

HEAVENN: 5 Years pioneering the European Green Hydrogen Economy



HEAVENN: Hydrogen Energy Applications for Valley Environments in the Northern Netherlands

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This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 875090. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe Research.



The creation of HEAVENN

HEAVENN in a nutshell

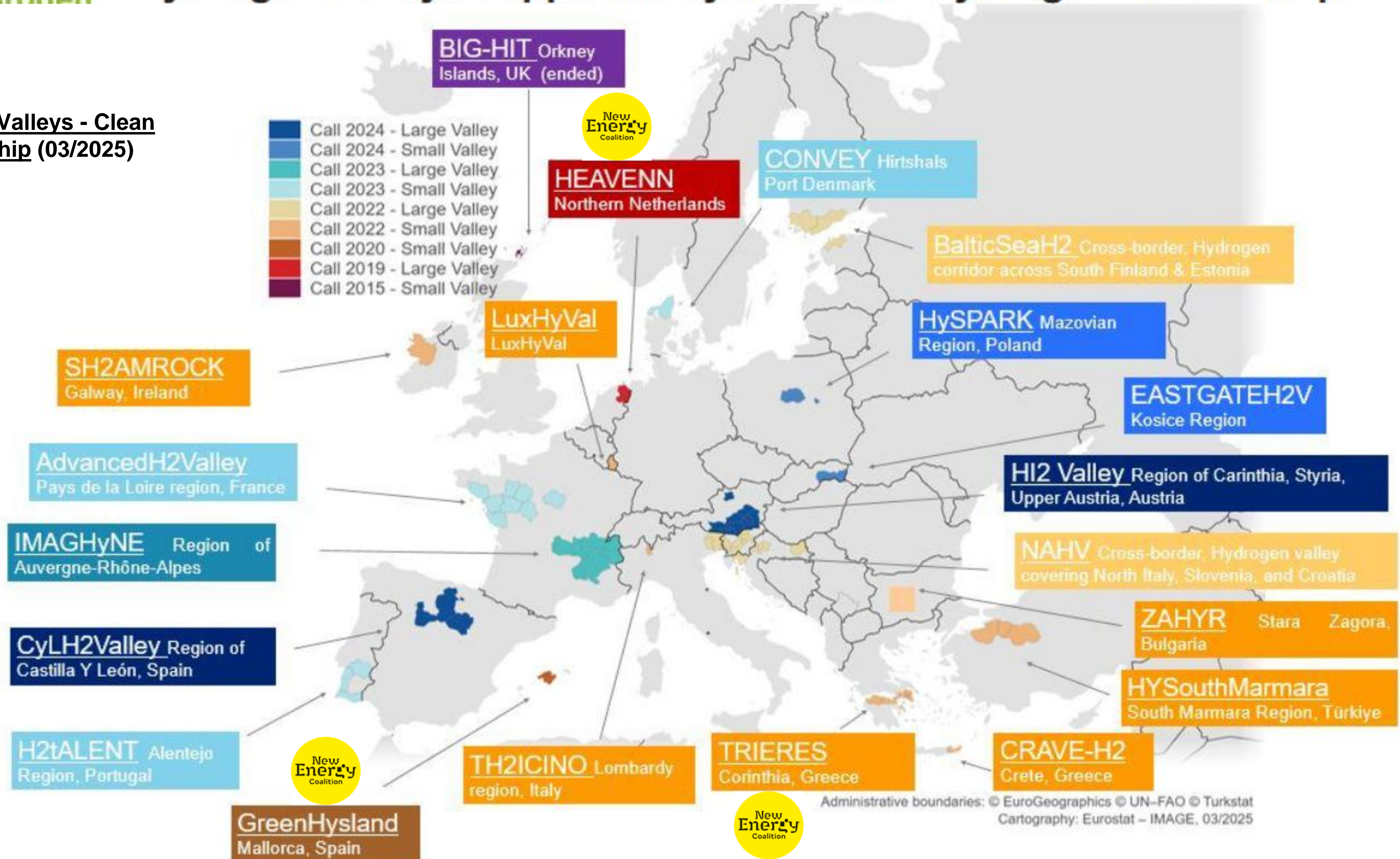
Pillars for Success & Lessons learned

What's next for HEAVENN?

Hydrogen Valleys supported by the Clean Hydrogen Partnership

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Source: Hydrogen Valleys - Clean Hydrogen Partnership (03/2025)

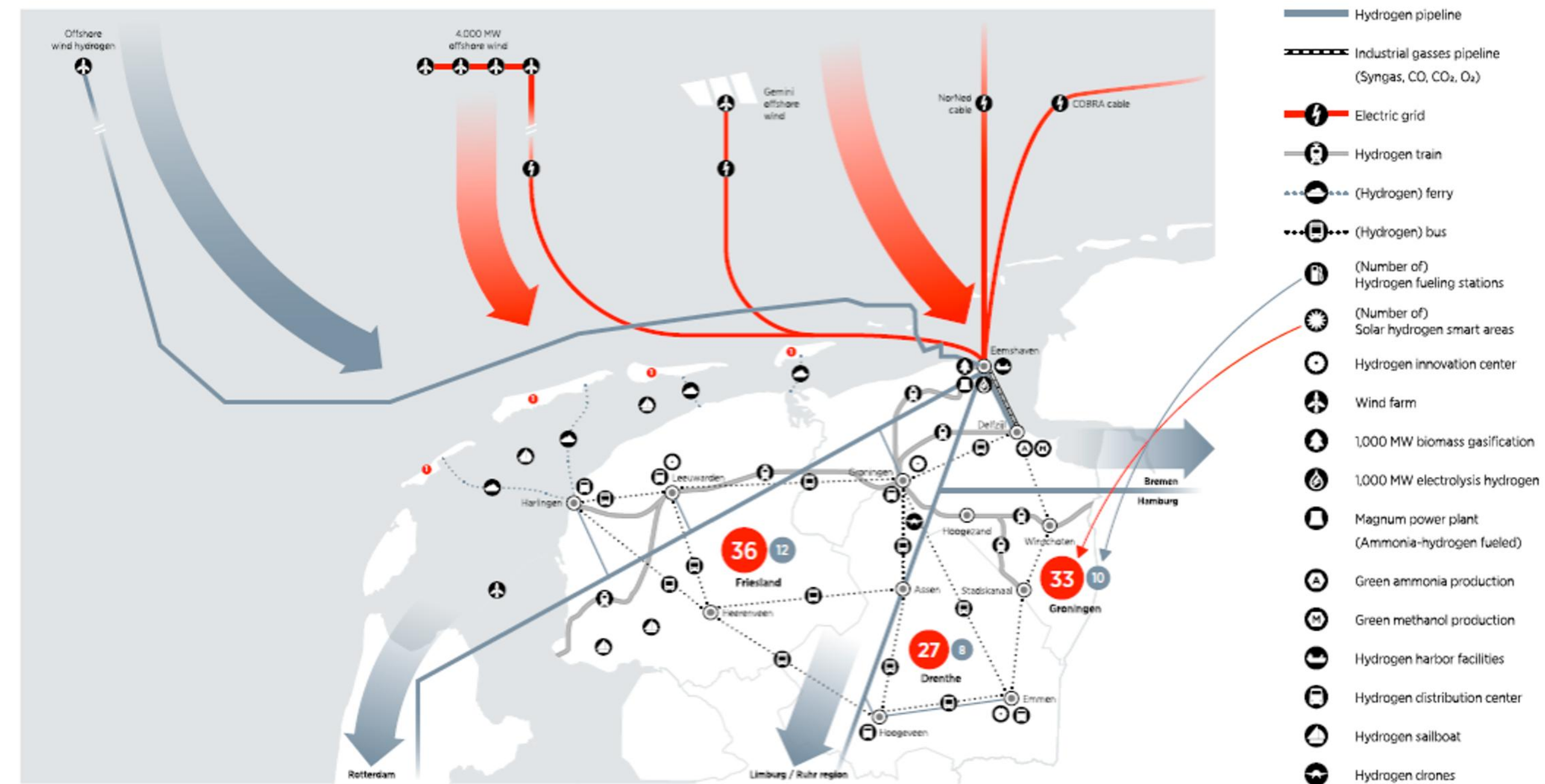


Regional transformation from European Natural Gas Hub to the pioneering Green Hydrogen Valley



- Imminent cease of production from one of the largest European natural gas fields
- Existing **gas** infrastructure
- Existing and growing offshore **wind** power potential
- Two large chemical **industrial** areas aiming to become more sustainable
- Decarbonisation of urban **mobility**, partly driven by local emission reduction goals
- Regional **ambition** (business and political) to become an integrated hydrogen economy

Green Hydrogen Economy in the Northern Netherlands



Green Hydrogen Economy In the Northern Netherlands

HEAVENN: Hydrogen Energy Applications in Valley Environments Northern Netherlands



Location: Northern Netherlands

Objective:

- ✓ Sustainability: decarbonize local economy
- ✓ Boost local economy
- ✓ Skills & capacity building, innovation, jobs creation

Deployment solution:

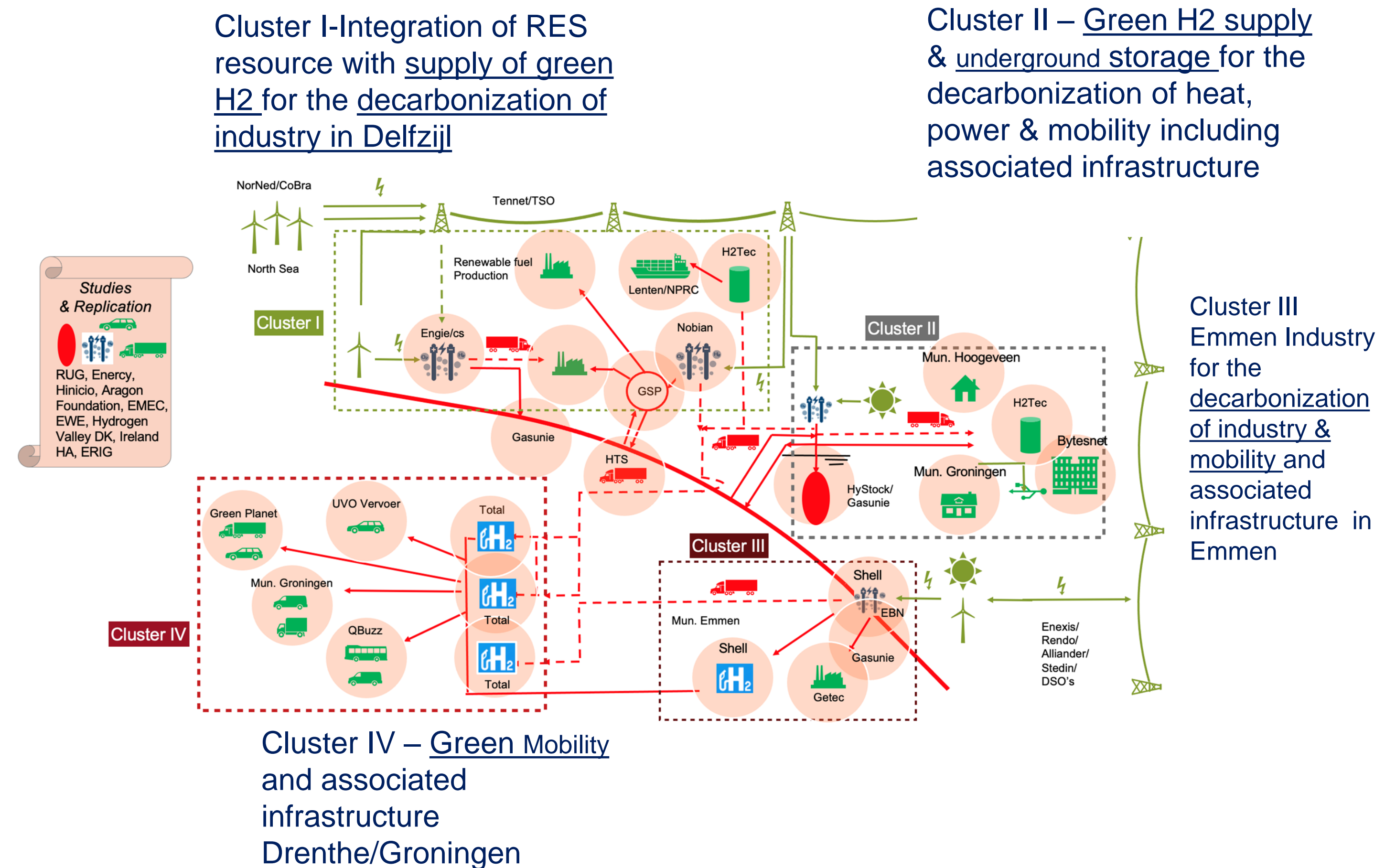
Regional energy system based on Green Hydrogen :
4 Clusters & multi-project integrated approach

Budget: circa. 97 MMEUR

PPP & co-funding structure

Timeline: 2020-2027

Create economies of scale – **Multi sectoral integration**





HEAVENN - Consortium with Public and Private Participation



30 HEAVENN partners

7 European countries
(NL, DE, DK, BE, UK, ES, IE)

11 SMEs (3 countries)

7 Replication partners

Supported by



provincie Drenthe



Pillars for success: the Public-Private Partnership Model



Collaboration

Large companies make significant investments and motivates SMEs

SMEs bring flexibility and innovation

Public sector enables through regional economic incentives and streamlining of permitting and regulatory processes in collaboration with partners

Green Planet HRS In Pesse



Hydrogen Taxi UVO



Pillars for Success : Investments in shared Infrastructure

Regional Logistics & Infrastructure and Integration

Interconnection between renewable production poles (Eemshaven) and local industrial (Delfzijl)

Support for the creation of hydrogen refueling stations and logistics networks that integrate local suppliers

Pilot programs for transformation of industrial processes using locally manufactured green hydrogen – for Heat generation

Eemshaven & Delfzijl:

- H2 HUB in Delfzijl – HRS for buses and refuelling for Vessels
- Hydrogen use as feedstock in industrial processes



Emmen:

- R&D Electrolyser
- Admixing H2 in gas turbine for steam generation
- Infrastructure – pipelines – connect to H2 backbone



Pillars for success

Create Local Demand and Public Procurement of services

Public and industrial transport projects that use buses or vehicles powered by hydrogen

Sustainable public procurement initiatives that prioritize hydrogen technologies developed by local SMEs



**Hydrogen
garbage collector
truck .
Municipality of
Groningen**



**The Hydrogen
neighborhood by the
Municipality of
Hoogeveen – Tiny H2
House and services**



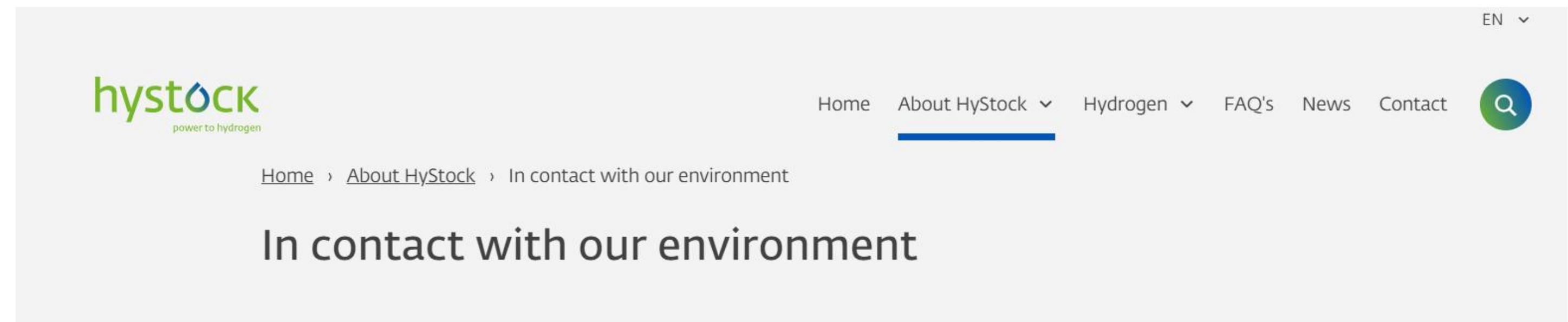
Pillars for Success...

Participation and organization of activities with the Communities

Partners share their work through communication activities in communities to accept new technologies and stimulate interest in areas of study and work in the green hydrogen sector



Hoogeveen Municipality (H2 tiny House) & Hystock project (UHS)



Of course we are and will continue to talk to our environment. Residents and companies in the vicinity of HyStock are regularly informed about our activities. For example via this website, the village newspaper 't Tonckeltje and website www.energiebufferzuidwending.nl. The chance of nuisance from our activities is small, but cannot be ruled out. Still nuisance? Don't wait, but [report it to us](#).



Pillars for success...

Knowledge transfer (internally and externally)

Training of local workers and entrepreneurs in safety, maintenance and operation of hydrogen technologies.

Workshops in permitting and sharing lessons learnt in conferences, EU events, international delegations visits

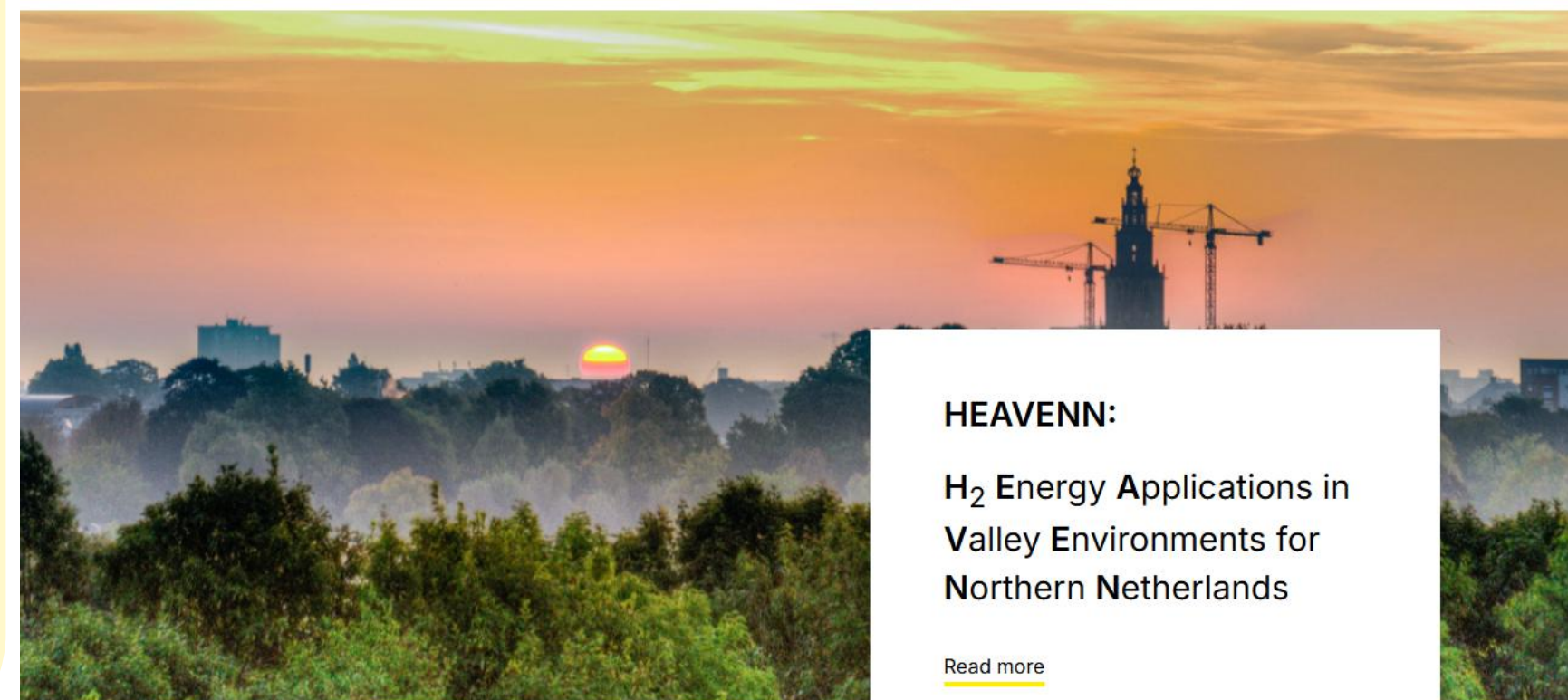
HEAVENN's Public Deliverables shared in online platforms



Safety testing in wells for the injection of hydrogen into underground storage (salt caverns)



[ABOUT](#) [PARTNERS](#) [PROJECTS](#) [ACKNOWLEDGEMENT](#) [NEWS](#) [DOWNLOADS](#) [CONTACT](#)



HEAVENN:

H₂ Energy Applications in Valley Environments for Northern Netherlands

[Read more](#)

HEAVENN comprises a wide range of projects with related and supporting complementary studies. Experience and best practices resulting from HEAVENN will be gathered and tested, and translated into a means of demonstrating the



Replication

Partners involved: FHA, EMEC, EWE, ERIG, IHA, HVDK

[Read more](#)

Complementary Studies

Partners involved: University of Groningen, Gasunie, Groningen Seaports, EBN, Hyenergy Consultancy, Energy

[Read more](#)



Business Models and Impact Analysis

Partners involved: University of Groningen, Energy, FHA

[Read more](#)



CertifHycation

Green H₂ through certification

[Read more](#)

Study: Heavy Duty Mobility Applications in the Northern Netherlands

Partners involved: Green Planet, University of Groningen

[Read more](#)



Study: H₂ Production Scale Up for HyNL

The 100 MWe ENGIE H₂ plant has the objective to be a demonstration project to trigger the H₂ market in the Northern Netherlands

[Read more](#)

Connecting with other valleys EU and Beyond



How to share our lessons and build on each others' successes?

- Replication tasks: Development tools and mentoring follower territories
- Field Trips/ Working visits
- Keep deliverables public as much as possible
- Participate in Brussels events to connect to other valleys
- Participation in Dissemination Events
- International Delegations visiting NL
- Keeping in touch!

Replication partners



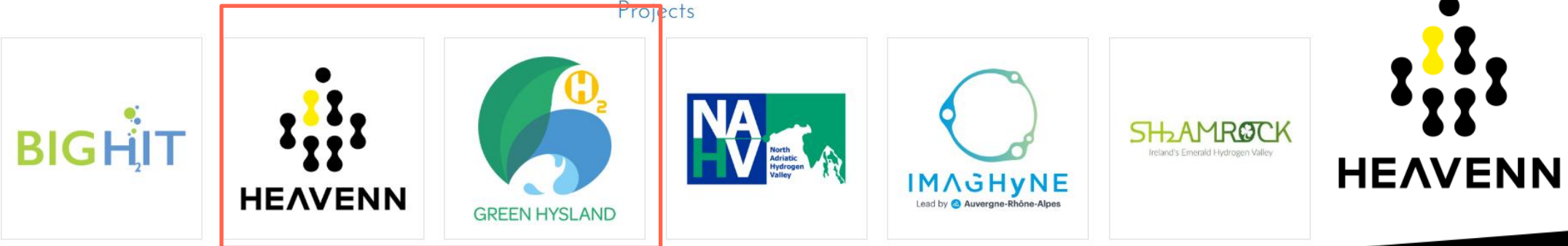
<https://h2territory.eu/>

Board Members

Entities



Projects

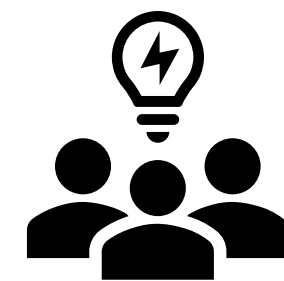


Lessons Learned from HEAVENN:

- Major challenge: large ambitious project designed in 2019 in a fairly “new” industry (green H2 for decarbonization) means a lot of changes, insights, new knowledge. Some goals are no longer as relevant.
- In Europe: offtake (affordable hydrogen), shortage of trained personnel and shortage of manufacturers are main barriers
- Due to time frame: Many unforeseen circumstances such as Covid and geopolitical situation in Europe lead to great unrest in energy markets, scarce and expensive materials.
- Co-financing must be arranged prior to project starting.
- Change management throughout a regular communication with partners and CHP- Project officer help minimize impact in project execution, reduce financial risks – deliver main targets in environmental, social and technical impact

What's next for HEAVENN ?

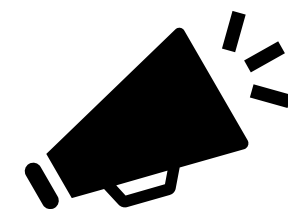
Main goal is to keep HEAVENN relevant and in line with the Drenthe – Groningen regional plans and the national, and European goals:



Maintain a shared vision with the Partners, despite the changes from original plan everyone needs to be on board and feel ownership of their expected results, championing communication within the consortium and stakeholders

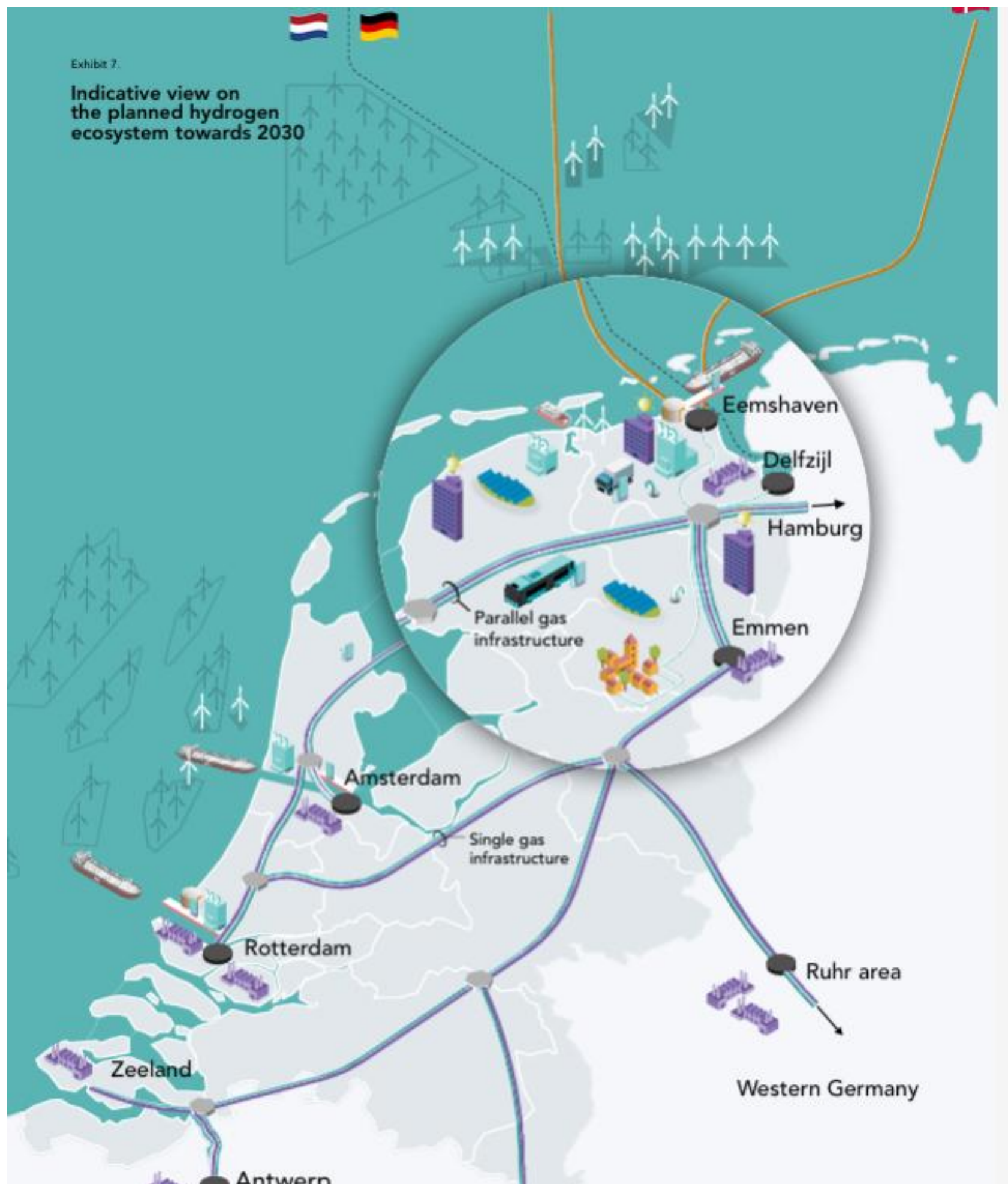


Strengthen cross-border collaboration on large-scale infrastructure development plan to support renewable energy-based hydrogen production and develop a nationally aligned system in line with the European Hydrogen Backbone and North Sea integration goals. To be reflected in our roadmap towards 2050.



Being one of the first large scale H2 valleys has helped us spread the message creating great international interest, we'll boost communication and knowledge-sharing activities

to continue inspiring new Hydrogen Valleys in EU and beyond .



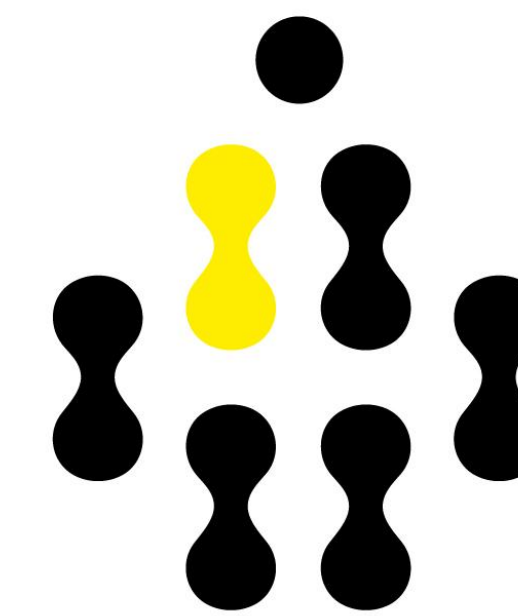


More info? Contact us!

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<https://heavenn.org>



HEAVENN

Awarded EU Hydrogen Valley of the year 2022



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