EUROPEAN HYDROGEN VALLEYS PARTNERSHIP

SMART SPECIALISATION PLATFORM

European Hydrogen Valleys Partnership

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ERRIN Energy & Climate Change WG Meeting

Brussels – October 16th 2019

Context of creation of the EHV-S3P

- **H2 is a key lever to decarbonize the EU economy**

- EU ambitious goal for 2050: to be the 1st climate neutral economy by 2050 (European Commission's communication« A Clean Planet for All », November 2018)
- Fuel cells and hydrogen (FCH) technologies have the potential to play a key role in this energy transition process
- But lack of commercial availability + challenge of producing « green » hydrogen

- **European local authorities play a key role in supporting the development of FCH technologies**

- Local authorities are involved in many FCH deployment projects (energy transition, air quality)
- Success of the FCH Regions & Cities Initiative launched by the FCH 2 JU in 2017
- But lack of visibility + weak influence capacity

Main objectives of the EHV-S3P

- **Strengthen the visibility and influence capacity of European Regions as key users of FCH technologies**
- **Facilitate joint investment projects**
- Strengthen the regional innovation capacity thanks to knowledge and practices exchange
- Support the development of European FCH deployment projects for a variety of FCH applications and « H2 valleys » involving all the segments of the value-chain

EHV-S3P coordination

- **4 coordinating Regions:**
  - Aragon (ES)
  - Auvergne Rhône Alpes (FR)
  - Normandy (FR)
  - Northern Netherlands (NL)

- **Technical support via the ReConfirm programme** (Ecorys + InnoTSD) under the Industrial Modernisation S3 Platform

Aragon is pioneer in H2 technologies in Spain. RIS3 Aragon includes explicit support for hydrogen in two strategic priorities: connectivity and resources efficiency.

Hydrogen is part of two ARA Region RIS3 domains: energy and smart mobility systems and industry of the future. Regional clusters TENERRDIS (energy transition) and CARA (mobility solutions) are involved.

Renewable energies and zero-emission transport and logistics are among the strategic priorities of RIS3 in Normandy

The Northern Netherlands consider Hydrogen as an important building block of industry, mobility and buildings for a truly clean and sustainable economy .

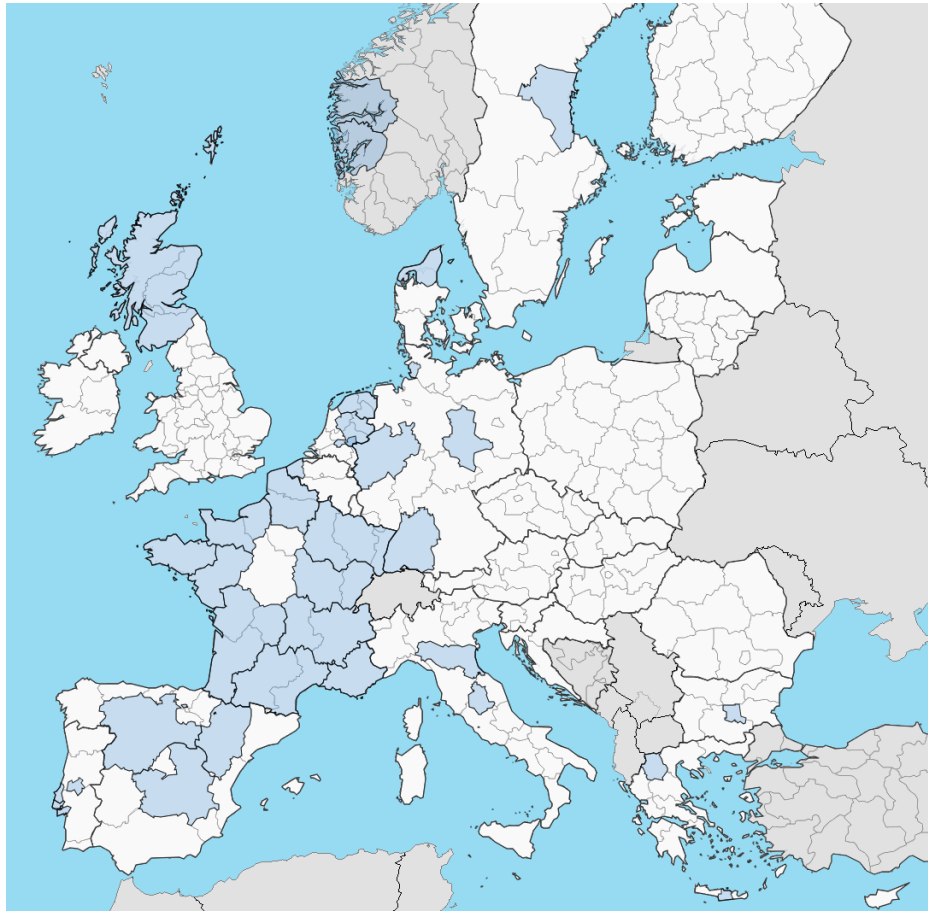
Understanding ReConfirm

Phases

- Phase 0 – Preparatory steps for setting up a thematic area
- **Phase 1 – Mapping of assets, competences and matching of business opportunities**
- Phase 2 – Interregional and industrial cooperation opportunities and design of concrete investment projects
- Phase 3 - Business plan and funding mix to support investment protocols ….

EHV-S3P participating regions

13 Countries
&
31 Regions



EHV-S3P State of play

- **May 2019**: official launch of the EHV-S3P in Lyon
- **June 25th 2019**: 1st plenary meeting

⇒Setting-up of the partnership + Getting to know each other + Launch of the mapping exercise

- **July 2019 – September 2019**: Stakeholders/Competences/Projects Mapping
- **October 15th 2019**: 2nd plenary meeting

⇒Analysis of the mapping results

⇒Setting-up of the thematic working groups and their governance

⇒Validation of the support to the EHV-S3P answer to the EC consultation on the future “Clean Hydrogen” partnership and to the “Hyfinest” initiative (Interreg North Sea)

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Key challenges

Contribute to the decarbonisation of the EU's economy

- Green the production of H2 (large-scale integration of RES)
- Penetration in all end-use segments, also those hard to electrify (e.g. heavy transport, building heating, high-grade industry heat)
- "Sector coupling", allowing to convert generated power into a usable form, to store and channel it to end use sectors to meet demand

Source: Hydrogen Roadmap Europe

Strengthen the value chain for FCH technologies

-The supply chain is still developing
- Though some applications are already commercially attractive, FCH technologies are generally not yet mature
-Competitiveness across a greater range of applications, supply chain strengthening for a range of different technologies needed.
-Users and demand

Source: Hydrogen and FC Sector in Europe

Overcome the lack of expertise and resources in the field

-Greater numbers of qualified actors are required in each segment to ensure suitable competition and innovation throughout
- Still high costs of technology
- Deploying products locally and strengthening technical and manufacturing capabilities
-Matchmaking and co-investment

Financial models and resources

- Lack of dedicated budgets to implement projects
- Lack of range of financial incentives to deploy technologies solutions

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Thematic areas proposed by EHVP

H2 Production

Decarbonising H2 production. E.g.:
- Power-to-H2 based on electrolysis (RES), production of green H2 from wind, solar, hydropower and all renewable energy sources ;
- Renewable-H2 generation plants, electrolysers;
- Bio-H2 from biomass and blue hydrogen production, steam methane reforming (combined with CCU and/or CCS).

H2 Transportation, Storage and Conversion

Integrating renewable energies into the energy systems on a large scale. H2 as at-scale technology for “sector coupling”, allowing to convert generated power into a usable form, to store it, and to channel it to end use sectors to meet demand.

H2 Mobility

Developing and deploying FCH applications in the mobility sector to reduce the environmental impact of mobility:
- Heavy-duty transport
- Trains and maritime/port applications
- Light vehicles,
- Aviation
- Infrastructure (e.g. refuelling stations)
- Fuel cells technologies for transport applications

H2 for industrial use and heating and cooling

Greening the industrial production processes to reduce their GHGs emission, fostering industrial innovation and development and reducing the environmental impacts of heating and cooling production (e.g. replace natural gas for process heat in combination with CCU/CCS, replace grey H2 as industry feedstock in different sectors, FCH-based combined heat and power (CHP) technology, heat and power to commercial/residential buildings)

H2 valleys/islands

Setting up geographical areas (e.g. city, region, island, industrial cluster etc.) where several H2 applications are combined together into an integrated H2 ecosystem

Policy and lobbying actions + Transversal issues (Financing/public procurement/regulatory issues)

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Next steps

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- **October – December 2019**: Definition/Identification of potential joint projects within the workings groups
- **February 4th 2020**: 3rd plenary meeting (Paris/HyVolution conference)

⇒Analysis of the results of the working groups/project pitches

- **February – June 2020**: Definition of the business cases of the pilot joint projects
- **June/July 2020**: Presentation of the final business cases
- **September 2020 – December 2020**: Implementation of the pilot joint projects
- Preparing for the next MFF and 2021-2027 EU funding programmes

Thanks for your attention!

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Contacts

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