

# Hydrogen transport & storage

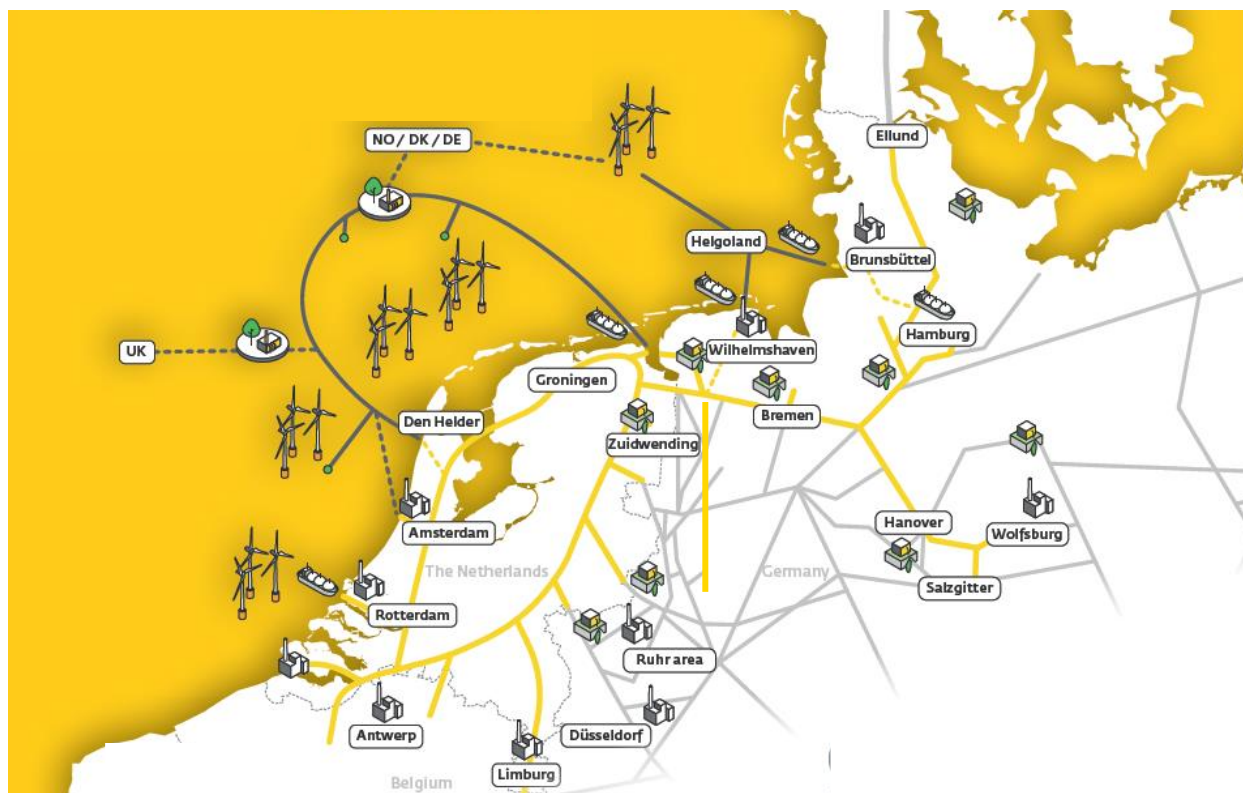
Hydrogen Cross Border Conference

13-03-2024 Bert Kiewiet



## Hydrogen Infrastructure – Gasunie's Focus

Gasunie helps developing the hydrogen market by connecting supply to demand and realizing the required infrastructure early in The Netherlands and part of Germany.



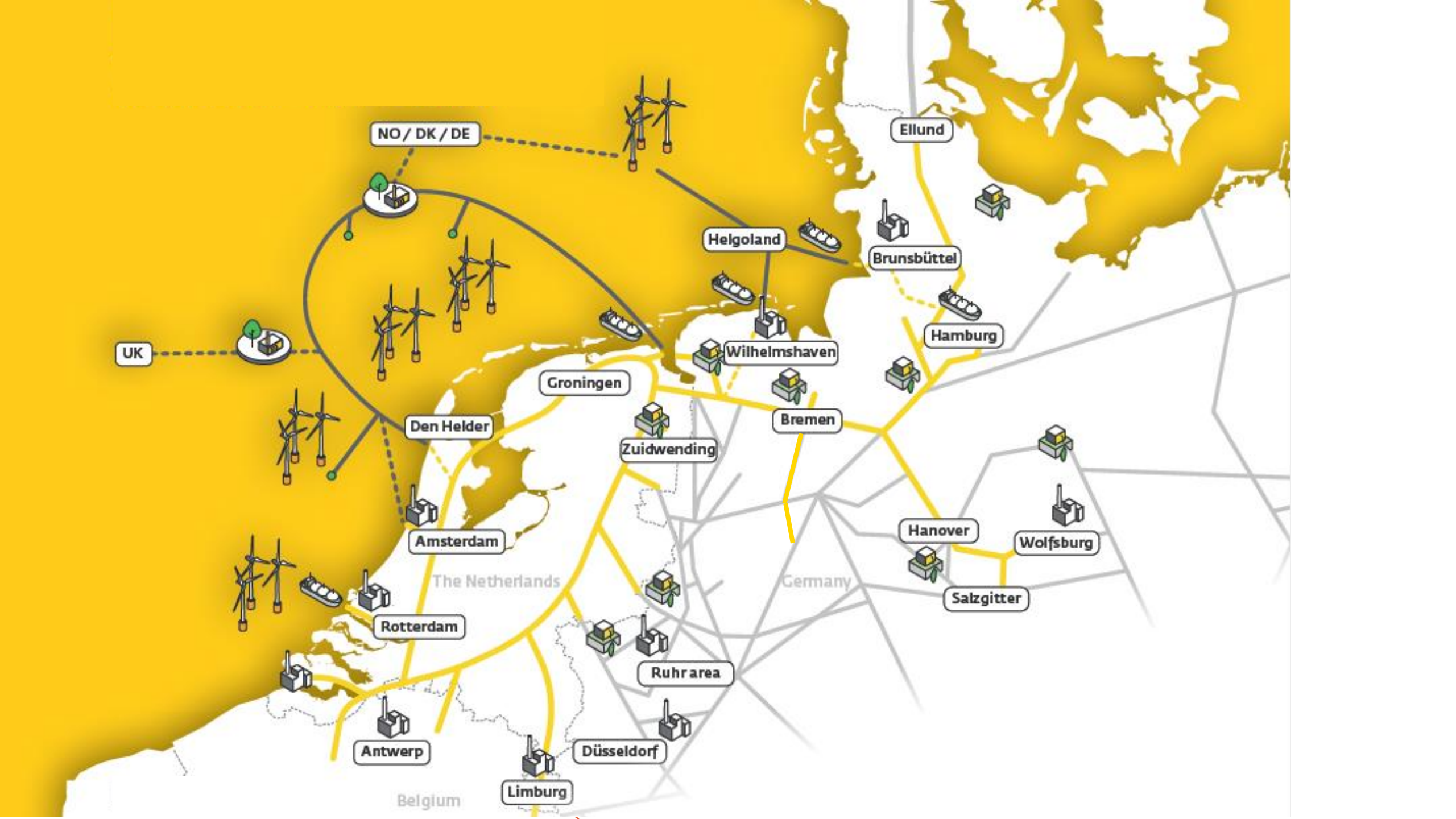
What is Gasunie's contribution?

- Open Access infrastructure
- Cooperation of electrons and molecules
- Cooperation with partners

Gasunie's hydrogen scope:

- **Transport onshore/offshore**
- **Import**
- **Storage**

# Hydrogen transport



# Hydrogen infrastructure - Repurposing of Existing Assets

Repurposing existing natural gas assets: cost efficient and timely solution.

## The rationale for repurposing of existing assets:

1

### Costs

Investments for refurbishing lower compared to new built.

2

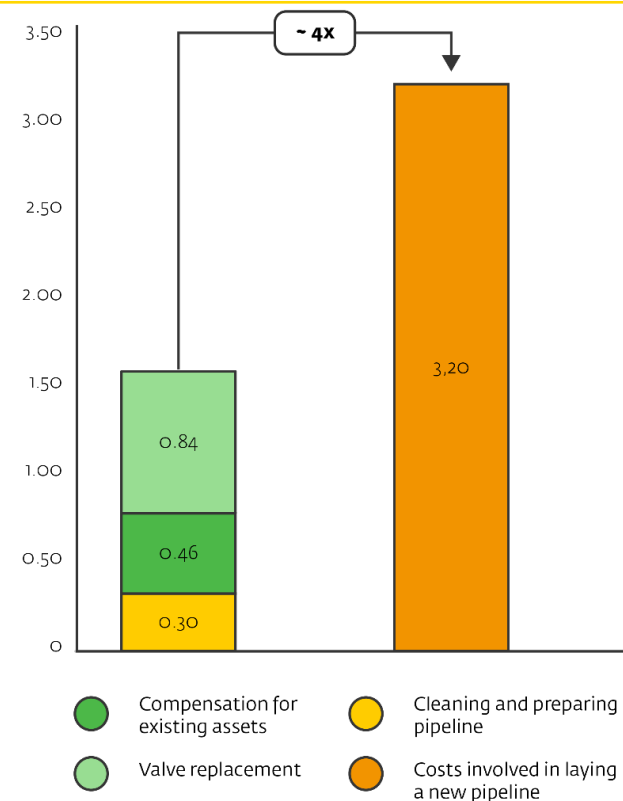
### Time

Project turnaround faster.

3

### Impact

Repurposing existing pipelines minimizes societal/environmental impact

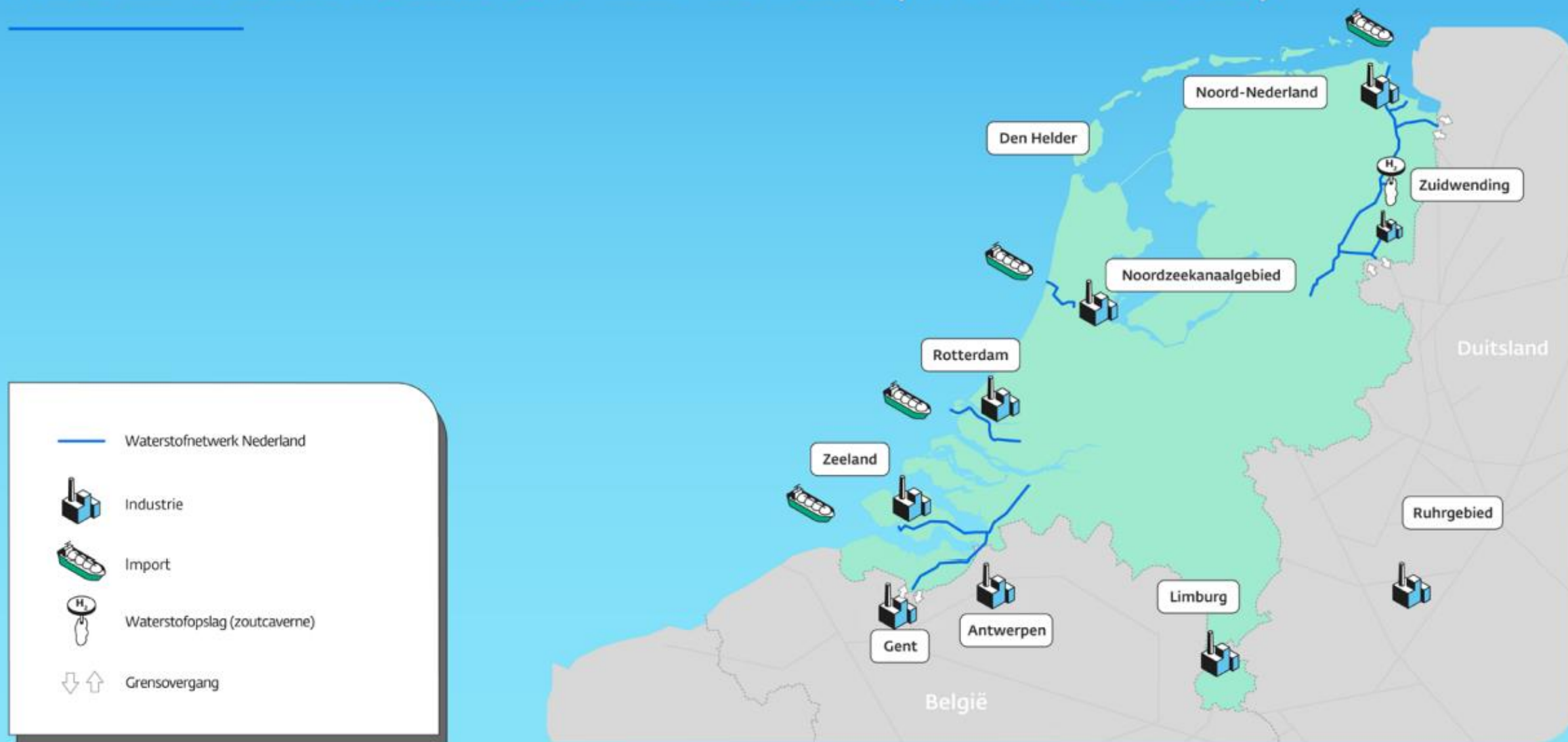




# Fase 1: Rotterdam (2026)



## Fase 2: Industrieclusters aan de kust (in of voor 2030)

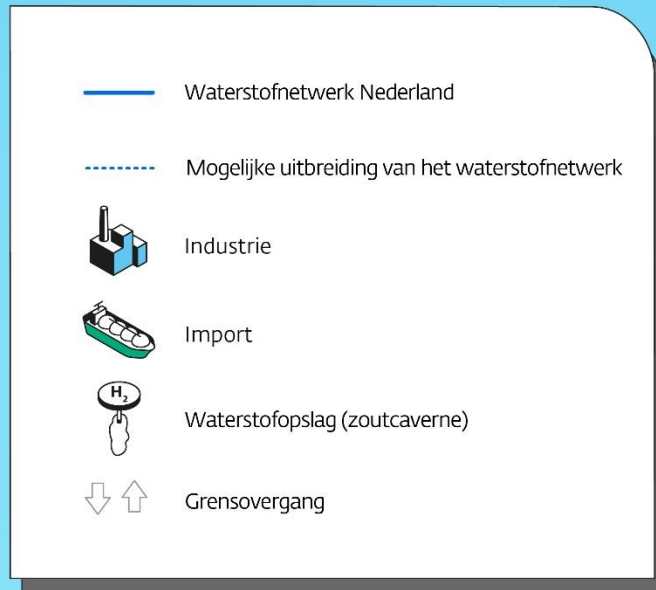


## Fase 3: Verbinden (2031-2033)






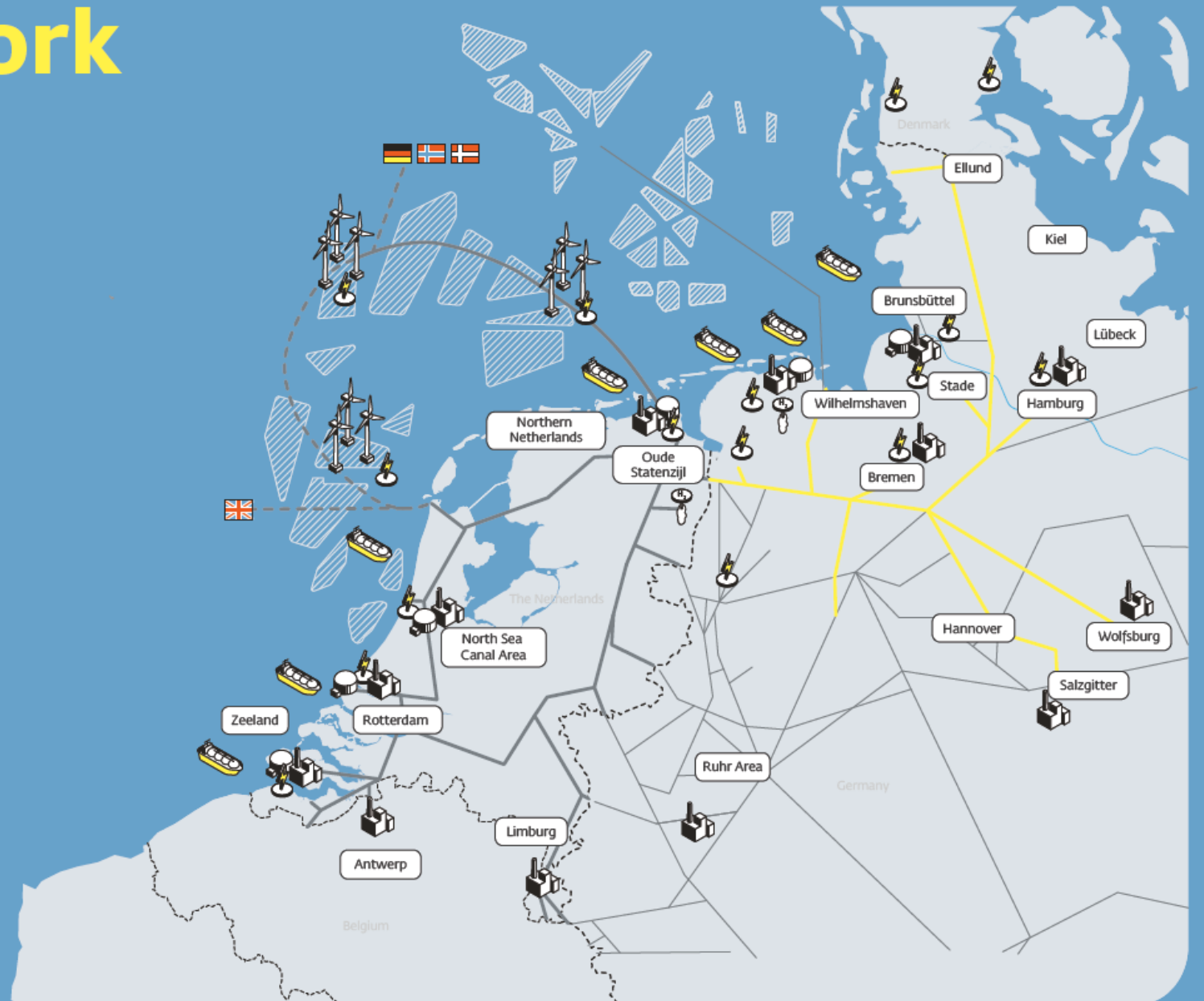
# Waterstofnetwerk Nederland



# Hydrogen network Hyperlink

## Legend

-  Dutch Hydrogen Network
-  German Hydrogen Network (part of Kernnetz)
-  Possible hydrogen pipelines
-  Industry cluster
-  Import
-  Wind region
-  Offshore wind farm
-  Electrolyser
-  Storage (salt cavern)
-  Import terminal



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## UPDATE:

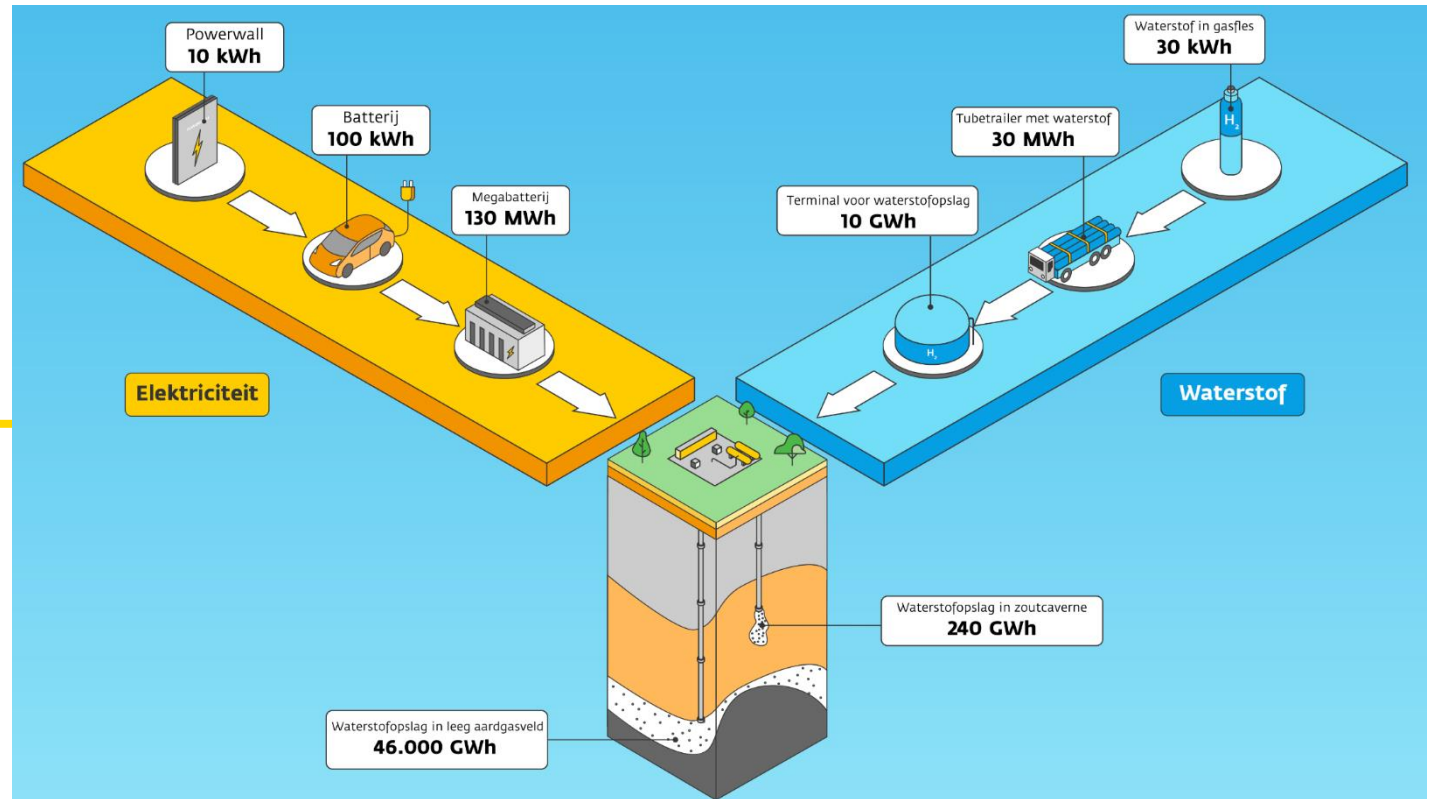
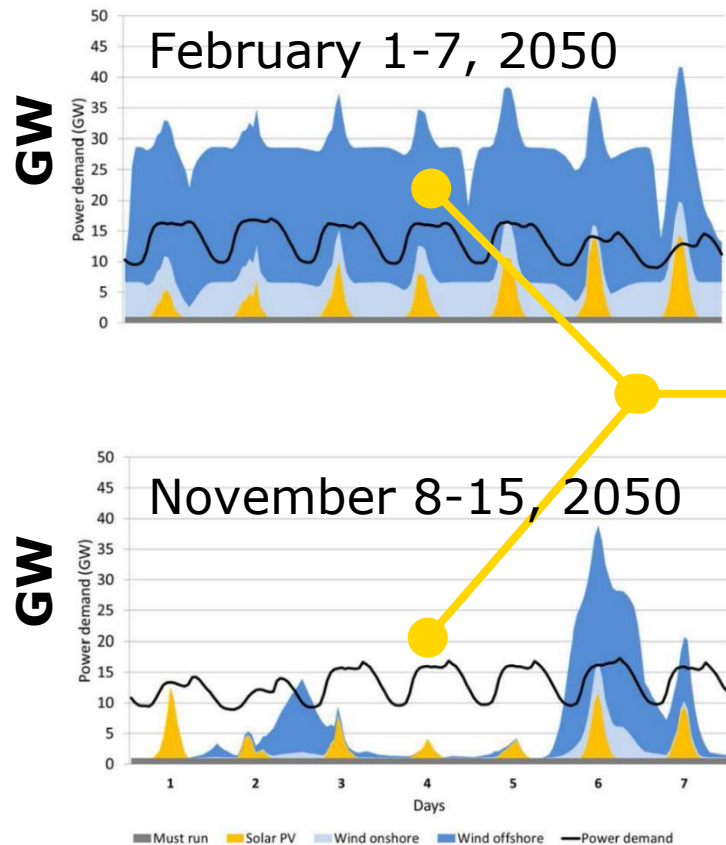
- Also **offshore** we are actively pursuing **repurposing**.
- For the first offshore electrolyser project we are currently assessing the use of an existing offshore pipeline.
- **Gasunie** and **Petrogas** signed an **LoI** towards this end.

# Storage



## Energy Transition – Jointly Balancing the System

The future energy system needs multiple sources of flexibility to balance the networks. Underground storage in salt caverns is an essential, cost-effective option.

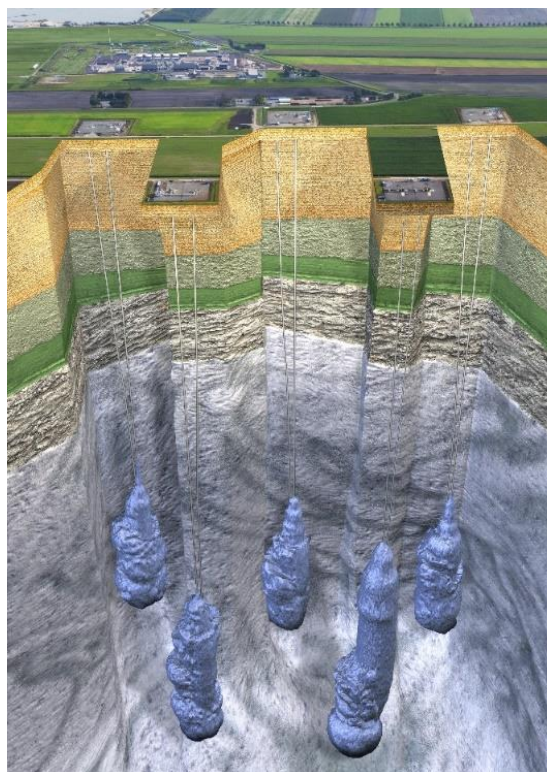


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### Gasunie's **HyStock** project:

- 4 salt caverns, 22-25 kton
- Technical testing completed
- Restart of commercial process.
- First cavern operational 2030/2031.



### **H2 Cast** - Etzel:

- **H2 CAvern Storage Transition:** conversion of existing caverns and facilities in Etzel.
- Extensive material/safety tests
- Gasunie as project partner focusses on **gas treatment** / **gas quality** aspects
- Project ongoing, caverns currently filled with H2.

# Implementation

# From PowerPoint to Pipelines

October 2024 our King marked the official start of construction work NL



- We have **started** building!
- **Gasunie** in **Germany** has already made about **150 km** of natural gas pipeline **hydrogen-ready**.
- **Storage** pilot project H2CAST is under way. The first **hydrogen** has already been **injected**, and the **pilot installation** is expected to be ready for start-up by January **2026**.



# From PowerPoint to Pipelines

When the going gets tough, the tough get going



- We are running a **marathon**, not a sprint.
- Yet, we have **no time to waste**.
- **Industry** benefits from reliability and predictability.
- Ways need to be found to **unlock demand**.
- **Pragmatism** needed.

## Contact

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