Mission Innovation Hydrogen Valley Platform

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European Hydrogen Week – PRIORITHY

Brussels, 25 November 2020

MI, EC and FCH JU want to push "hydrogen valleys" globally – as local market makers for clean hydrogen

The background

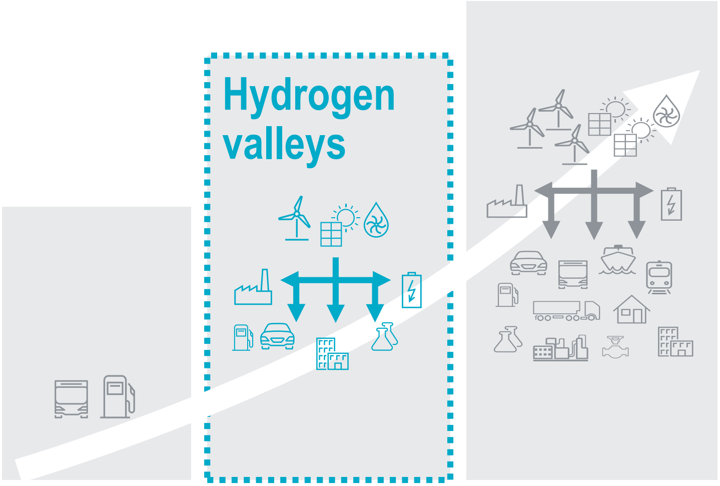
Innovation Challenge 8 "Hydrogen"

EU funding, as one of the IC8 Co-Chairs (DE, AU, EU)

Implementation by the FCH JU

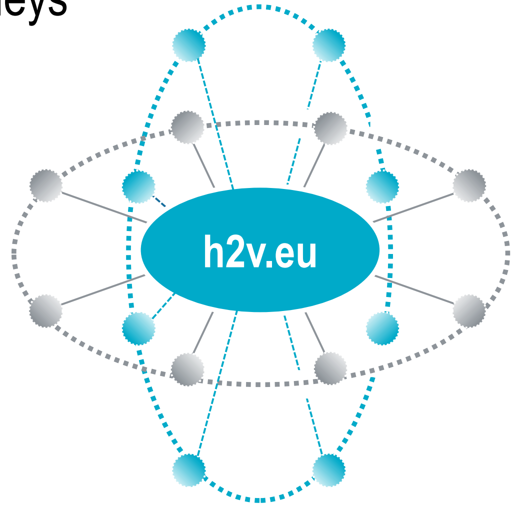
The topic

> Next-generation market development
> Integrated (and larger-scale) projects covering more and more of the value chain – "mini hydrogen economies"



The goal

> A global information sharing platform
> To inform project developers, policy makers and other stakeholders in their efforts to advance hydrogen valleys



Source: FCH JU, Roland Berger

Hydrogen valleys have become a global phenomenon, with integrated projects emerging in all around the world

A fast-growing landscape of globally leading projects …

Netherlands
- > HEAVENN
- > Hydrogen Delta

EU IPCEI
- > Blue Danube
- > Black Horse
- > Green Octopus
- > Green Crane
- > New Green Flamingo

Germany
- > H2Rivers/ H2Rhein-Neckar
- > HyBayern
- > Norddeutsches Reallabor
- > eFarm
- > Hyways4 future

China
- > Pearl River Delta (Foshan)
- > Beijing-Zhangjiakou
- > Rugao

United Kingdom
- > HyNet North West England
- > BIG HIT Orkney Island

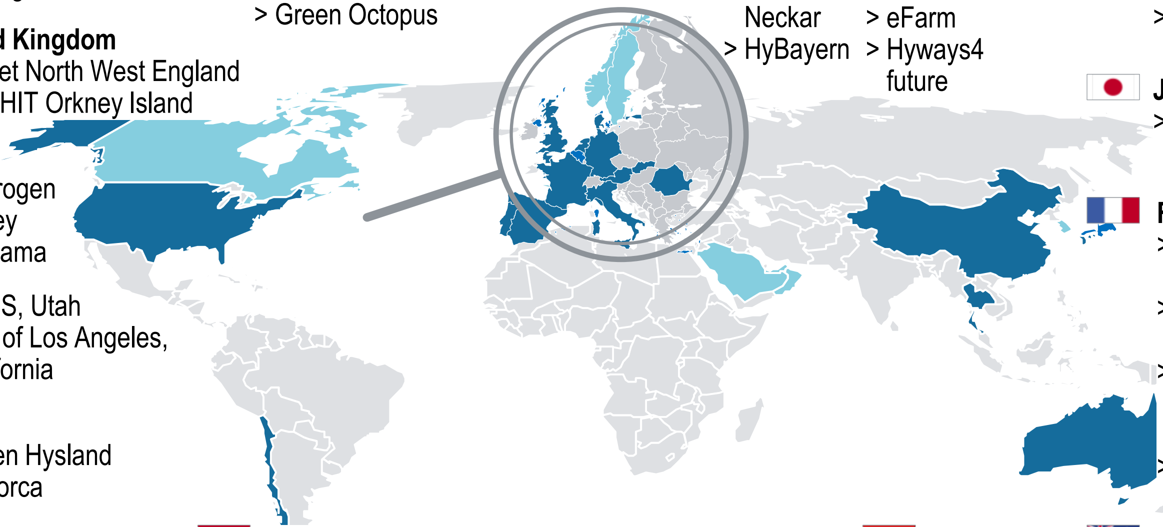
Chile
- > Hydrogen Valley Atacama

USA
- > ACES, Utah
- > Port of Los Angeles, California

Spain
- > Green Hysland Mallorca

Japan
- > Fukushima Plan for New Energy Society

France
- > Zero emission valley Auvergne-Rhône-Alpes
- > Normandy Hydrogen Deployment Plan
- > Hydrogen Territory Bourgogne Franche Comté
- > CEOG, French Guiana



Denmark
- > HyBalance

Thailand
- > Phi Suea House

Italy
- > South Tyrolean hydrogen valley

Austria
- > WIVA P&G

Australia
- > Neoen Crystal Brook Energy Park
- > Eyre Peninsula Gateway

Countries with hydrogen valleys on the initial platform

Additional countries with major hydrogen valley activity where outreach is ongoing

… featured on a new platform

> 30 valleys from 15 countries

> 1,500 data points

10 in-depth best-practice profiles

Source: FCH JU, Roland Berger

The valleys are diverse in almost every way, but all feature different signs of a maturing market

Upstream and midstream value chain – Almost all valleys surveyed aim to produce (97%) clean hydrogen, with electrolysis being by far the most common production technology (81%, with 63% PEM and 35% ALK). Most valleys also plan to store (>80%) and transport (>75%) it

End uses – Most valleys ultimately aim for using clean hydrogen in mobility applications (>80%) – reflecting in many cases a "showcase" element. However, half of the valleys surveyed also serve industrial feedstock and energy end uses

Drivers – Political agendas are the main motivators for the valleys (reaching climate policy objectives (75%) and industrial policy, esp. employment (>65%)). In addition, two thirds of the valleys surveyed are economically driven (as well)

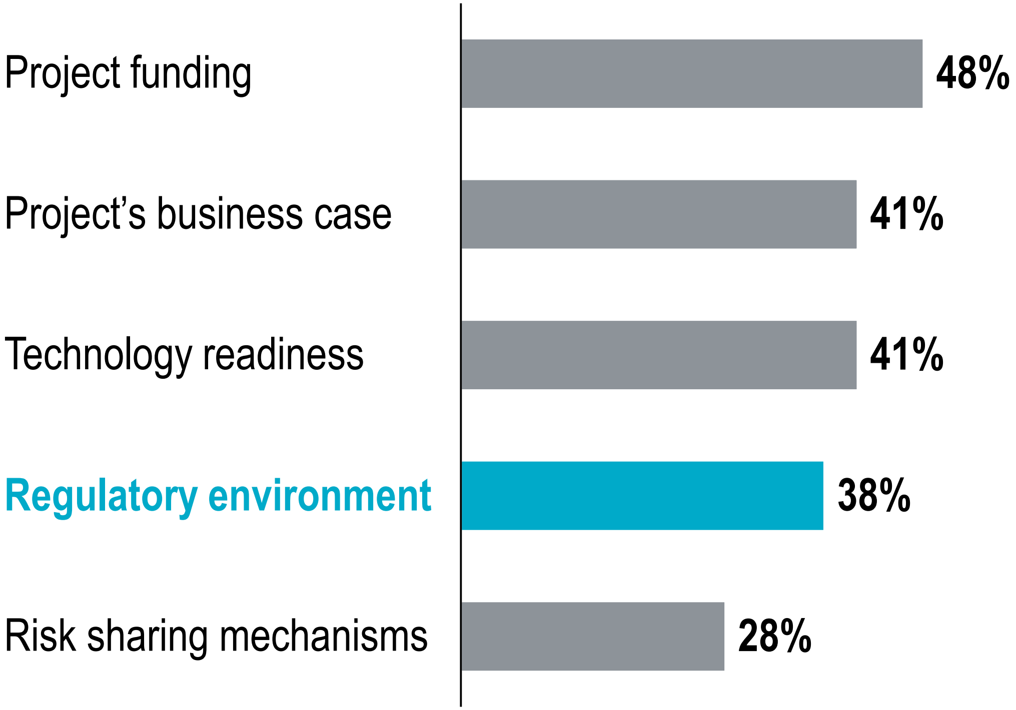
Size and investment – Planned investments range from EUR 20 m to more than EUR 5 bn; hydrogen production from less than 1 to more than 2,000 tons per day. Projects are increasingly ready to go for larger volumes and take on more complexity in the value chain

Stakeholders – On average, more than 10 stakeholders are involved in driving a hydrogen valley forward; private enterprises are taking the lead in over half of the valleys surveyed

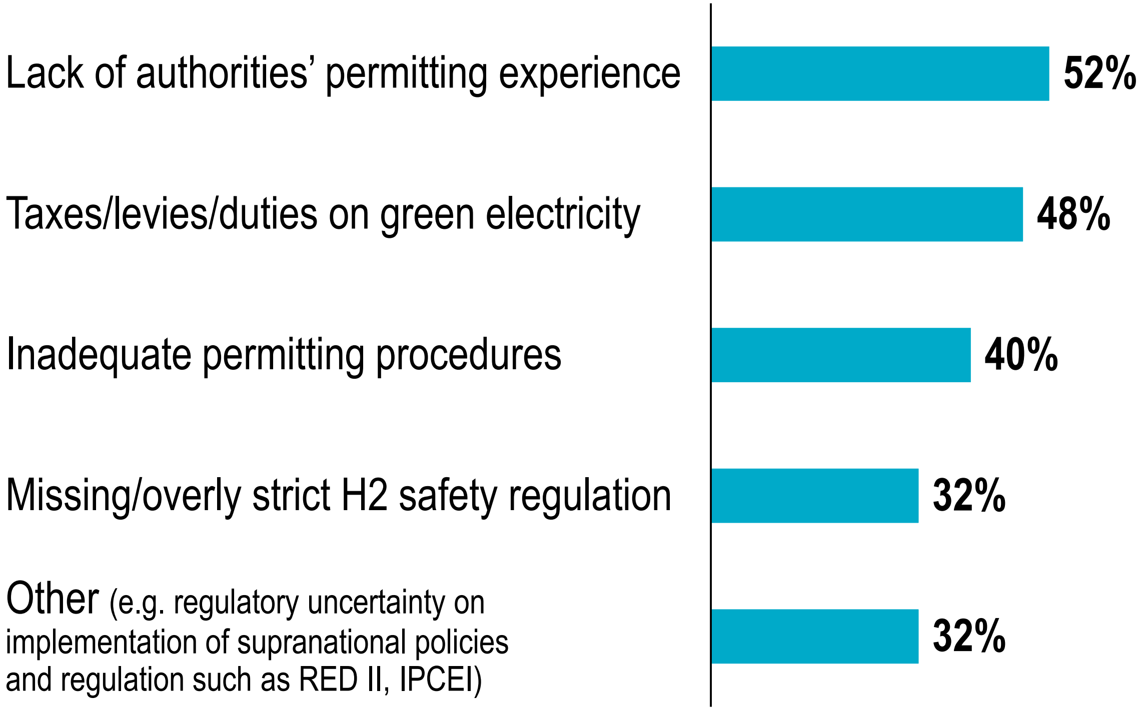
Source: FCH JU, Roland Berger

Developers face common challenges, especially concerning business cases and regulation

Top overall challenges when developing hydrogen valley initiatives[1]



Most significant regulatory hurdles when developing hydrogen valley initiatives[1]



1) Top 5 answers from survey; multiple answers possible

Source: FCH JU, Roland Berger

Still, hydrogen valleys succeed – no less because of various best-practice approaches to project development

Valleys analysed for the platform development showed among others …

… how project developers can **successively built** upon different regional projects and – **step by step** – grow a local hydrogen economy that becomes ever larger, more integrated and inclusive

… how to bring together **dozens of partners** in integrated projects and at the same time implement **representative and effective governance** mechanisms

… how to creatively tap into **public funding sources at supranational, national and regional level** to help close remaining funding gaps

… that the main commercial **de-risking element** often concerns **securing off-take commitments** – and how this can be achieved (even absent critical regulation)

… that it is already possible today to both built **purely commercial clean hydrogen projects** and even finance integrated projects with **limited-recourse project financing**

Source: FCH JU, Roland Berger

MI, the IC8 co-chairs and the FCH JU

will launch the platform early next year

Stay tuned and save the date for the launch event:

Friday, 15 January 2021

Source: FCH JU, Roland Berger

Thank you for your attention –
don't hesitate to reach out

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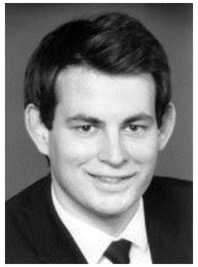

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Source: FCH JU, Roland Berger