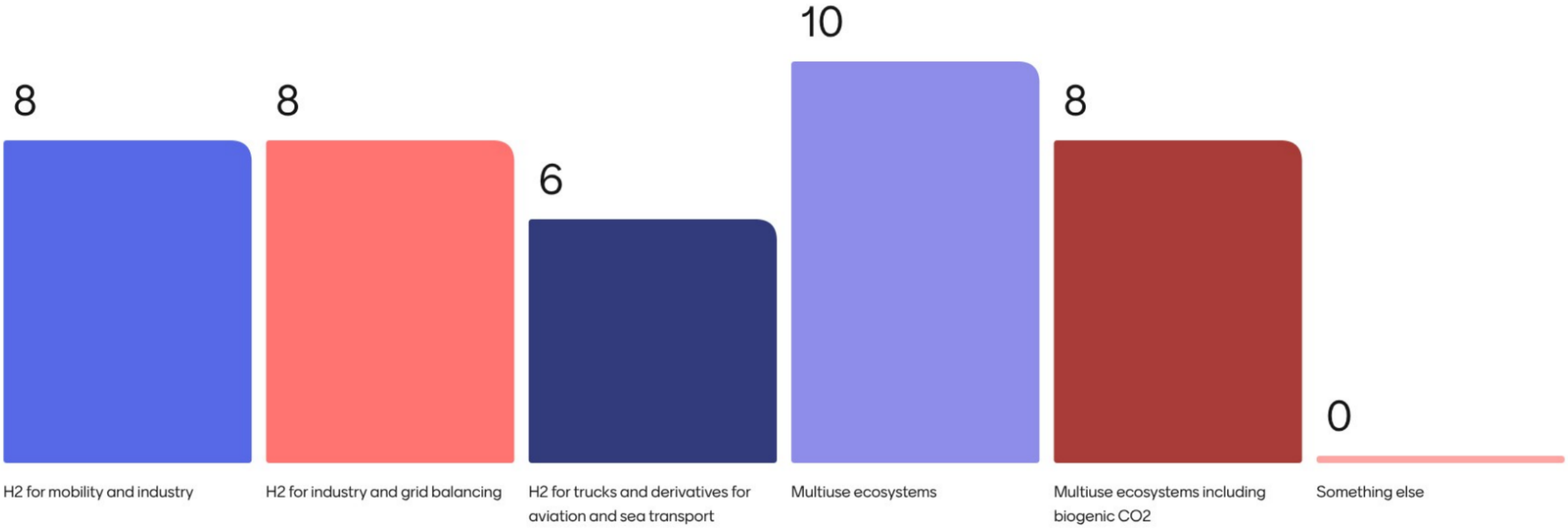
Mentimeter results (16 answers)

Based on your expertise

What combinations best creates business cases for H_2 Valleys?



Summary

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