



PROJECT DEVELOPMENT ASSISTANCE FOR REGIONS

Observer Network Kick-Off Meeting
Public version of the presentation

03.09.2020

AGENDA

PDA REGIONS OBSERVER NETWORK KICK-OFF (03.09.2020, 14:00-16:00 CEST)

#	Time	Topic	Responsible
1	14:00 – 14:05	Kick-off meeting objectives	Spilett
2	14:05 – 14:45	Project Development Assistance for Regions Initiative <ul style="list-style-type: none"> context and overview presentation of the consultancy team introduction to the participating PDA regions 	FCH 2 JU, Element Energy, Spilett, WaterstofNet
3	14:45 – 14:55	Results of the 1st survey	Spilett
4	14:55 – 15:25	The PDA observer network <ul style="list-style-type: none"> aims and activities timeline 	Element Energy, Spilett
5	15:25 – 15:40	Announcement of the FCH 2 JU Regions' HUB	FCH 2 JU
6	15:40 – 15:55	Feedback and discussion	all
7	15:55 – 16:00	AOB & next steps	Spilett

KICK-OFF MEETING OBJECTIVES

This call includes representatives from the FCH 2 JU, the consultancies that will provide PDA services, and all regions that have agreed to participate in the Observer Network

This kick-off meeting aims to:

- Give an overview of the **context and purpose of the Project Development Assistance Initiative**
- **Introduce the consultancy team** that will be providing PDA and supporting the Observer Network
- Give an **overview of the supported regions**, their motivations and project ideas
- Present an **evaluation of the 1st survey**
- Explain the **purpose and activities of the Observer Network**, and the role of the participating regions in supporting it

INTRODUCTORY WORDS BY **BART BIEBUYCK, FCH 2 JU EXECUTIVE DIRECTOR**

CONTEXT AND OVERVIEW

BY MIRELA ATANASIU

HEAD OF UNIT FOR OPERATIONS AND
COMMUNICATION AT FCH 2 JU

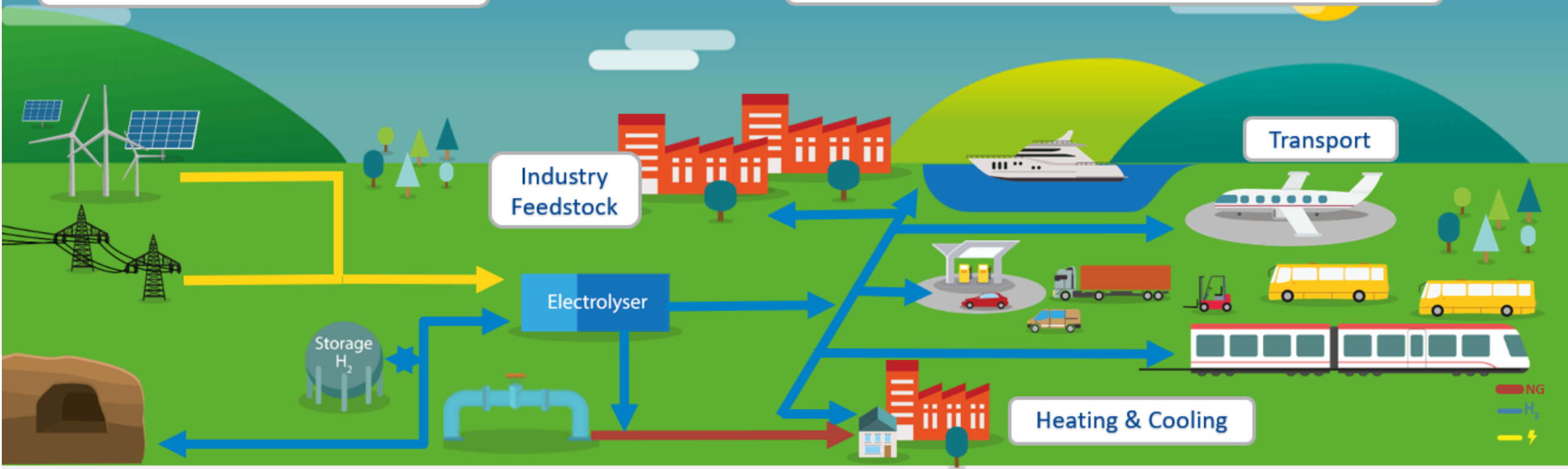
The role of hydrogen in our society & economy

Hydrogen allows more renewables in the energy system through storage and enables sectoral integration



STORAGE (seasonal)

SECTORAL INTEGRATION



BESIDES CO2 ABATEMENT, DEPLOYMENT OF HYDROGEN TECHNOLOGIES ALSO CUTS LOCAL EMISSIONS, CREATES NEW MARKETS AND SECURES SUSTAINABLE EMPLOYMENT IN EU



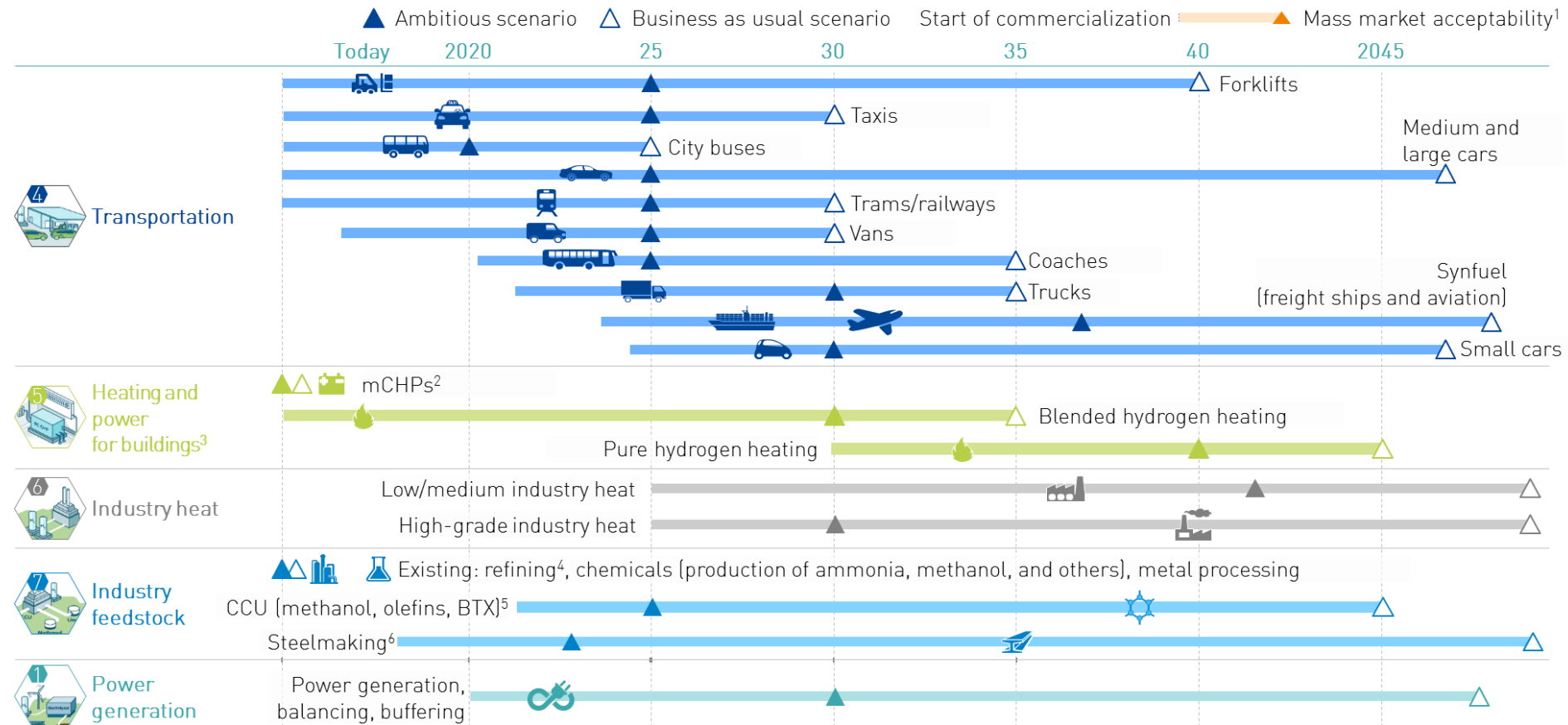
2030 - 2050 EU industry hydrogen vision



¹ Including feedstock ² Compared to the reference technology scenario ³ Excluding indirect effects

SOURCE: Hydrogen Roadmap Europe (2019)

HYDROGEN TECHNOLOGIES EXIST AND ARE READY TO BE DEPLOYED



¹ Defined as sales >1% within segment; ² mCHPs sales in EU independent of fuel type (NG or H₂); ³ Pure and blended H₂ refer to shares in total heating demand; ⁴ Refining includes hydro-cracking, hydro-treating, bio-refinery; ⁵ Market share refers to the amount of production that uses hydrogen and captured carbon to replace feedstock; ⁶ CDA process and DRI with green H₂, iron reduction in blast furnaces, and other low-carbon steel making processes using H₂

SOURCE: Hydrogen Roadmap Europe team



STRONG PUBLIC-PRIVATE PARTNERSHIP WITH A FOCUSED OBJECTIVE

EU INSTITUTIONAL PUBLIC-PRIVATE PARTNERSHIP (IPPP)

Fuel Cells & Hydrogen Joint Undertaking (FCH JU)



Industry grouping
About 130 companies
50% SME



Research grouping
About 70 institutions

To implement an *optimal research and innovation programme* to bring FCH technologies to the point of market readiness by 2020

FCH JU PROGRAMME IMPLEMENTATION (2008-2019)



Energy

- Hydrogen production and distribution
- Hydrogen storage for renewable energy integration
- Fuel cells for power & combined heat & power generation



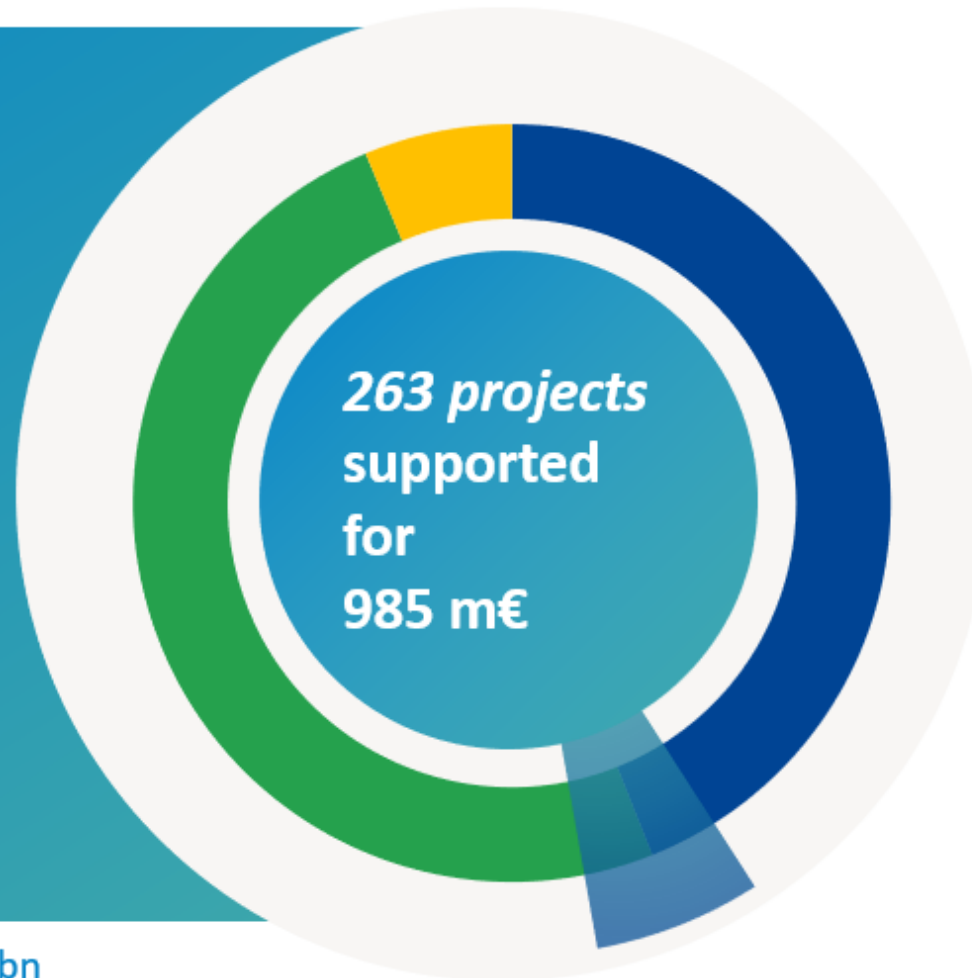
Transport

- Road vehicles
- Non-road vehicles and machinery
- Refuelling infrastructure
- Maritime rail and aviation applications



Cross-cutting

- E.g. standards, safety, education, consumer awareness ...



46 %



457 million euros

145 projects

41 %



404 million euros

70 projects

6 %



58 million euros

43 projects

7 %



66 million euros

5 projects

Similar leverage of other sources of funding: ~€1 bn

* Additional 23 projects currently under preparation (for approx. 70 mill EURO)

FCH JU ELECTROLYSIS PROJECTS OVER TIME

32 PROJECTS FOR 114M€

EU is now world-leader in electrolysis systems (TIM* database: EU has most patents and publications in this field)

Project: Don Quichote

Place: Belgium

Date: 2011

Electrolyser: Hydrogenics (PEM)

Funding: 5.0 m€



Project: Haeolus

Place: Norway

Date: 2017

Electrolyser: Hydrogenics (PEM)

Funding: 5.0 m€



Project: H2future

Place: Austria

Date: 2016

Electrolyser: Siemens (PEM)

Funding: 12 m€



Project: Djewels

Place: The Netherlands

Date: 2018

Electrolyser: McPhy (ALK)

Funding: 11 m€



0.15 MW

1.2 MW

2.5 MW

3.4 MW

6.0 MW

10 MW

20 MW

Project: Hybalance

Place: Denmark

Date: 2014

Electrolyser: Hydrogenics (PEM)

Funding: 8.0 m€



Project: Demo4grid

Place: Austria

Date: 2016

Electrolyser: IHT (ALK)

Funding: 2.9 m€



Project: Refhyne

Place: Germany

Date: 2017

Electrolyser: ITM (PEM)

Funding: 10 m€



NEXT:
2020-2025: 100 MW
Green Deal call

By 2030: GW scale

• <https://www.fch.europa.eu/page/tools-innovation-monitoring-tim>

DEVELOPING AN EU WIDE GUARANTEES OF ORIGIN SCHEME FOR HYDROGEN

Two definitions: one for Green and one for Low-Carbon/Clean Hydrogen – more than 70,000 GOs issued during the pilot



Four production plants included in the pilot scheme which have been already audited

Air Liquide, Port Jerome (SMR +CCS)



Colruyt Group, Halle (Electrolysis +RE)



Air Products, Rotterdam (by product H2 from Chlor-alkali process)



Uniper, Flakenhagen (Electrolysis + RE and methanation)



Two labels are defined for hydrogen



Name	GSRN	Installed Capacity (MW)	Commissioning Date	Domain	Fuel	Technology
Eoly H2 Production Plant	643002406971000037	8,50	2017-10-23	CertifHy	F01000000 - Renewable	W010101 - Hydrogen/Water electrolysis/Low temperature/Main-product
MEB Rotterdam	643002406971000068	2 000,00	1983-01-01	CertifHy	F01000000 - Renewable	W020001 - Hydrogen/Chlor-alkali electrolysis/By-product
Port Jerome	643002406971000051	4 200,00	2007-07-01	CertifHy	F02000000 - Fossil, F01000000 - Renewable	W030201 - Hydrogen/Steam methane reforming/With CCS or CCU/Main-product
WindGas Falkenhagen	643002406971000044	32,13	2013-08-01	CertifHy	F01000000 - Renewable	W010101 - Hydrogen/Water electrolysis/Low temperature/Main-product

<https://cmo.grexel.com/Lists/PublicPages/Statistics.aspx>

Next:

Expanding the GO scheme to all Member States and establish one EU-wide GO scheme (REDII Directive implementation)

ORKNEY ISLANDS: EUROPE'S FIRST HYDROGEN TERRITORY

BLUEPRINT FOR OTHER TERRITORIES WHICH CONSIDER HYDROGEN TO DECARBONISE



A hydrogen territory in Scotland: hydrogen production, storage, transportation and utilization for heat, power and mobility.

2016-2021

FCH Funding:
~5M€



HySeas III: the world's first zero emission, sea-going ferry. Demonstrate a circular economy model for the local production of H₂ fuel

2017-2021

H2020 Funding:
~9.3M€



Hydrogen Fuel Cell

(INTERNATIONAL) HYDROGEN VALLEY PLATFORM

RENEWABLE AND CLEAN HYDROGEN CHALLENGE (IC8) UNDER



Mission Innovation



→ IC8 Launched in May 2018 **CEM9/MI-3**

→ 15 countries + EU

COPENHAGEN MALMÖ

→ Objective: "To accelerate the development of a global hydrogen market by identifying & overcoming key technology barriers to the production, distribution, storage, and use of hydrogen at GW scale"

→ Scope:

- focused multinational research & large scale demonstration efforts
- from both public & private sectors
- industry-directed breakthroughs within the next 3 years
- renewable & clean hydrogen
- 4 activity streams: making, sharing, using hydrogen & cross-cutting issues

→ Co-lead 'countries': Australia, **EU & Germany**

The Hydrogen Valley Platform

Landing page online | Data request open | Final platform goes live

January February March April May June July August September October November December

A Global Information Sharing Platform,

- developed by the Fuel Cells and Hydrogen Joint Undertaking at the initiative of the Mission Innovation IC8 Member States
- will provide comprehensive **information** on large-scale **hydrogen flagship projects**, also known as Hydrogen Valleys

The platform can be accessed at:
www.h2v.eu. Have a look at it right now!

[SIGN UP HERE FOR UPDATES](#)

Data will be collected globally from around 40 large-scale hydrogen projects

Our Mission

- is to advance the **clean energy transition**
- is to promote the emergence and the implementation of **hydrogen projects**
- is to **raise awareness** among policy makers

- H2 Valleys' concept picked up world wide
- EU/EC/FCHJU in the lead also in terms of gathering and sharing lessons learnt

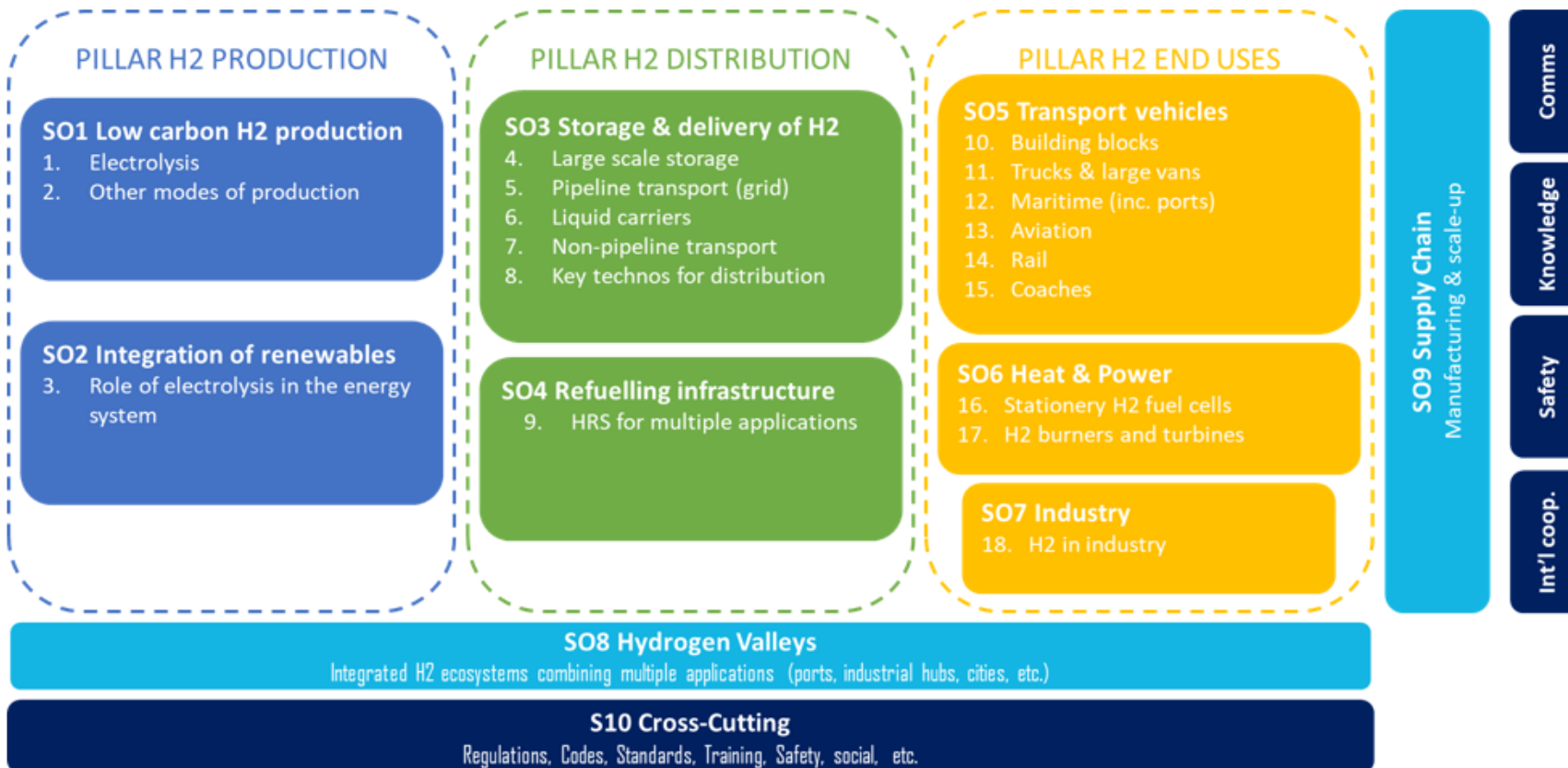


Clean Hydrogen Partnership (2021-2030)

PROPOSED OBJECTIVES FOR CLEAN HYDROGEN PARTNERSHIP



3 main pillars: H2 production, distribution and end-uses next to supply chain, H2 valleys and cross-cutting.



Important to keep the ECO-system together (production → end-users incl. transport)

THE REGIONS AND CITIES INITIATIVE



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

- Early success in deploying hydrogen technologies has been **driven on a regional and city level**; the scale of which is compatible with the **early and ambitious deployment** of the technology.
- The FCH 2 JU has initiated the FCH regions initiative, with over 90 cities and regions committing to develop hydrogen projects. Over the next 5 years, the **total level of investment** in local or regional fuel cell and hydrogen projects is expected to total **€1.8 billion**.
- Produced a **set of practical tools**:
 - **Technology introduction & Preliminary Business Cases dossiers** to raise awareness about the technologies available
 - **Funding tool** to assist regions into mapping funding options at hand, and
 - **Mobility business case tool** to enable user friendly playing with the financials of deploying mobility projects
- **FCH 2 JU team for the PDA :**
 - Antonio AGUILO RULLAN, Project Officer – CHPs, Industry & Light duty vehicles
 - Enrique GIRON, Project Officer – Bus, Coaches, Trams & Trains
 - Pedro GUEDES DE CAMPOS, Financial Engineering Officer – Maritime & Trucks

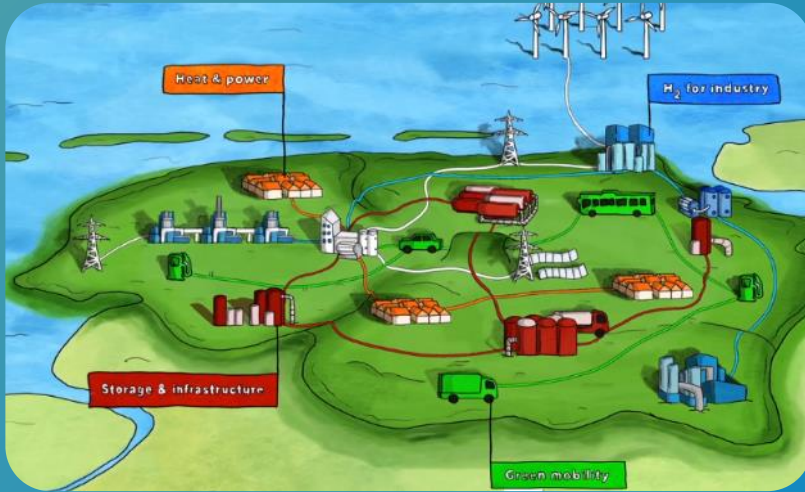


THE REGIONS AND CITIES INITIATIVE



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

H2Valley (2019 call topic)



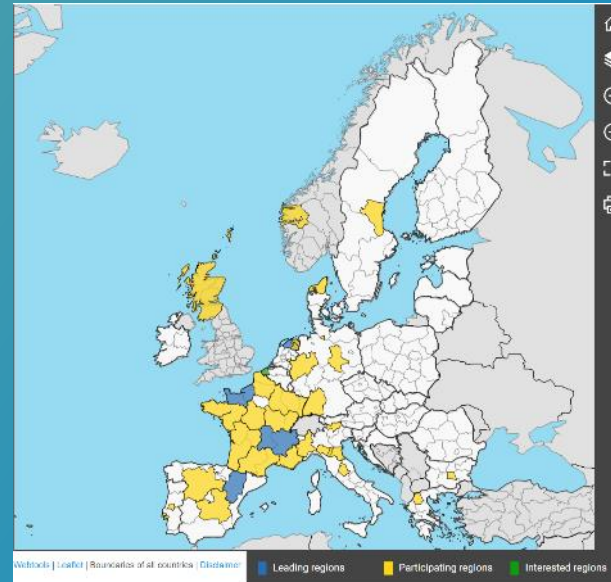
Project name: HEAVENN
H2020 Funding: EUR 20 m
Total Cost: ~EUR 100 m

- Hydrogen production from renewables
- Use of hydrogen for road transport in buses & taxis
- Use of hydrogen for ships
- Use of hydrogen as feedstock for chemical industry

Ambition to have a flagship project to guide other Regions



(DG GROW)

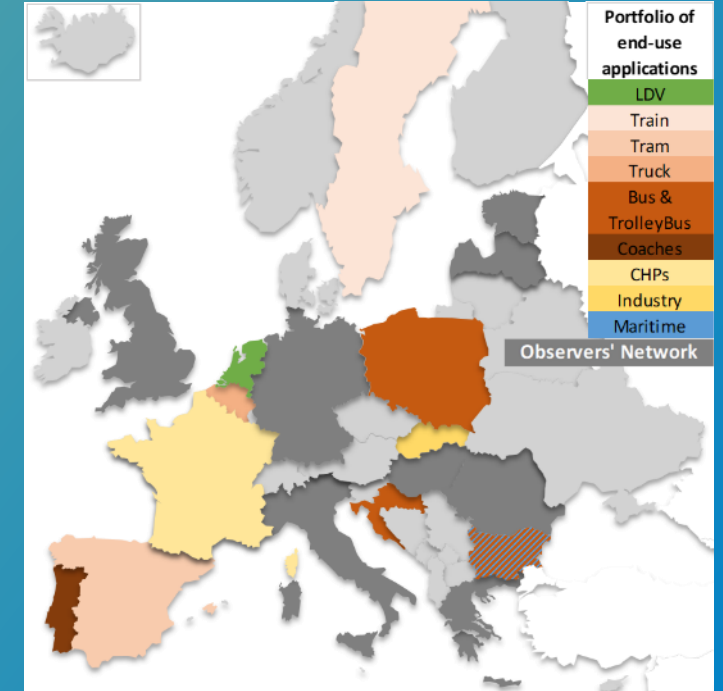


<https://s3platform.jrc.ec.europa.eu/hydrogen-valleys>

Leveraging on the existing network and capacity building generated



2019 -> 06/2020-06/2021









Help develop detailed project planning in less mature Regions with special attention to Central and Eastern Europe

INTRODUCTION TO THE CONSORTIUM

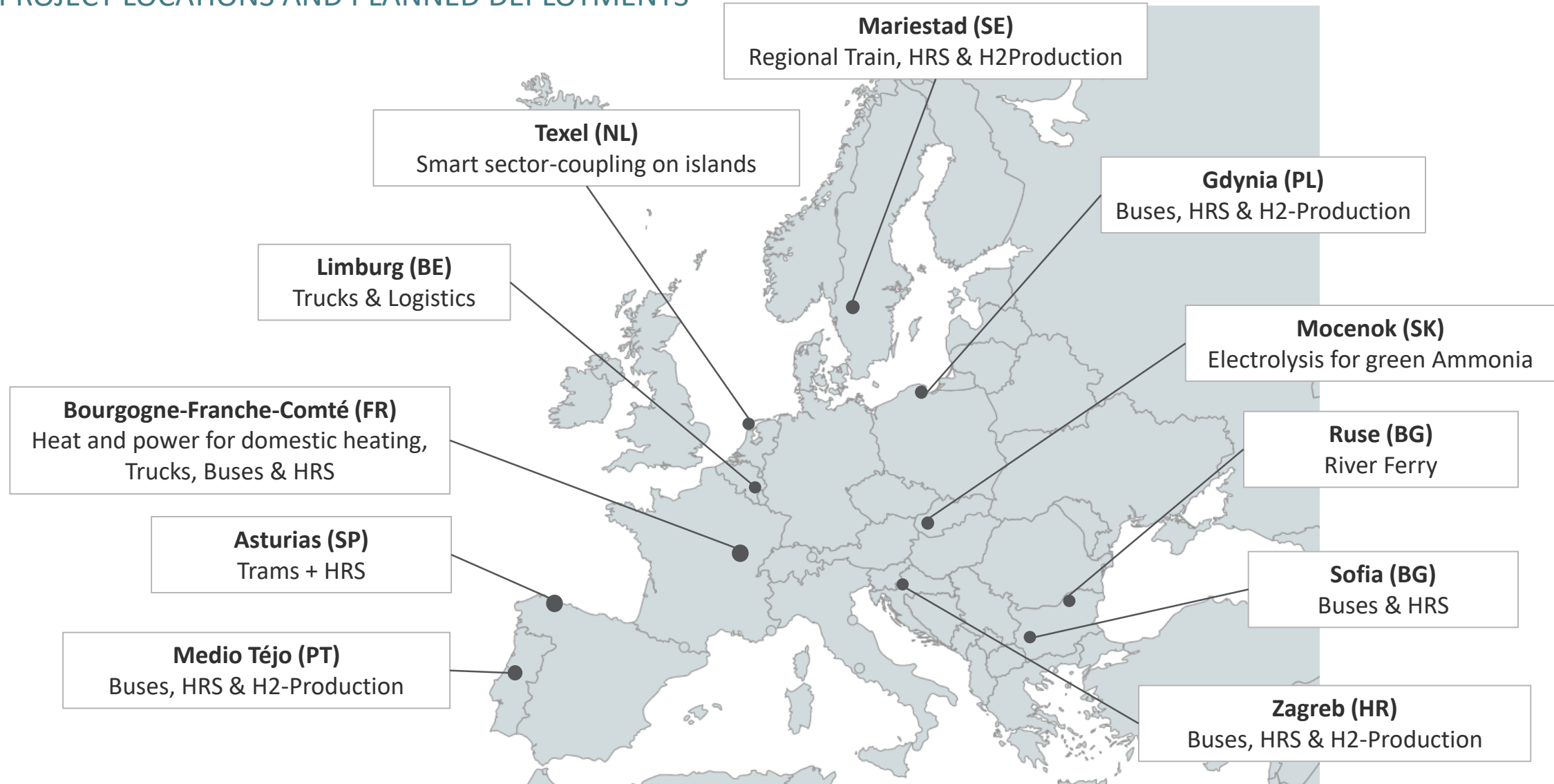
CONSULTANCIES AND PERSONNEL

- Project Development Assistance will be provided by a consortium of five companies from around Europe. Assistance will be led by either **Spilett**, **Element Energy** (UK or French offices), or **WaterstofNet**.
- Some projects in EU13 countries will also be supported by either **Trezors** or **WiseEuropa**, who have experience working in these regions.

						
Project managers	Nadine Hoelzinger	Ben Madden Mike Dolman	Alex Stewart Elise Ravoire	Adwin Martens	-	-
Consultants	Jonas Koch	Hannah Bryson-Jones Sophie Eynon	Hugo Signollet Paul Lorang	Michel Honselaar Isabel Francois Yannick Van den Broeck	Aivars Starikovs Dainis Boss	Aleksander Sniegocki Karolina Marszal

SUPPORTED PROJECTS

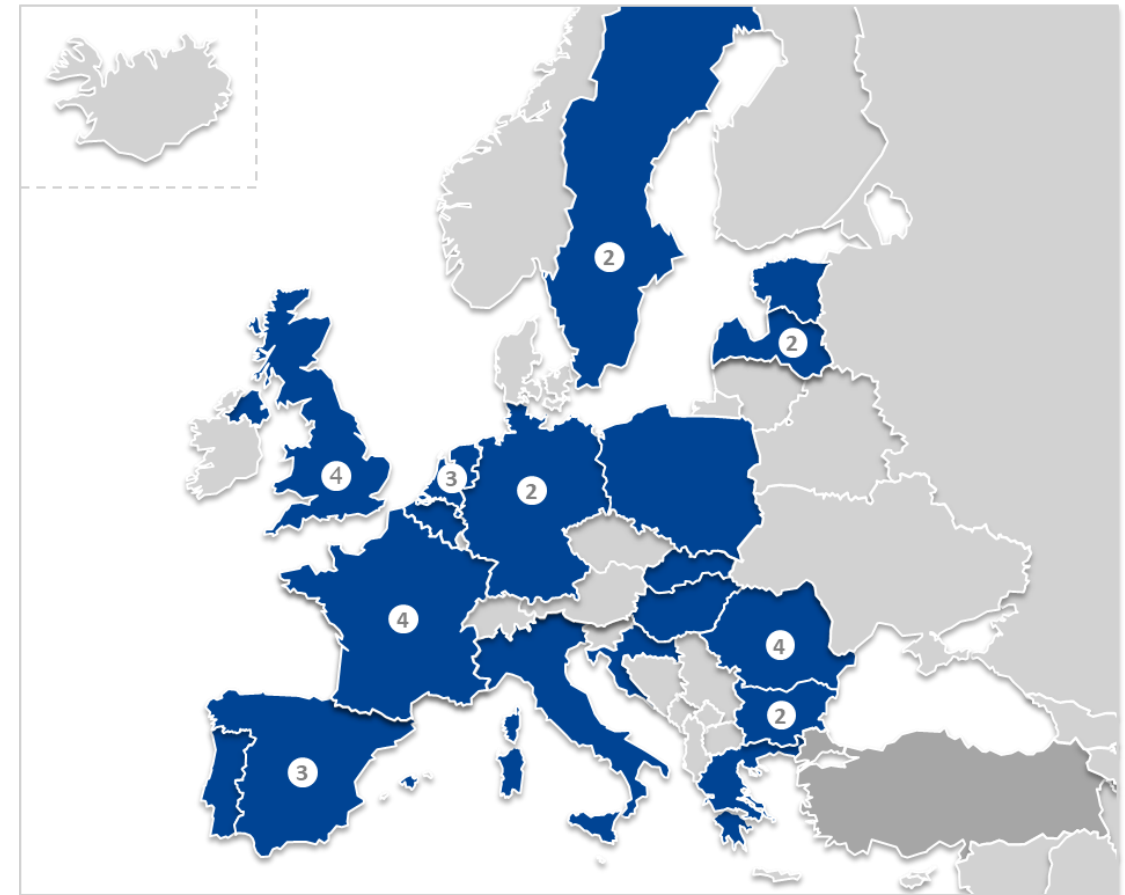
PROJECT LOCATIONS AND PLANNED DEPLOYMENTS



THE OBSERVER NETWORK

- 35 unique, eligible applications for PDA were received from regions across Europe
- Each of these regions has agreed to participate in the Observer Network

Country	Regions
Belgium	Limburg
Bulgaria	Ruse, Sofia
Croatia	Zagreb
Estonia	Tartu
France	Bourgogne-Franche-Comté, Normandie, Région Grand Est, Région Hauts de France
Germany	Dahme-Spreewald, Stadt Aschaffenburg
Greece	Western Macedonia
Hungary	Szentendre
Italy	Emilia-Romagna
Latvia	Jelgava, Riga
Netherlands	Brainport Eindhoven, Midden Noord-Brabant, Texel
Poland	Gdynia
Portugal	Medio Têjo
Romania	Cluj-Napoca, Giurgiu, Iasi, Ramnicu Valcea
Slovakia	Mocenok
Spain	Aragón, Asturias, Cantabria
Sweden	Gävleborg, Mariestad
UK	England: Coventry, Swindon Scotland: Aberdeen, Orkney Islands



OBSERVER NETWORK – WHAT WE ARE AIMING FOR

Provide general information on



Technology characteristics and potential



Technology and market readiness



Experiences and best practice (technologies, projects)



Procurement and financing strategies



Project development, application for grants, business case development, joint activities (pooling)

Initiate



Exchange and networking between regions with similar interests



Exchange and networking with FCH experts and industry



Awareness on implications to daily operation / existing processes



Collaboration in neighbouring regions to set up cross-border hydrogen supply chains

OBSERVER NETWORK – PLANNED ACTIVITIES

- **Database of FCH technology suppliers** and details of their product specifications, availability, and prices (where available), along with contact details to discuss further
- **Grouping of Regions** with similar projects and facilitation of discussions between grouped regions
- **Contact office** via email and phone for questions and support
- **4 online-seminars** run by experts from the consultancy team or external speakers on specific **technical topics of interest** as mentioned in the survey (every 2nd month)
- **Online-seminars** to give regions a chance to present their ideas and let them be **peer-reviewed** by consultancy and other regions
- **Online-seminar** on **funding possibilities and strategies**, writing of **applications** and project development by the consultancy team and the FCH 2 JU

Planned Observer Network Activities



DATABASE OF FCH TECHNOLOGY SUPPLIERS



GROUPING REGIONS WITH SIMILAR PROJECTS



CONTACT TO REPLY TO QUESTIONS



ONLINE SEMINARS ON MAJOR TECHNICAL TOPICS



ONLINE SEMINARS TO PEER REVIEW PROJECT IDEAS



ONLINE SEMINAR ON FUNDING AND APPLICATIONS

GROUPING SCHEME

- To enable the maximum impact of PDA services on other regional hydrogen projects around Europe, a Grouping Scheme will make contacts between projects either in similar geographic regions or with similar technologies to be deployed.
- To kick off the grouping scheme, kick off meetings will be facilitated by the consultancies for each group. These meetings will take place in early – mid 2021.
- The meetings will serve two purposes:
 1. To inform observer regions about lessons learnt from PDA supported projects
 2. To facilitate networking between projects with similar backgrounds and deployment goals
- The topics and projects involved in these groupings will be developed in response to demand from the Observer Network

Grouping scheme kick offs – proposed agenda:

1. Introduction to each of the projects in the group
2. Consultancy introduction to the group topic
3. Lessons learnt in the projects receiving PDA
4. Q&A session on lessons learnt

ONLINE SEMINARS – TECHNICAL TOPICS

Four seminars on the most popular technical topics based on the results of the survey will include information on:

- Web-Seminar 1: Technological Readiness
- Web-Seminar 2: Suppliers
- Web-Seminar 3: Business cases
- Web-Seminar 4: Best Practice and Lessons Learned

Technical seminars will be **presented by members of the consultancy team and external experts**

There will be opportunities for the regional representatives to **interact with the experts through Q&A sessions** at the end of each session

Materials from the meetings will be made available to observer regions following each session

ONLINE SEMINAR – PEER REVIEW

Regions that are not supported will be given the **opportunity to present their projects to the observer network for feedback** from:

- the consultancy teams
- the other observer network members

This provides the opportunity for regions to **understand potential flaws in their project plans, and ways to improve their project plans** and connect with other regions with similar goals.

Each region will be given **20 minutes to present their ideas and discuss questions and feedback with the group**. Up to three webinars of two hours each will be scheduled depending on demand from the observer regions.

If you are willing to present your projects to the observer network, please email us by 28th September 2020 stating your interest.

ONLINE SEMINAR – FUNDING OPPORTUNITIES

Observer regions have shown a **high level of interest in the options for project funding** in the observer region survey.

Therefore, **one webinar will be provided on the funding opportunities available and how to develop applications for funding.**

The **FCH 2 JU** will present **current funding opportunities** and **trends in coming funding calls.**

Additionally national organizations will be invited to share their plans.

The Funding Webinar will be held in **December 2020**, exact date will be announced in October.

This offers regions the opportunity to prepare for upcoming EOI calls in 2021 by FCH 2 JU or national organisations.

WEB-SEMINAR TIMELINE



FCH REGIONS' HUB

PEDRO GUEDES DE CAMPOS, FCH2JU

<https://www.fch.europa.eu/page/alternative-funding-opportunities-pda>



Home » Initiatives

STUDIES

FCH REGIONS' HUB

Background info FCH Regions' initiative

Latest News and Publications

On-going FCH JU PDA for Regions

Alternative funding opportunities for PDA

Initiatives to support networking among regions

Tools to support the development of business models

Reference Studies and Reports

Demo Projects Hub

H2 Islands

RCS STRATEGY COORDINATION GROUP

EUROPEAN HYDROGEN SAFETY PANEL

FCH REGIONS' HUB

Supporting European Regions and Cities to Launch Investments

The FCH-Regions' Hub supports regional and local authorities and other public bodies across the European Union to develop and turn their concepts for regional hydrogen and fuel cell (FCH) projects into detailed work plans. Raising awareness and providing project development assistance to regional FCH projects will further accelerate the deployment of hydrogen in Europe, contributing to **carbon neutrality** and **zero pollution**.

How the FCH-Regions' Hub Works

The FCH-Regions' Hub concentrates the relevant information we gather within the FCH JU projects, studies and initiatives. It further links you to specific external sources and complementary initiatives capable of assisting you in the endeavour of deploying your Regional FCH plans.

Latest News and Publications

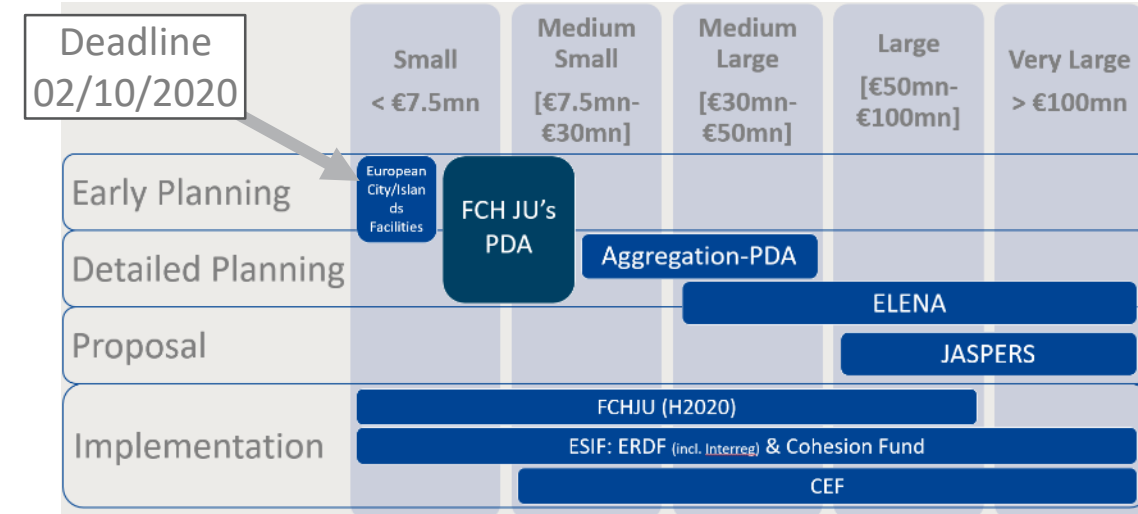
On-going FCH JU's Project Development Assistance (PDA) for Regions Initiative

Hubs for Regions

- [Opportunities for other PDA support](#)
- [Initiatives to support networking among regions and to learn from frontrunner peers](#)
- [Tools to support business models development](#)
- [Reference Studies and Reports](#)
- [Demo Projects to access specific expertise on the deployment of different FCH solutions](#)
- [H2 Islands](#)

Type	Title
Initiative (S3P)	European Hydrogen Valley Partnership
Initiative	Clean Energy for EU Islands
Platform	Mission Innovation Hydrogen Valley Platform
Initiative	Covenant of Mayors. The world's largest movement for climate and energy actions
Association	CPMR - Conference of Peripheral and Maritime Regions

Background Info



Type	Title	Source	Link	Last update
Technology introduction & preliminary business cases' dossiers	FCH Technology introduction & preliminary business cases' dossiers	FCH Regions Initiative (FCH JU: 2+26 PDF files)	All: - Technology Introduction Dossiers - Preliminary Business Cases Per applications:	
Business cases/models	Business models	Funding and Finance (FCH JU website)	https://www.fch.europa.eu/page/advice-complex-business-models	
Business cases/models	Teaser for Coupling wind farms (or any RES) and Electrolysers	Funding and Finance (FCH JU website)	https://www.h2v.eu/https://www.fch.europa.eu/page/advice-complex-business-models#Pth2	
Modelling tools	Mobility business case tool	FCH Regions Initiative (FCH JU Excel sheet)	Excel file	27/03/2018
Funding tools	FCH Funding and Financing navigation tool	FCH Regions Initiative (FCH JU; Roland Berger; Excel sheet)	Excel file	08/02/2018

AOB – ANY OTHER BUSINESS



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WiseEuropa



elementenergy



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