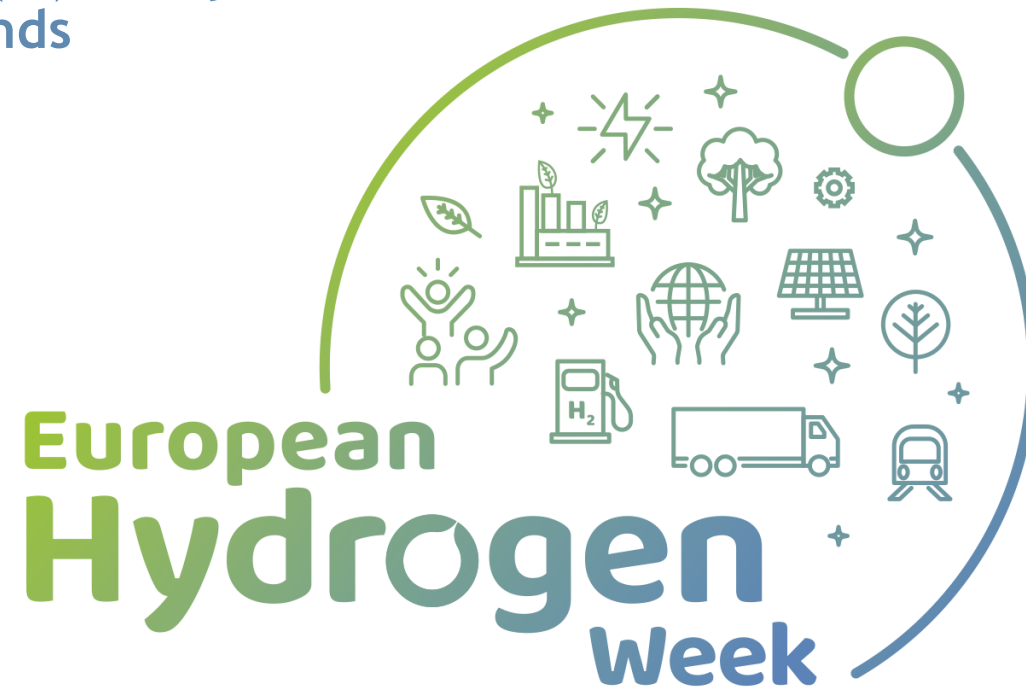


HEAVENN

H2 Energy Applications (in) Valley Environments (for) Northern Netherlands



Patrick Cnubben
Janke Kappenburg
New Energy Coalition

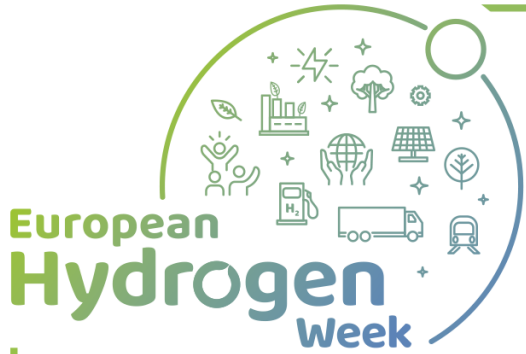
www.heaven.org

p.cnubben@newenergycoalition.org

j.kappenburg@newenergycoalition.org

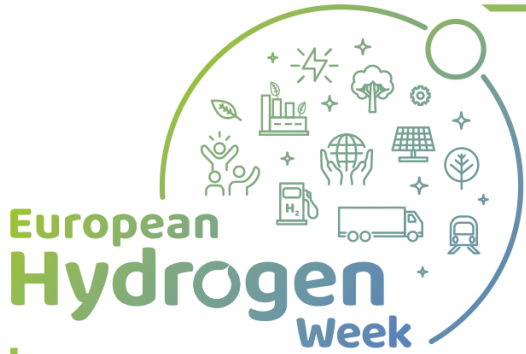
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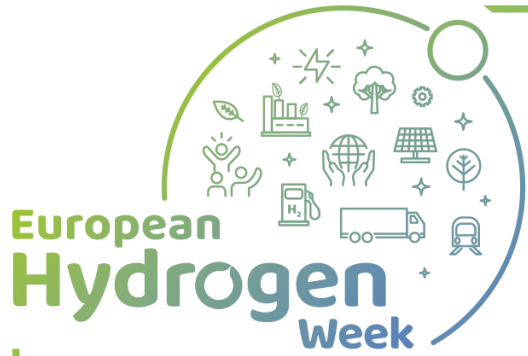
Project Overview

- Call year: 2019
- Call topic: FCH-03-1-2019: H2 Valley
- Project dates: 01/01/2020 - 31/12/2025
- % stage of implementation ultimo October 2021 : [25 %]
- Total project budget: 83.000.000 €
- FCH JU max. contribution: 20.000.000 €
- Other financial contribution: 20.000.000 €



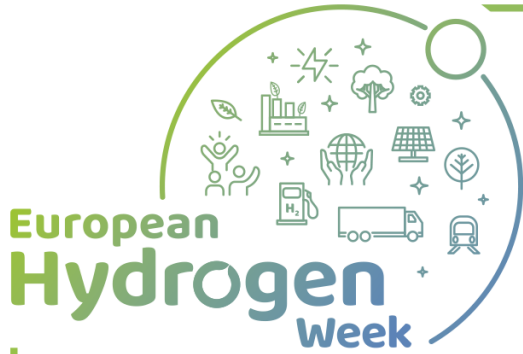
Project Overview

- **Partners:** Gasunie, Nobian, Engie, Groningen Seaports, Getec, Green Planet, Qbuzz, TotalEnergies, Shell, NAM, EBN, Lenten Scheepvaart, Municipality Groningen, Municipality Emmen, Municipality Hoogeveen, HyEnergy Transtore, Energy, Bytesnet, H2Tec, UVO Vervoer, Rijksuniversiteit Groningen, NPRC, Hinicio, Aragon Hydrogen Foundation, European Maritime Energy Center, EWE, Hydrogen Valley Denmark, Hydrogen Ireland, European Research Institute for Gas and Energy Innovation



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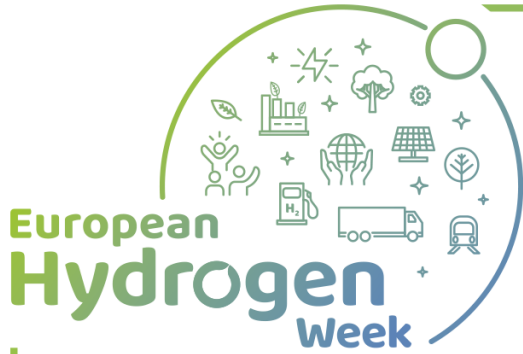


Project Summary

Main Objectives

Strategic Objective

- Establishing a H2 ecosystem in NN region, integrating H2 initiatives in a systemic approach, to demonstrate sector coupling and FCH uses cases at a regional level
- 100% Green H2 production
- Integrating in total eleven FCH applications from four sectors
 - Industrial demand initial 2.800 tpa rising to 7.200 tpa
 - Heat and power demand: 315 tpa rising to > 500 tpa
 - Mobility demand: 350 tpa rising to > 700 tpa

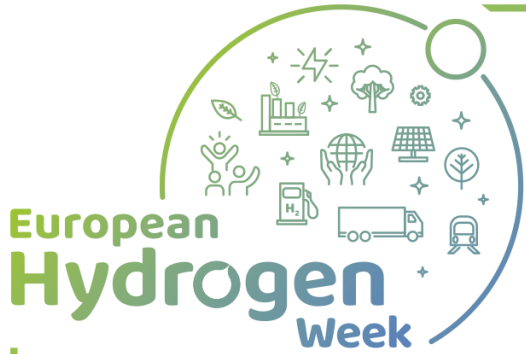


Project Summary

Global positioning vs international state-of the art

- The HEAVENN project offers a robust approach to construct a regional Hydrogen Valley model enabling to become a integrated hydrogen economy.
- Analysis in the context of the **Mission Innovation Hydrogen Valley Platform*** shows that HEAVENN is positioned in the top 5 tier of Hydrogen Valleys globally: <https://www.h2v.eu> (launch December 2020)
- HEAVENN is collaborating with other European Hydrogen Valley projects like Big Hit and Green Hyslands.

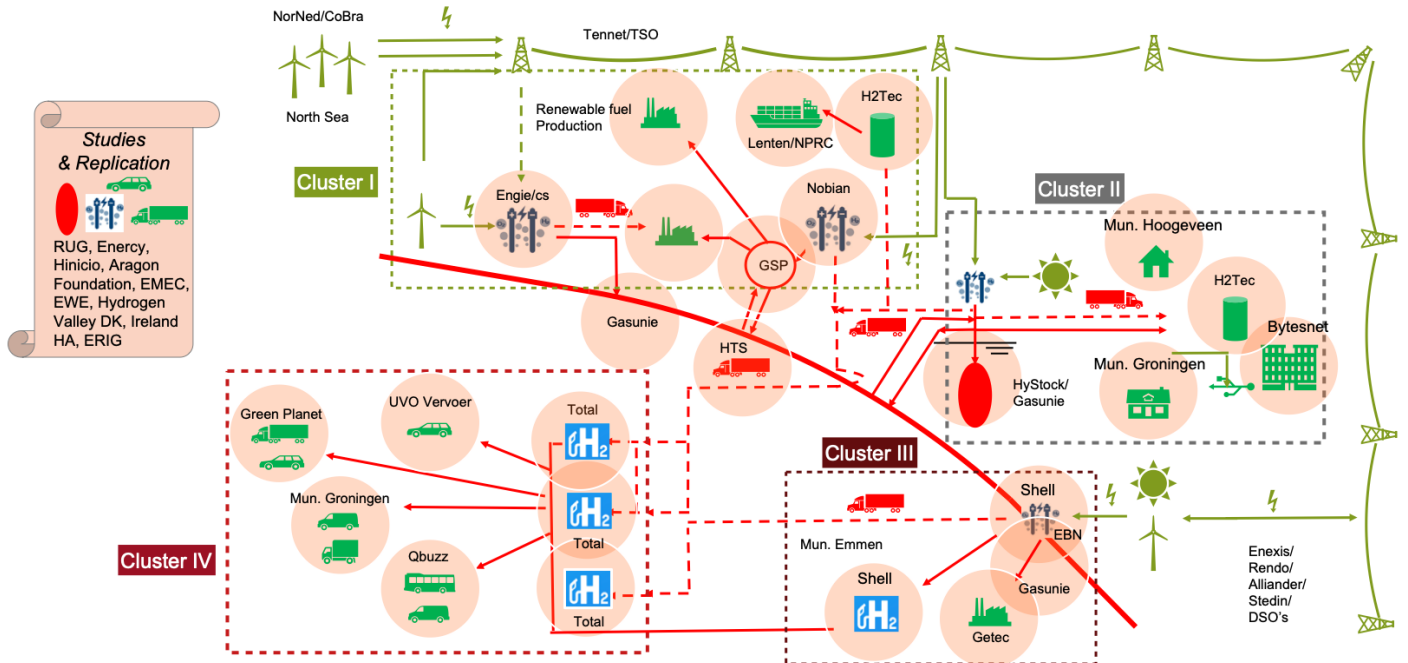
**The Hydrogen Valleys Platform has been prepared for the Fuel Cells and Hydrogen 2 Joint Undertaking. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe Research.*



Project Summary

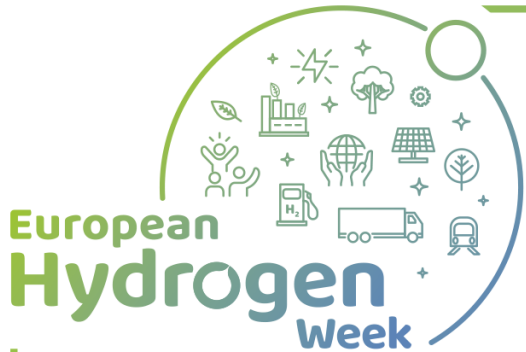
Application and market area

Industry, domestic and industrial process heat, back-up power, transport (cars, light duty and heavy duty vehicles, coaches, refuse trucks, inland water barges including HRS)

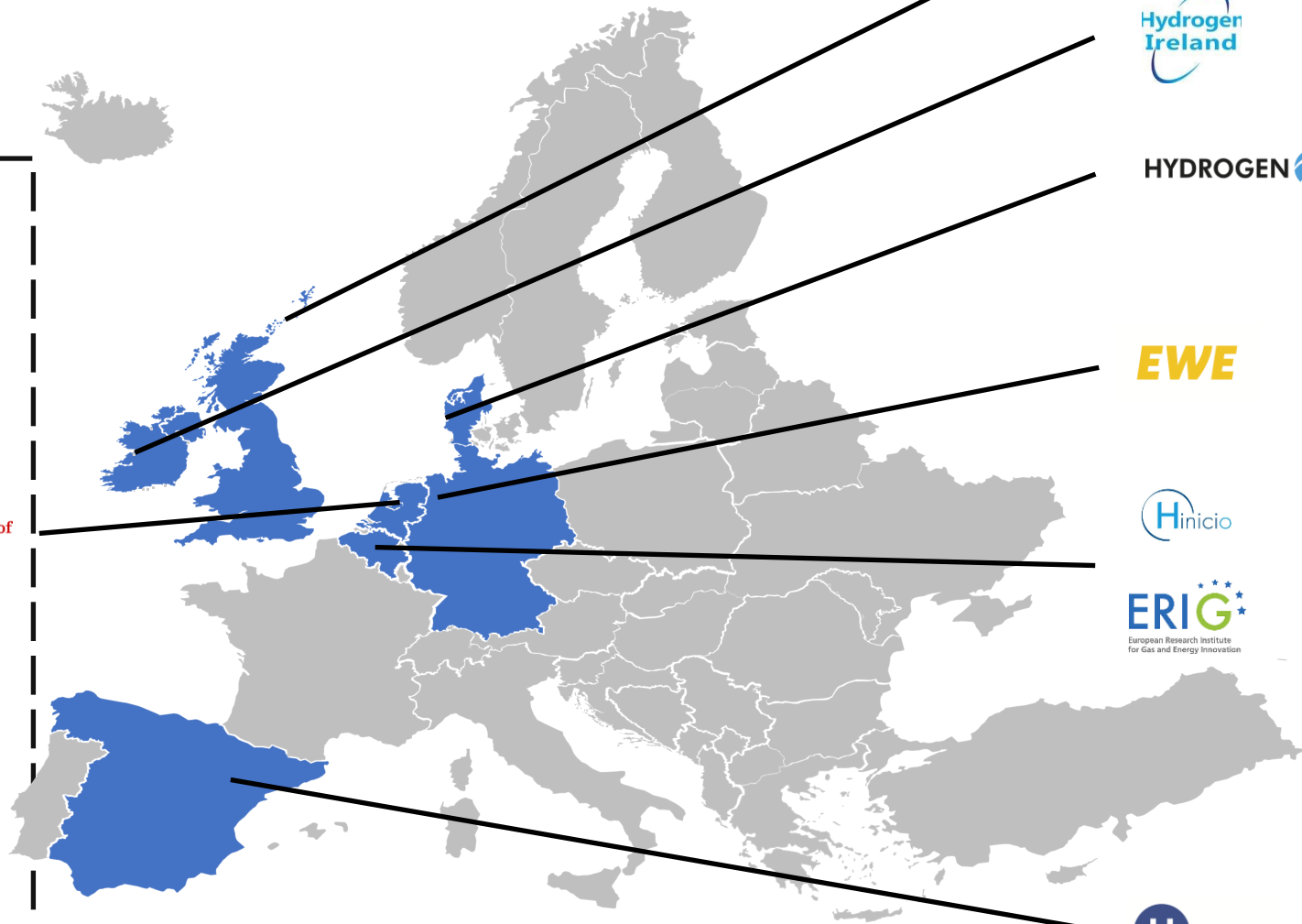


Studies & Replication

RUG, Enercy, Hincio, Aragon Foundation, EMEC, EWE, Hydrogen Valley DK, Ireland HA, ERIG

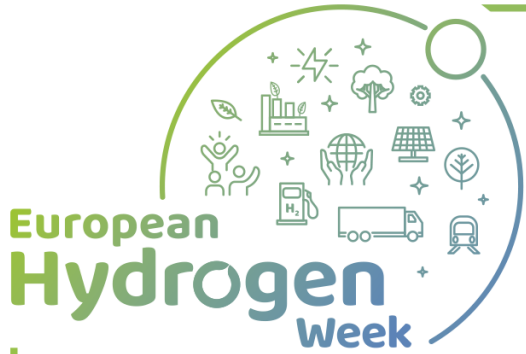


European reach



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Project Progress/Actions - Aspects



Achievement to-date

01.01.2020



31.12.2025

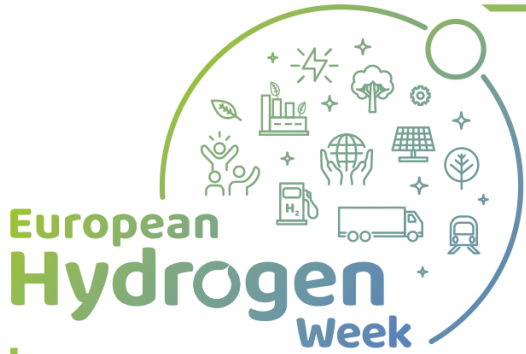
25%

50%

75%

General progress YTD ultimo October 2021

- Project Coordination M1 - M72
- Preparation for Deployment M1 - M36*
- Site Installation and Commissioning: M1 - M48**
- Operation, Infrastructure Analysis and Data management: M19 - M72
- Impact analysis and business models: M1 - M72
- Studies enabling future roll out: M1 - M72
- Communication, dissemination, exploitation plans and activities; M1 - M72



Risks, Challenges and Lessons Learned

Risks:

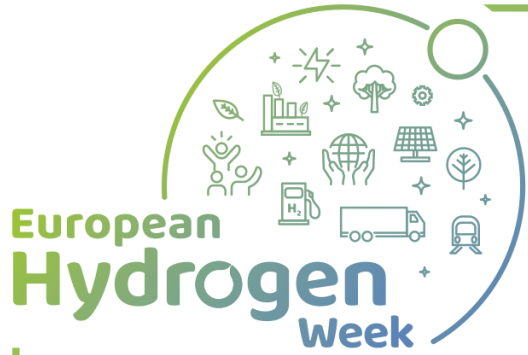
- Main risk factor is delay of critical installation components due to COVID-19 delays
- And Business Case finalization for electrolysers more time consuming
- Delay in construction activities due to social distancing at work sites (travel restrictions etc)
- Cofunding arrangements take more time due to complex state aid regulations
- Together with relevant partners alert on fitting mitigation measures

Challenges:

- Availability of vehicles, production capacity at OEM's
- Implementation practice on local and regional level

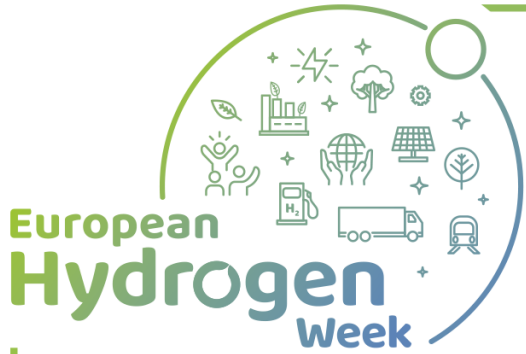
Lessons learned:

- A lot of outside interests to partake or becoming connected. Now additional effort to connect these initiatives (also offtakers of green hydrogen) to key partners and public stakeholders



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Exploitation Plan/Expected Impact

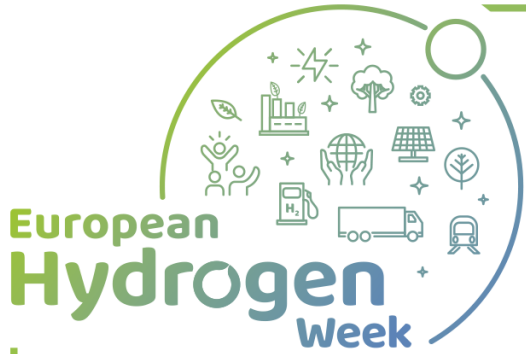
Exploitation

Internal and External

- Presentation of the results of viability studies to stakeholders, discussion and networking activity ongoing
- Presentation of the results of technical operation and cluster's activities roll-out, group discussion and networking activity ongoing
- Networking and retrieving additional information to elaborate the roadmap(s), bilateral discussion(s), working sessions
- Development of a Participation Platform focussed on involvement of citizens and other stakeholders in the region to make the hydrogen transition inclusive

Impact

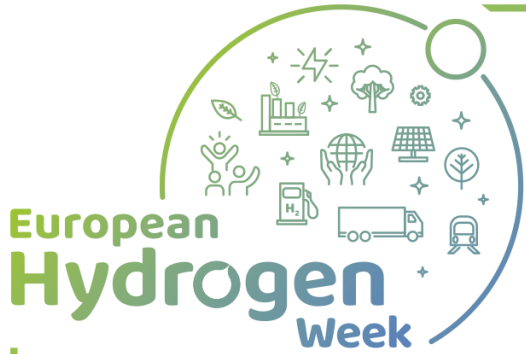
- On regional smart specialisation in the North Netherlands region
- On sector coupling and the larger penetration of RES
- Facilitating successful business models through initiation of a regional H2 ecosystem
- RCS
- Environmental and societal impacts
- Employability
- EU level and other regions



Communications Activities

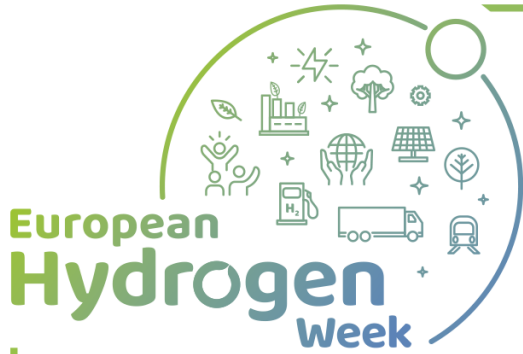
2020

- 1 January 2020: project Start
- 30 March: Presentation Dutch Cabinet Vision on Hydrogen (including relation to Heavenn)
- 2 July: Kick Off (Webinar)
- 22 September: Latest developments in offshore wind innovation in the Netherlands. Dutch embassy Conference, Vejle Denmark
- 24 September: Berlin Handelsblatt Gastage. Dutch view on Hydrogen including short elucidation on a.e. HEAVENN
- 30 October: Launch North Netherland Hydrogen Investment Plan
- 5 November: Online presentation feasibility study project Hoogeveen
- 10 November: Announcement public contribution from province Drenthe to Hoogeveen part of Heavenn and State contribution
- 16 November: Announcement public contribution from province Drenthe to Emmen part of Heavenn



Communications Activities

- 17 November: Kick off Part II
- 18 November: General Assembly
- 24 November: European Hydrogen Week, FCH-JU Program Review Days
- 25 November: European Hydrogen Week, PRIORITY
- 3 December: H2 Link regions webinar. Including speech on relevance of Hydrogen development e.g. Hydrogen Valley and HEAVENN
- 9 December: Innovation mission Hydrogen NL-VS-CA. Hydrogen innovation mission California. Netherlands Consulate General San Francisco, USA. Explanation on Heavenn and Hydrogen Valleys 22 December

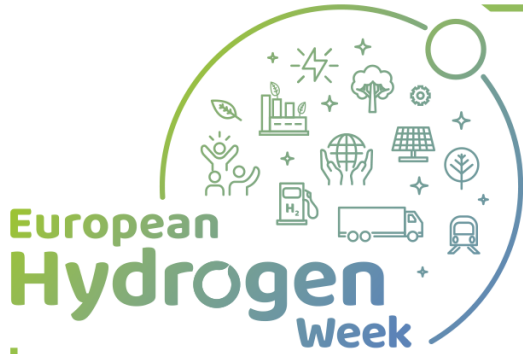


Communications Activities

2021

- 4 February: Kick Off meeting, Green Hysland project Mallorca (online)
- 12 February: Visit HRH King Willem Alexander of The Netherlands. Working visit explanation Hydrogen Valley and HEAVENN
- 16 February: H2 cooperation Estonia/Netherlands, explaining how to become a Hydrogen Valley
- 10 March: Initiative Deutsche Infrastruktur (IDI) Jahreskongres. On HEAVENN and Hydrogen Valley example for Germany
- 9 June: Paris Reinforce: Dutch decarbonization: the role of finance and hydrogen
- 6-8 July: Estonian Hydrogen Days, 2021, Tallinn
- 7&8 October: General Assembly, including International symposium Wind meets Gas
- 18 October: Keynote HEAVENN and Hydrogen Valley, ICOPE Conference Japan (online)

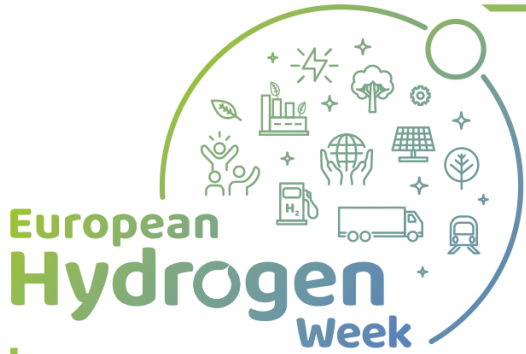




Synergies With Other Projects And Programmes

Interactions with projects funded under EU programmes

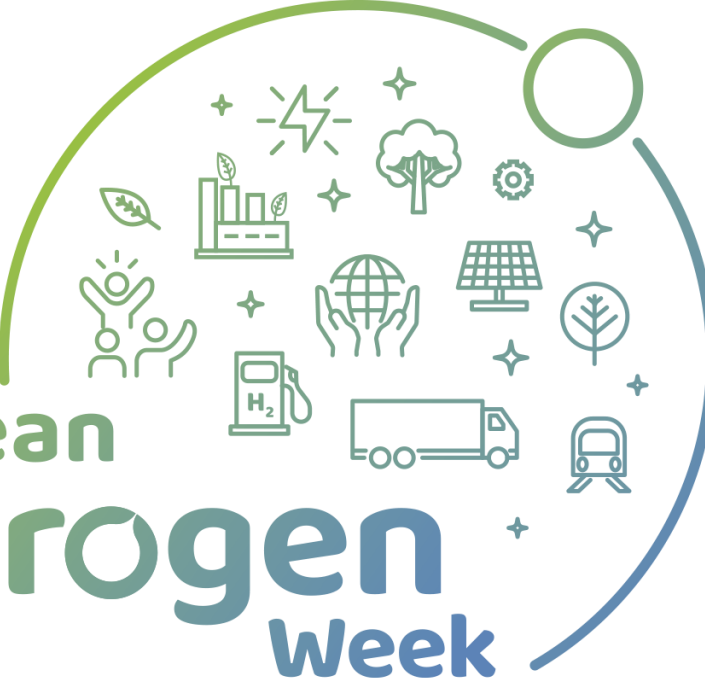
- Big Hit: www.bighit.eu
- TSO2020: <http://tso2020.eu/>
- Highvelocity: <http://highvlocity.eu/>
- JIVE/JIVE2: <https://www.fuelcellbuses.eu>
- CertifHy: www.certifhy.eu
- Djewel: <https://djewels.eu/>
- ITEG: <http://www.emec.org.uk/projects/hydrogen-projects/iteg/>
- SEREH: <https://sereh.eu/sereh>
- Store and Go: www.storeandgo.info
- Green Hyslands: <https://greenhysland.eu/>



Synergies With Other Projects And Programmes

Interactions with national and international-level projects and initiatives

- Smart Specialisation European Hydrogen Valleys Platform: <https://s3platform.jrc.ec.europa.eu/hydrogen-valleys>
- Mission Innovation Hydrogen Valley Platform: <https://www.h2v.eu>
- Ara Ake: <https://www.araake.co.nz/>
- Hydrohub Megawatt Test Centre: <https://ispt.eu/projects/hydrohub-megawatt-test-centre/>
- Several IPCEI initiatives



**European
Hydrogen
Week**

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