

# Fördermöglichkeiten für Wasserstoffforschungsprojekte im EU Programmen

27 April 2022

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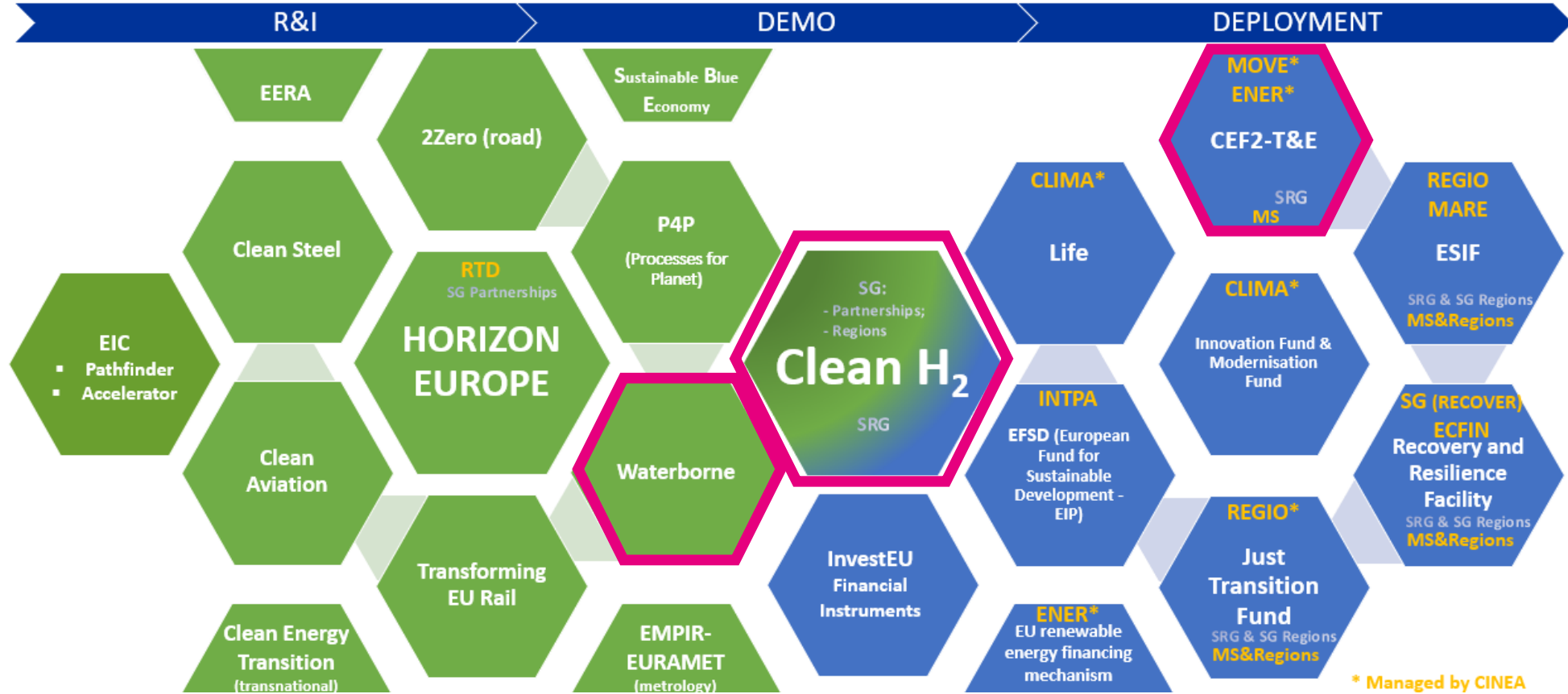
*Clean Hydrogen Joint Undertaking*



# EU programmes synergies and international cooperation

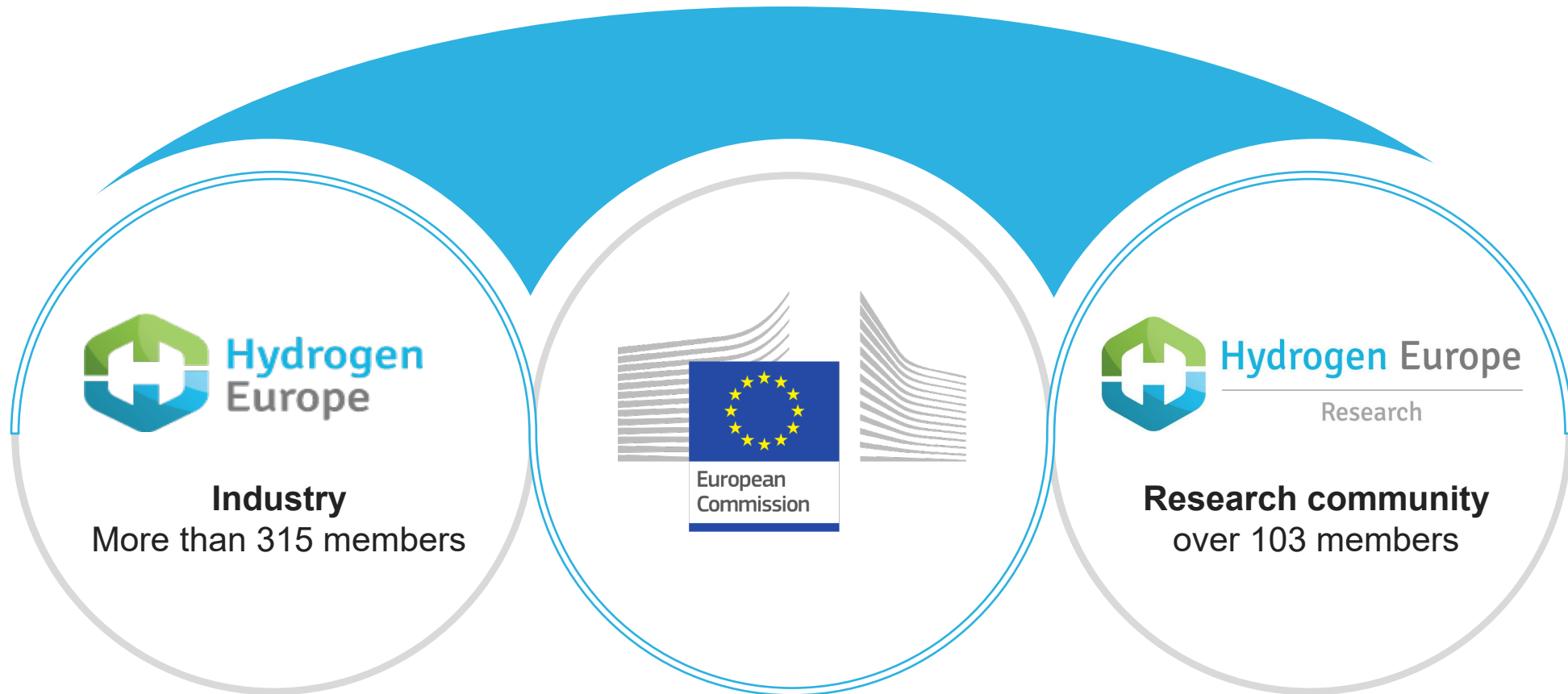
Strong cooperation is Key to deal with bigger yet fragmented EU Funds to meet EU Green Deal Ambition!

## International Cooperation



# Clean Hydrogen Joint Undertaking

EU Institutional Public-Private Partnership (IPPP)



To facilitate the transition to a greener EU society through the development of hydrogen technologies

# Projects in the Clean Hydrogen JU

## H<sub>2</sub> Valleys

3 Projects  
€ 35 million

## H<sub>2</sub> End Uses

Transport Applications

Clean Heat and Power

159 Projects  
€ 739.6 million

## H<sub>2</sub> Storage & Distribution

22 Projects  
€ 55.8 million

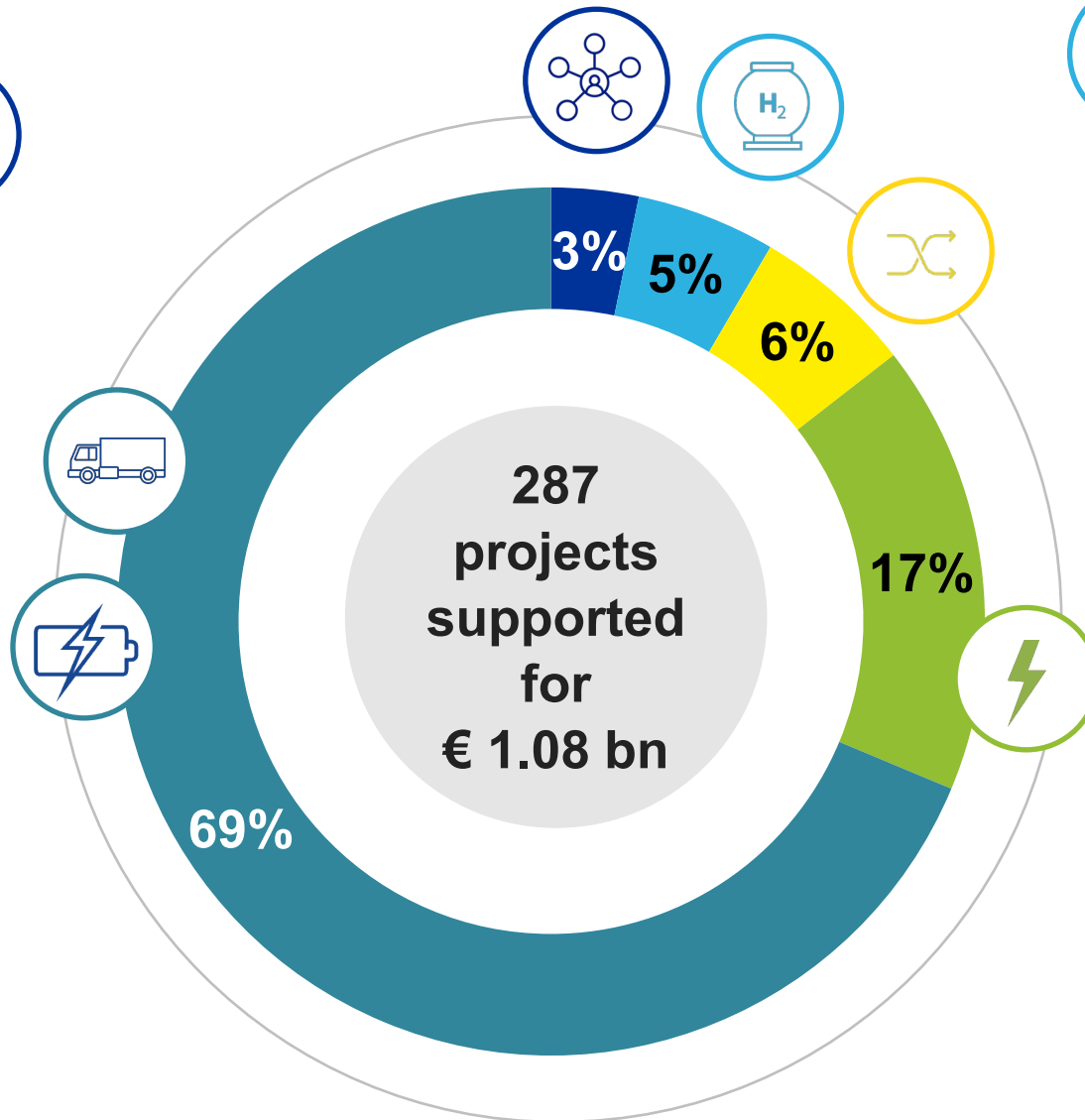
## Cross-cutting

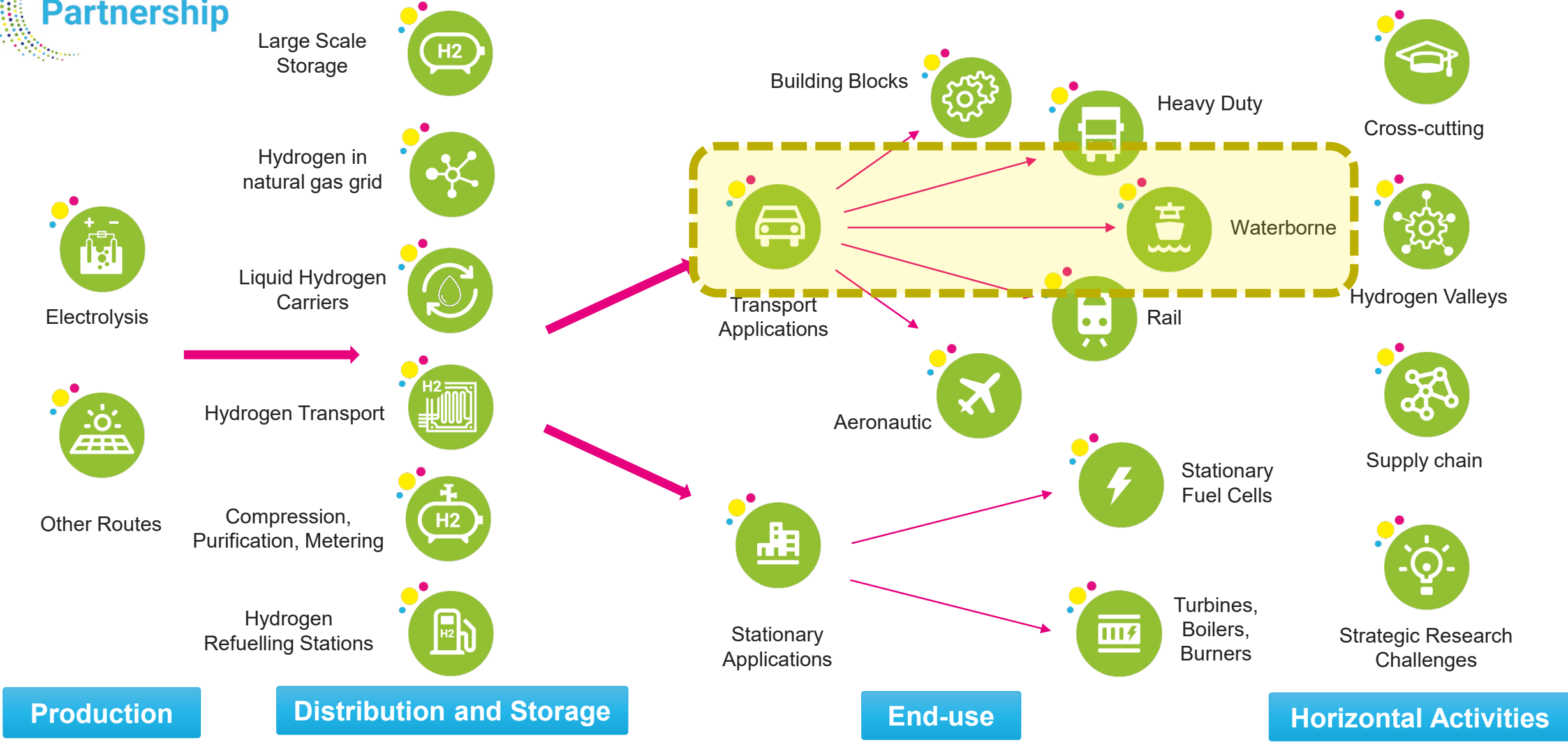
46 Projects  
€ 65 million

## H<sub>2</sub> Production

- Electrolysis
- Other routes

57 Projects  
€ 181 million





# Ships: towards larger vessels and H<sub>2</sub> delivery by ships

Building the pilots and experiments to speed up standards for waterborne applications



2020 - Ro-Ro passengers and freight vessel - LH<sub>2</sub> PEM



2019 - Platform vessel -NH<sub>3</sub> SOFC and inland barge - CH<sub>2</sub> PEM



2018 - Inland cargo - CH<sub>2</sub> PEM



2017 - R&D vessel - CH<sub>2</sub> PEM



## Challenges

- Regulations
- Bunkering infrastructure and protocols
- Creation of hydrogen corridors
- International cooperation



Dissemination of knowledge and for the coordination of research activities in the field of hydrogen safety

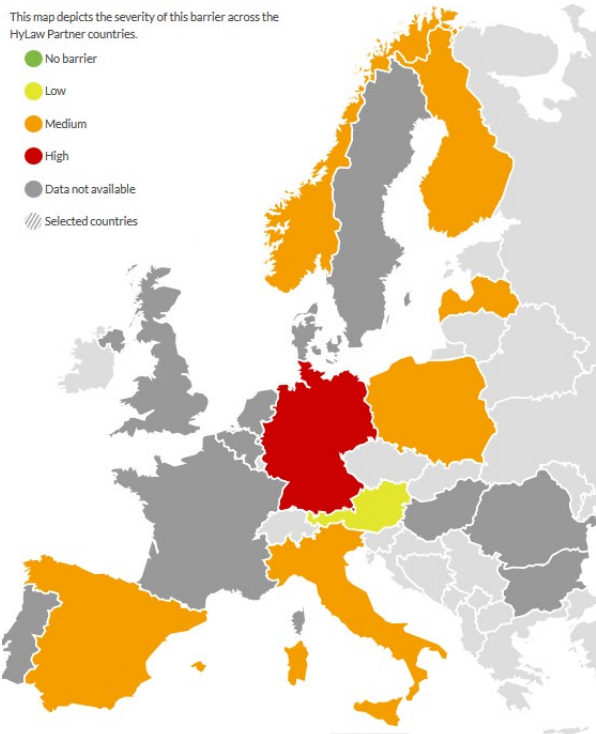
# Regulations, codes and standards for hydrogen ships

Enable investments, financial institutions, shipbuilders, shipowners and charterers need comprehensive and predictable legal framework

## Bunkering

This map depicts the severity of this barrier across the HyLaw Partner countries.

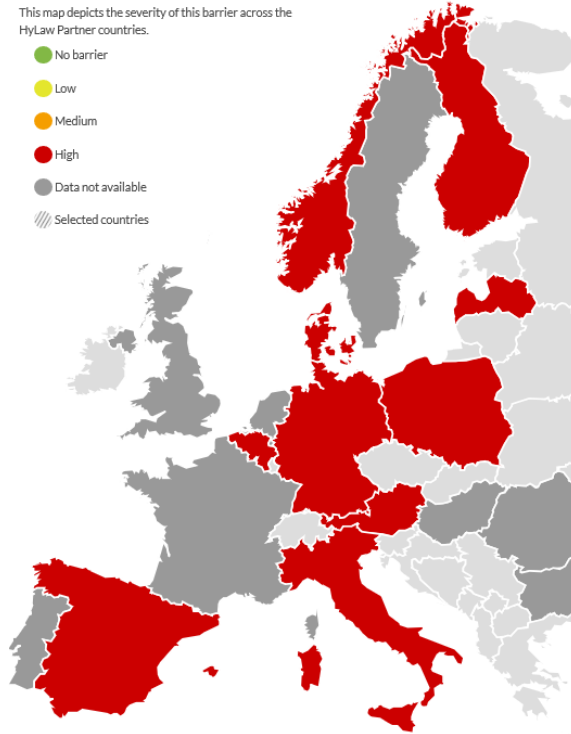
- No barrier
- Low
- Medium
- High
- Data not available
- ▨ Selected countries



## Design / type approval

This map depicts the severity of this barrier across the HyLaw Partner countries.

- No barrier
- Low
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- Data not available
- ▨ Selected countries



Overview of legal frameworks for hydrogen in maritime

## Pre-Normative Research, codes and standards



Hydrogen for passenger vessels

- Experimental data
- Guidelines for safe design for the new IGF chapter on hydrogen



## CEN/CENELEC SFEM WG Hydrogen

- Develop an appropriate PNR/standardisation roadmap/action plan to address PNR gaps in the maritime sector
- Last meeting = 2<sup>nd</sup> February 2022, covering both inland and sea-going navigation

# Ports as hydrogen «coastal hubs»

Pilots for clean port operations in container and ferry terminals

## Pilots for ports operations

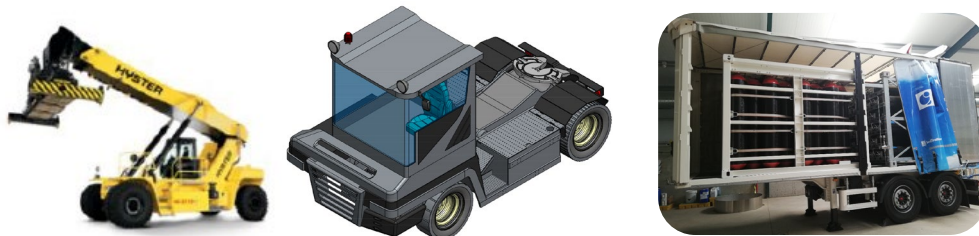


## Heat and on-shore power for ferry terminals

- Port of Palma = 100kW
- Port of Orkney = 75 kW
- Port of Tenerife = 100kW



## Heavy machinery for container handling



- Port of Valencia



## Ports as hydrogen «coastal hubs»

- Creating / Serving H<sub>2</sub> demand locally for energy intensive industry (steel, chemicals, refineries, etc)
- Integration of renewable electricity from offshore wind
- International trading routes for H<sub>2</sub>
- Transport node / ecosystem with trains, trucks and inland navigation

## Study on hydrogen in ports and industrial coastal areas

- European Hydrogen Ports Network
- Global Hydrogen Ports Coalition - CEM

1<sup>st</sup> European Hydrogen Ports Network

At Port of Rotterdam (NL) on 11<sup>th</sup> of May

Registration: [here](#)



# Call for proposals 2022

## Call: HORIZON-JU-CLEANH2-2022


- Hydrogen production
- Hydrogen distribution
- Transport
- Heat and Power
- Cross-cutting
- **Hydrogen Valleys**



Total budget:  
300.5 M€



	Budget (EUR 300.5 million)	Publication	Deadline
First deadline	179.5	1 <sup>st</sup> March 2022	31 <sup>st</sup> May 2022
Second deadline	121.0	1 <sup>st</sup> March 2022	20 <sup>th</sup> September 2022

Topic	Type of Action	Ind. Budget (M€)	Deadline
HORIZON-JTI-CLEANH2-2022-02-06: Development of large scale <u>LH2 containment</u> for shipping	RIA	6.5	20/09/2022
HORIZON-JTI-CLEANH2-2022-02-11: Development and demonstration of mobile and stationary compressed <u>hydrogen refuelling solutions</u> for application <u>in inland shipping and short-distance maritime operations</u>	IA	7	20/09/2022
HORIZON-JTI-CLEANH2-2022-03-05: Large scale demonstration of hydrogen fuel cell propelled <u>inland waterway vessels</u>	IA	15 	31/05/2022



## Deployment of 5 inland waterway vessels with fuel cells and electric propulsion.



- Retrofitting and/or new build with a focus on converting ship types with the highest impact on emissions
- FC power above 500kW and preferably at 1 MW scale (modular and easy-to-scale solution)
- Bunker hydrogen in at least 2 different ports
- Deployment along the core and comprehensive TEN-T corridors – complementary proposal to CEF Transport for the HRS funding

# The Zero-Emission Waterborne Transport is a Partnership in the framework of Horizon Europe

Topic	Type of Action	Ind. Budget (M€)	Deadline
HORIZON-CL5-2022-D5-01-01: Exploiting electrical energy storage systems and better optimising large battery electric power within fully <b><u>battery electric and hybrid ships</u></b>	IA	16	26/04/2022
HORIZON-CL5-2022-D5-01-02: Innovative <b><u>energy storage</u></b> systems on-board vessels	RIA	15	26/04/2022
HORIZON-CL5-2022-D5-01-03: Exploiting renewable energy for shipping, in particular focusing on the potential of <b><u>wind energy</u></b>	RIA	18	26/04/2022
HORIZON-CL5-2022-D5-01-04: Transformation of the existing fleet towards greener operations through <b><u>retrofitting</u></b>	IA	25	26/04/2022



# Alternative Fuels Infrastructure Facility (AFIF) - Hydrogen infrastructure

## Hydrogen Refueling Stations for IWW & maritime vessels

### Eligible

- HRS at 350 bar and/or 700 bar
- **Port vehicles and equipment (only delta costs)**
- hydrogen or hydrogen carrier fuels (e.g. ammonia) propelled vessels

### Location

- In TEN-T inland waterway and maritime ports areas



Call	Budget	Funding rate
CEF-T-2021-AFIFGEN-WORKS-ZE	1.200 M€	30%
CEF-T-2021-AFIFCOEN-WORKS-ZE (for cohesion Fund eligible countries)	375 M€	50%

### 5 cut-off dates:

- 19 January 2022
- 07 June 2022
- 10 November 2022
- 13 April 2023
- 19 September 2023

# Where to find easily the topics from the various programmes?

## In 3 steps:

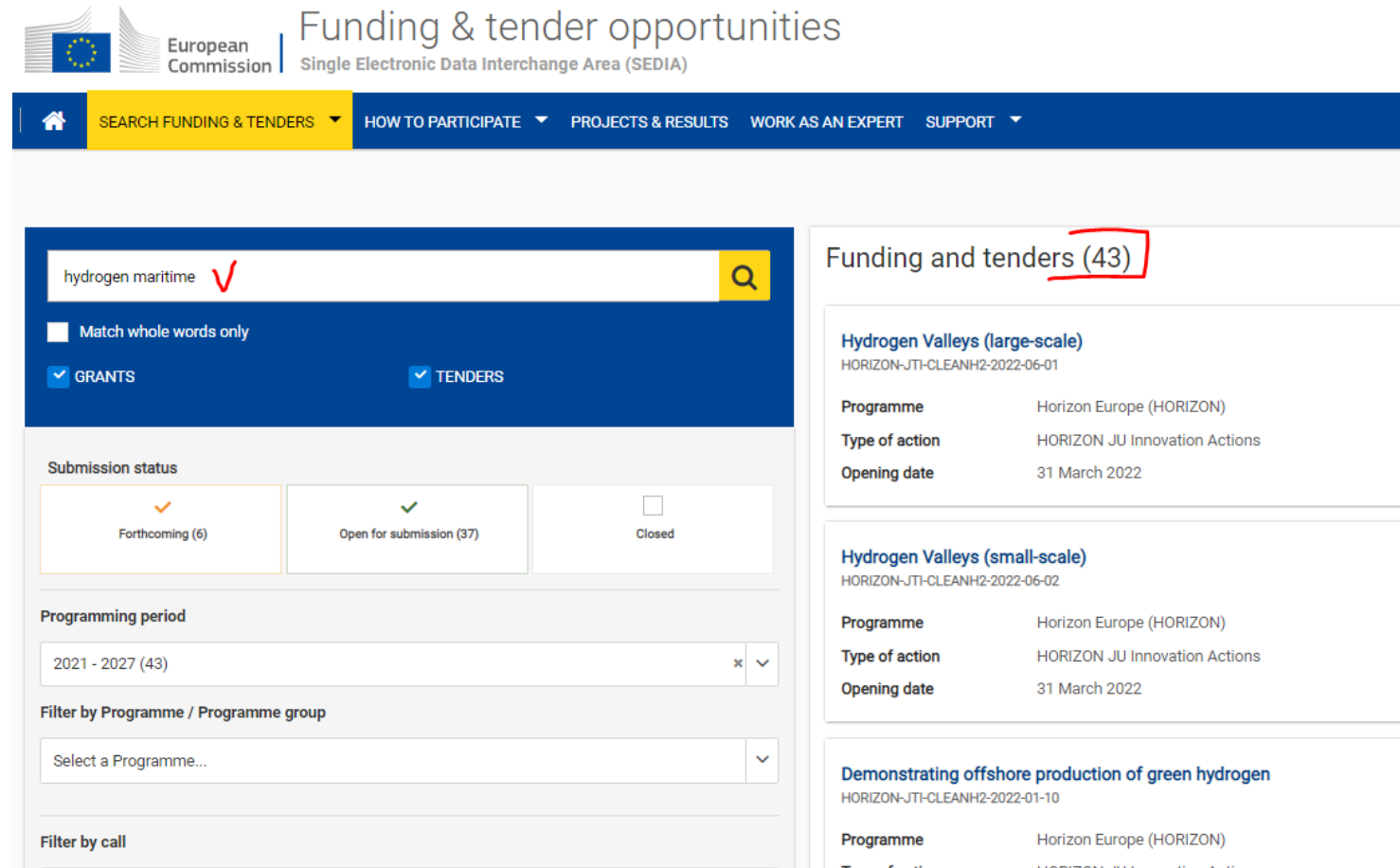
1. In your webbrowser type:

[Funding and Tenders Opportunities Portal](#)

2. Click “Search Funding & Tenders”

3. Type “hydrogen”, “maritime”, etc.

And ... Your journey starts !



The screenshot shows the European Commission's 'Funding & tender opportunities' portal. The search bar contains 'hydrogen maritime' with a red checkmark and a magnifying glass icon. Below the search bar, there are filters for 'Match whole words only' (unchecked), 'GRANTS' (checked), and 'TENDERS' (checked). The 'Submission status' section shows three categories: 'Forthcoming (6)', 'Open for submission (37)', and 'Closed'. The 'Programming period' is set to '2021 - 2027 (43)'. The 'Filter by Programme / Programme group' dropdown is set to 'Select a Programme...'. The 'Filter by call' section is empty. On the right side, the search results are displayed under the heading 'Funding and tenders (43)'. The first result is 'Hydrogen Valleys (large-scale)' with details: Programme: Horizon Europe (HORIZON), Type of action: HORIZON JU Innovation Actions, Opening date: 31 March 2022. The second result is 'Hydrogen Valleys (small-scale)' with details: Programme: Horizon Europe (HORIZON), Type of action: HORIZON JU Innovation Actions, Opening date: 31 March 2022. The third result is 'Demonstrating offshore production of green hydrogen' with details: Programme: Horizon Europe (HORIZON), Type of action: HORIZON JU Innovation Actions, Opening date: 31 March 2022.

# Evaluation by independent experts

## European Commission database of experts

Register through the **Funding & tender opportunities Portal** and **notify us with your interest**

## Selection of experts

- High level of skill, experience and knowledge
- Independence and absence of conflict of interest

And **a balance** in terms of:

- geographical diversity
- gender
- where appropriate, the private and public sectors, and
- an appropriate 'rotation' from year to year.

In principle, each proposal will be examined by **at least three experts**

Presence of **one or more independent observers**

Experts that have a **conflict of interests** will be excluded by us !



25% new experts



Large fields of expertise



Network with fellows

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## HORIZON-JTI-CLEANH2-2022-02-06: Development of large scale LH<sub>2</sub> containment for shipping



To develop and validate containment concepts intended for the bulk shipping of liquid hydrogen



- Concept selection for large scale LH<sub>2</sub> containment to be used in shipping
- Detailed design, construction, and testing of a scaled-down prototype of at least 10 t LH<sub>2</sub> capacity
- General Approval for the LH<sub>2</sub> containment system by one of the major IACS classification societies

## HORIZON-JTI-CLEANH2-2022-02-11: Development and demonstration of mobile and stationary compressed hydrogen refuelling solutions for application in inland shipping and short-distance maritime operations



To focus on either a stationary (pipe-to-ship) or on a floating (ship-to-ship or platform-to-ship) solution



- Demonstrate smart and safe logistics solutions and develop a market standard to support front-running shipping projects.
- Techno-economic analysis of the proposed solution.
- Standardisation of the developed engineering solutions, including components such as refueller, connections, nozzles, as well as of fuelling protocols, is also a key priority.
- Synergies with HORIZON-JTI-CLEANH2-2022-03-05.