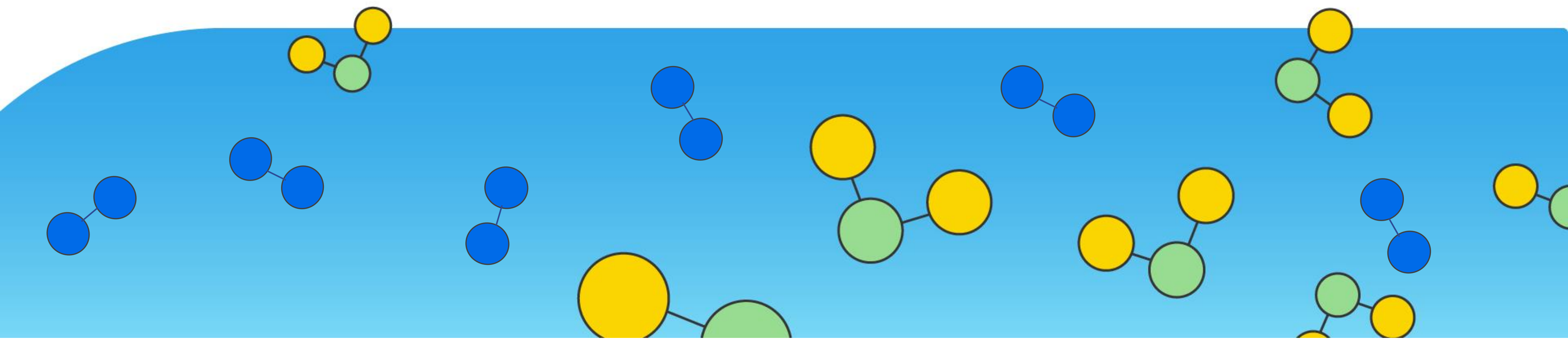


Gasunie & hydrogen | Discussion on Hydrogen Initiatives – U.S. Delegation Visit

Groningen 24 October 2025



WELCOME



Gold medals for hydrogen leaders



dochteronderneming van Gasunie

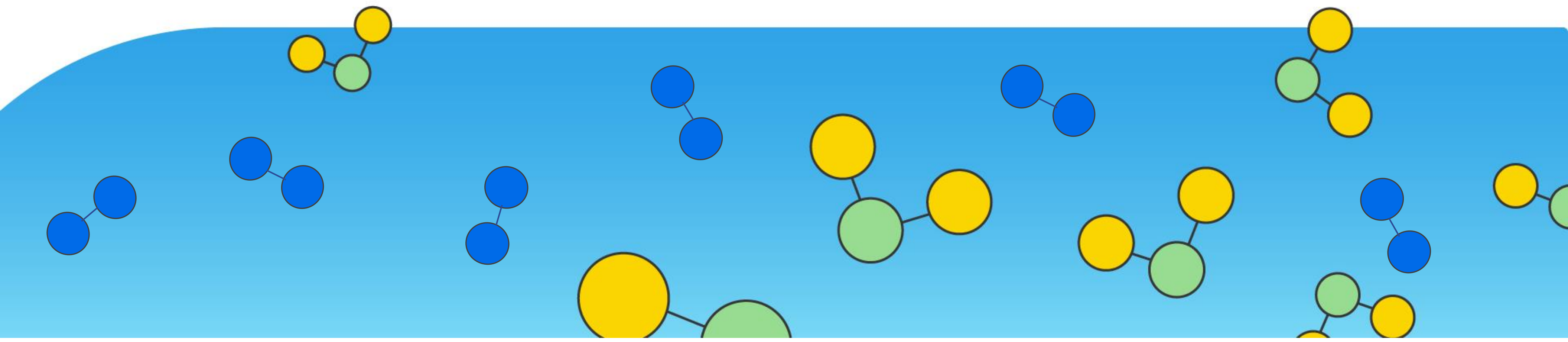
hynetwork

Netherlands: hydrogen medal for Patric Cnubben of Hydrogen Architects



Gasunie & hydrogen

Groningen 24 October 2025



Gasunie and the United States – our connection in hydrogen



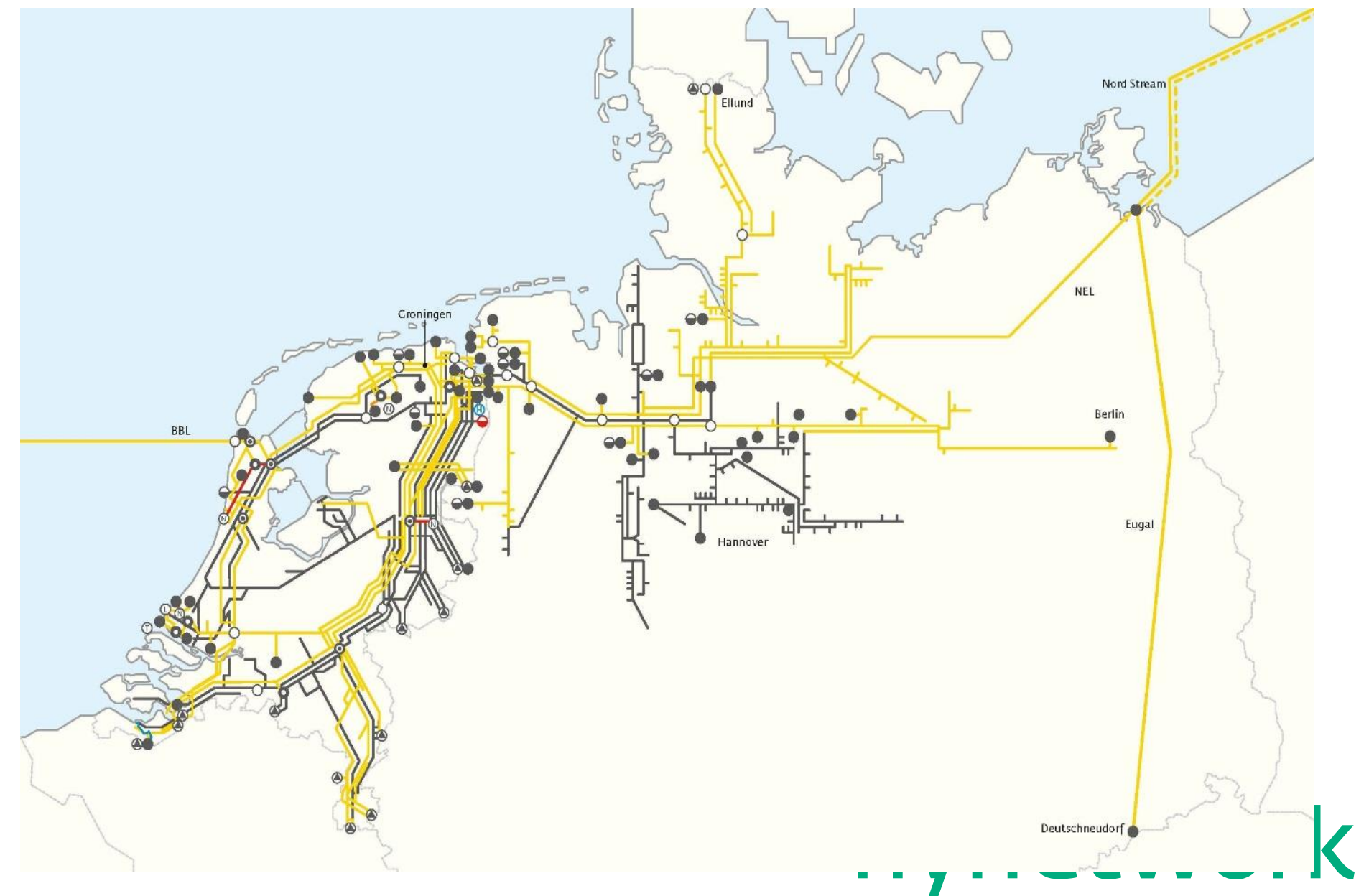
Gasunie – A gas infrastructure company

Gasunie is a gas infrastructure company from the Netherlands with a Northwest European presence and perspective.

- Current role:
 - Transport
 - Storage
 - LNG Import
- **Netherlands and Germany**
- 100 % owned by the Dutch state.
- **Interconnectivity has always been high on our agenda.**
- Two systems in parallel: one for high calorific value gas (**L-gas**) and one for low calorific value gas (**H-gas**).

dochteronderneming van Gasunie

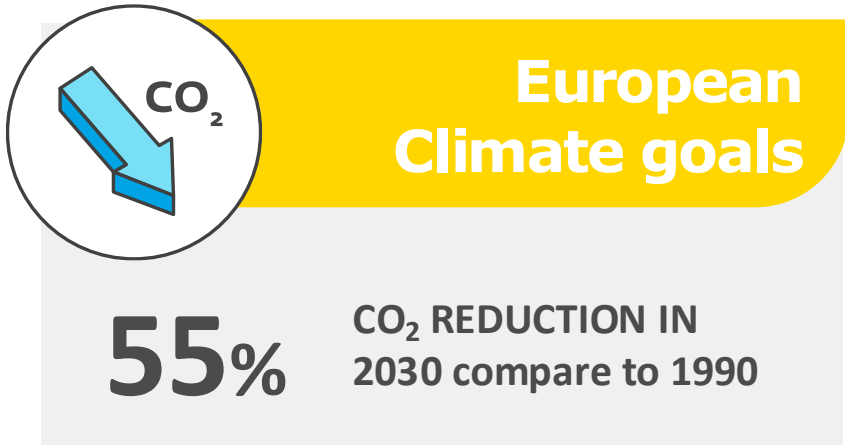
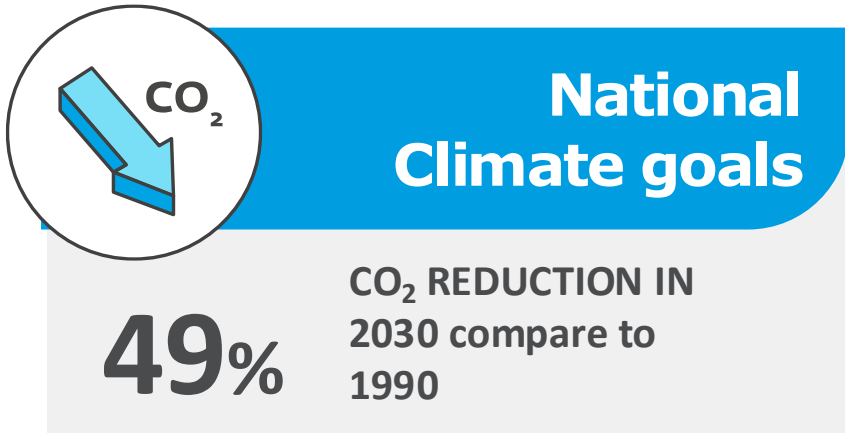
Building on a legacy: the gas network:



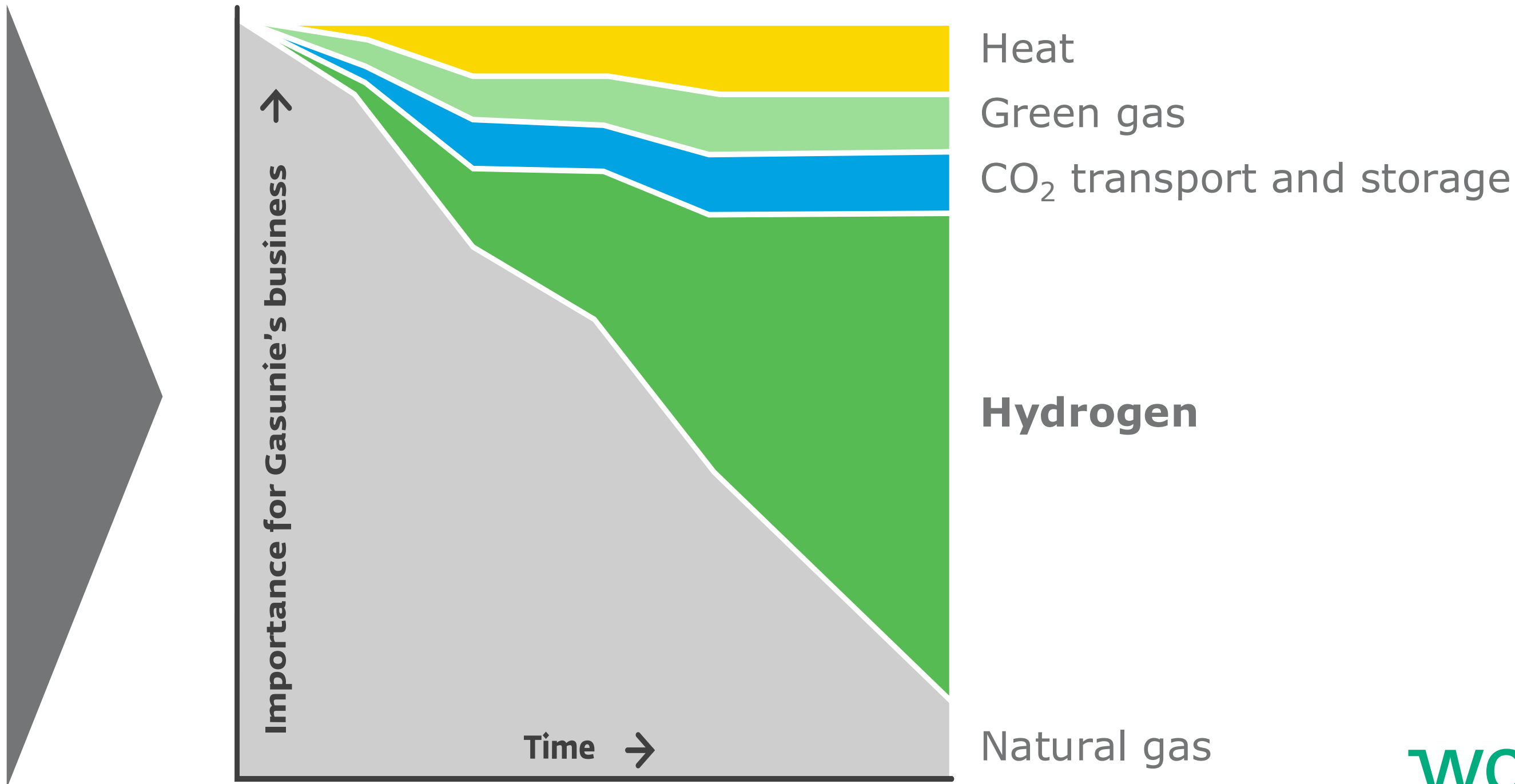
Gasunie – A gas infrastructure company

energy

Gasunie aims at accelerating the energy transition. We do so by developing open-access infrastructure. We are transforming ourself into an energy infrastructure company.



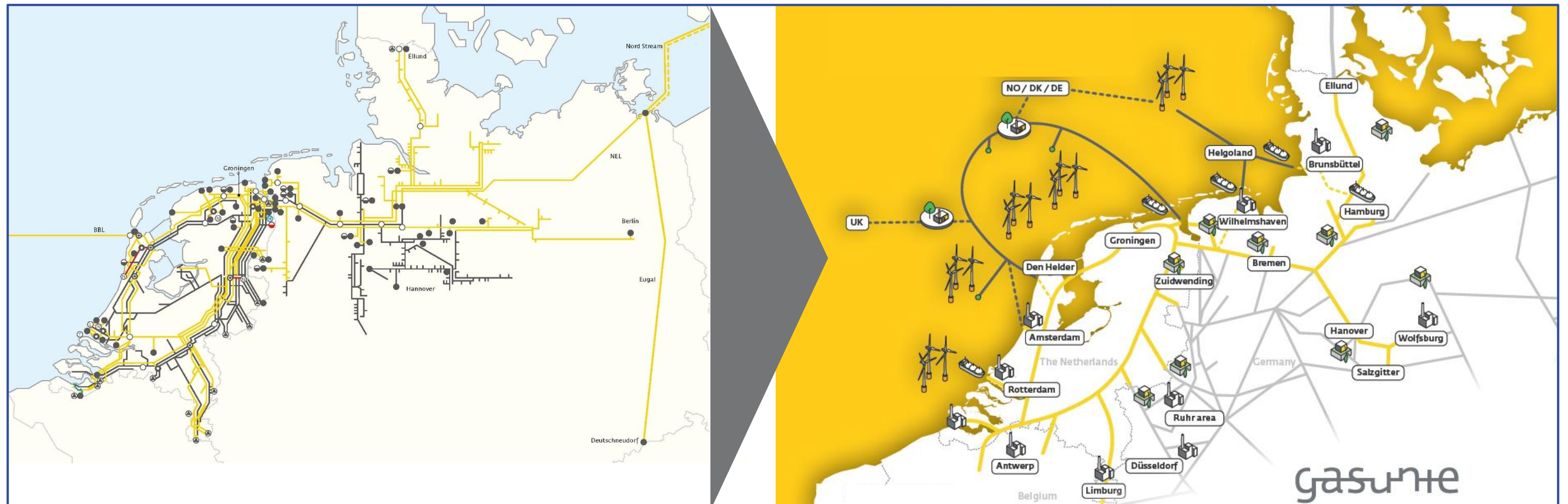
dochteronderneming van Gasunie



.work

Gasunie – An energy infrastructure company

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

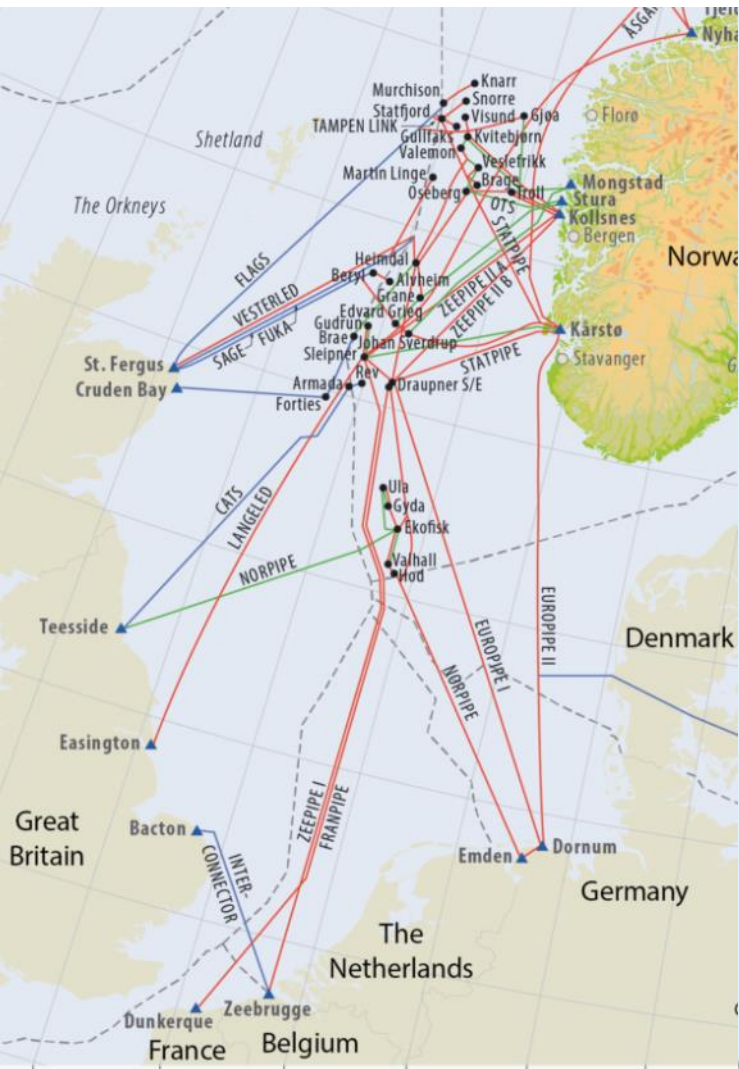
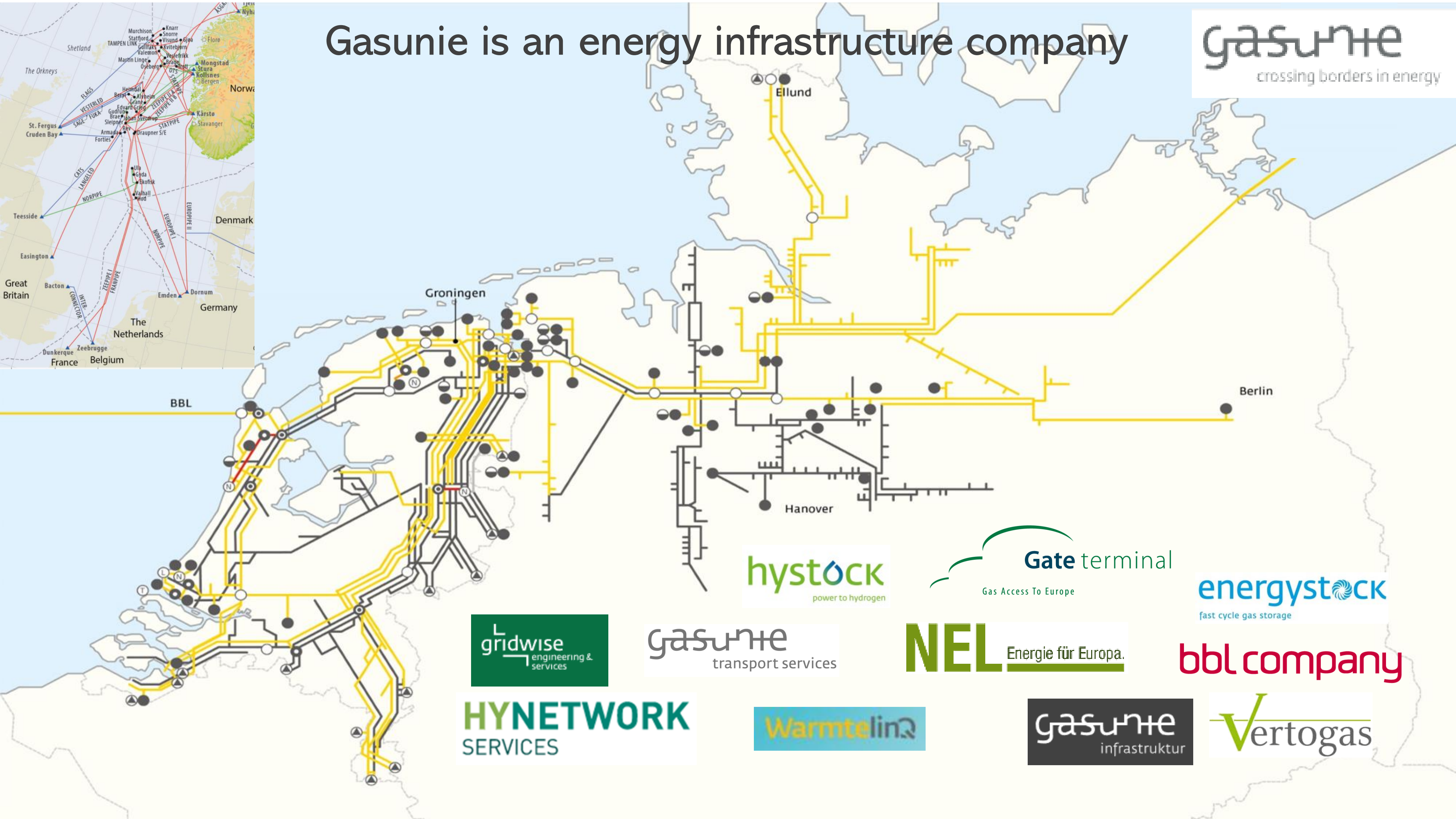


dochteronderneming van Gasunie

gasunie
hynetwerk

Gasunie is an energy infrastructure company

gasunie
crossing borders in energy



gridwise
engineering &
services

HYNETWORK
SERVICES

hystock
power to hydrogen

gasunie
transport services

WarmtelinQ

Gate terminal
Gas Access To Europe

NEL
Energie für Europa.

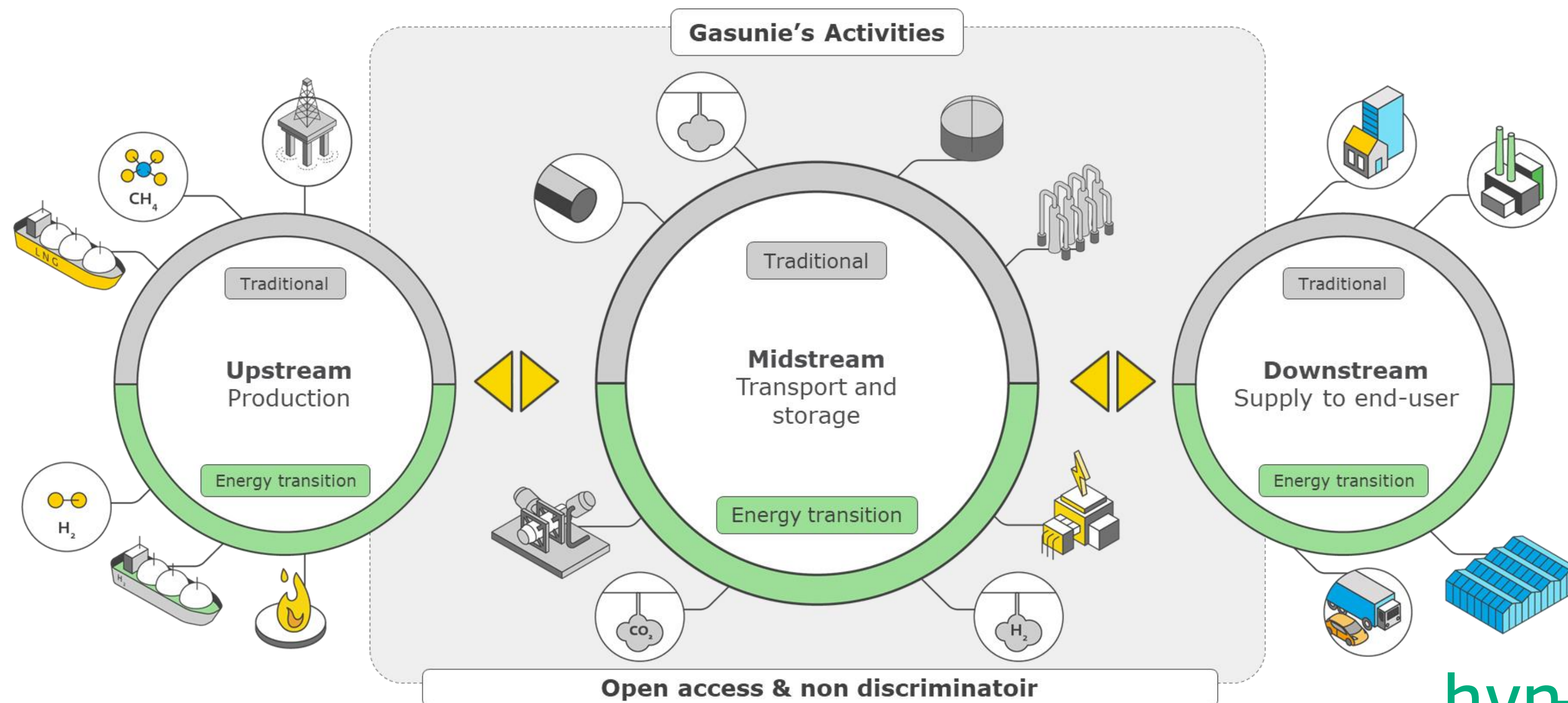
energystock
fast cycle gas storage

bbl company

gasunie
infrastruktur

Vertogas

Gasunie's hydrogen activities: fit with midstream decarbonization solutions



Gasunie's hydrogen activities

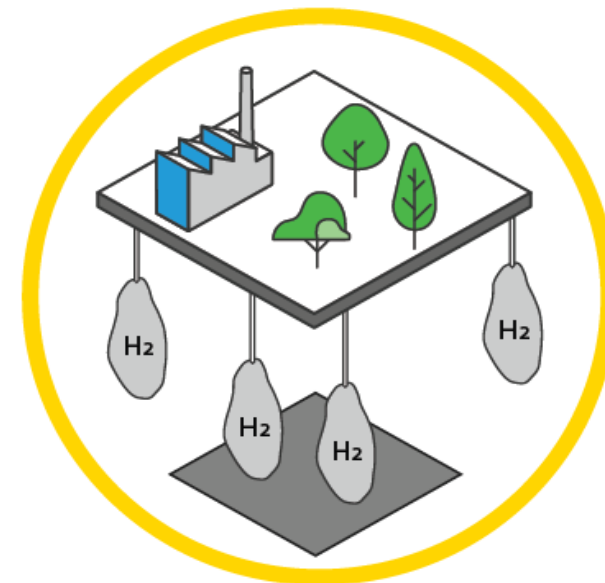
1

Transport onshore



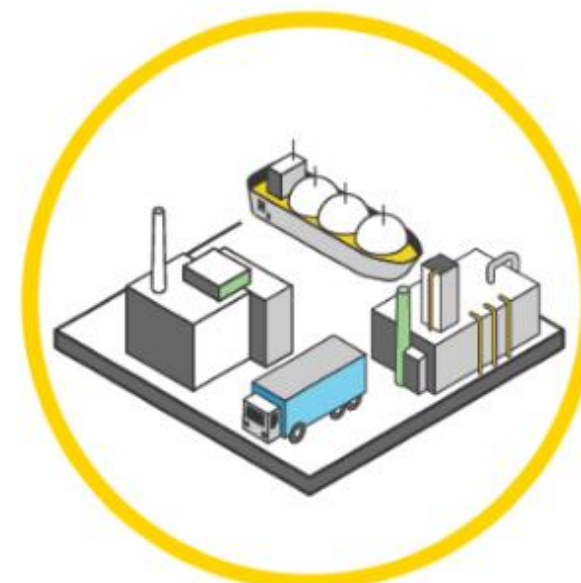
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Storage



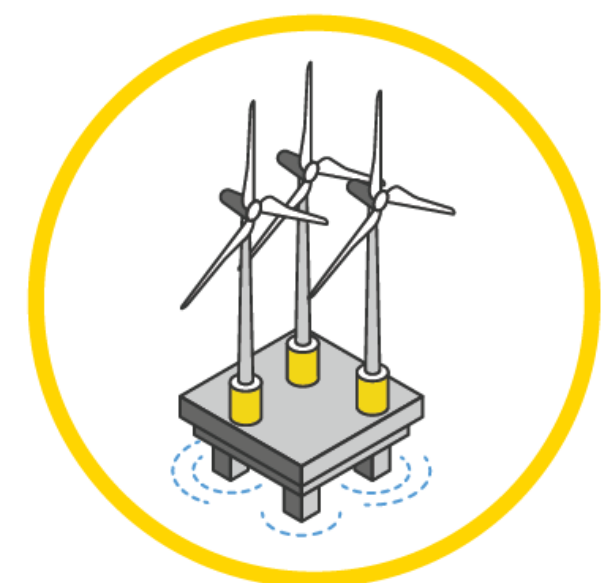
3

Import



4

Offshore





Hydrogen storage

- **Ambition**

Develop and manage large-scale modular hydrogen storage facilities in The Netherlands and Germany connected to the hydrogen networks. To be able to deal with the fluctuations in hydrogen supply and demand.

- **Goals**

The Netherlands: first salt cavern storage facility (≈ 200 GWh) fully operational in 2031. Further development of at least four salt caverns in Zuidwending (NL) for large-scale storage of hydrogen.

Germany: (co-)develop, several salt cavern hydrogen storage facilities in Germany.

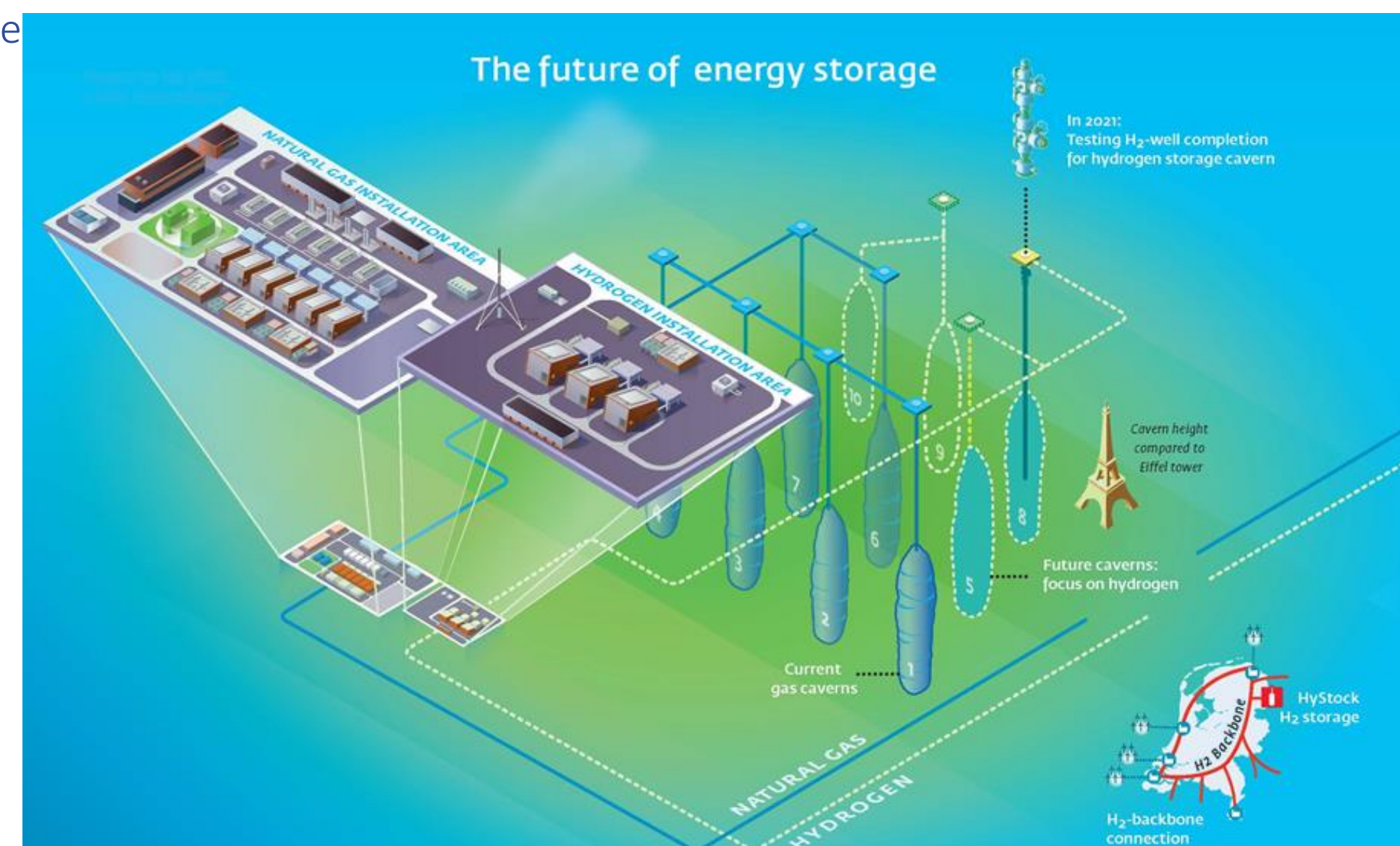
- **Approach**

Gasunie is building on its experience to store natural gas in salt caverns at its location Zuidwending. The hydrogen storage will be accessible to all parties who want to store hydrogen, for the short or long term.

- **The role of Gasunie**

Gasunie has setup a separate entity for hydrogen storage activities in The Netherlands (HyStock) and (co-)develops hydrogen storage in Germany.

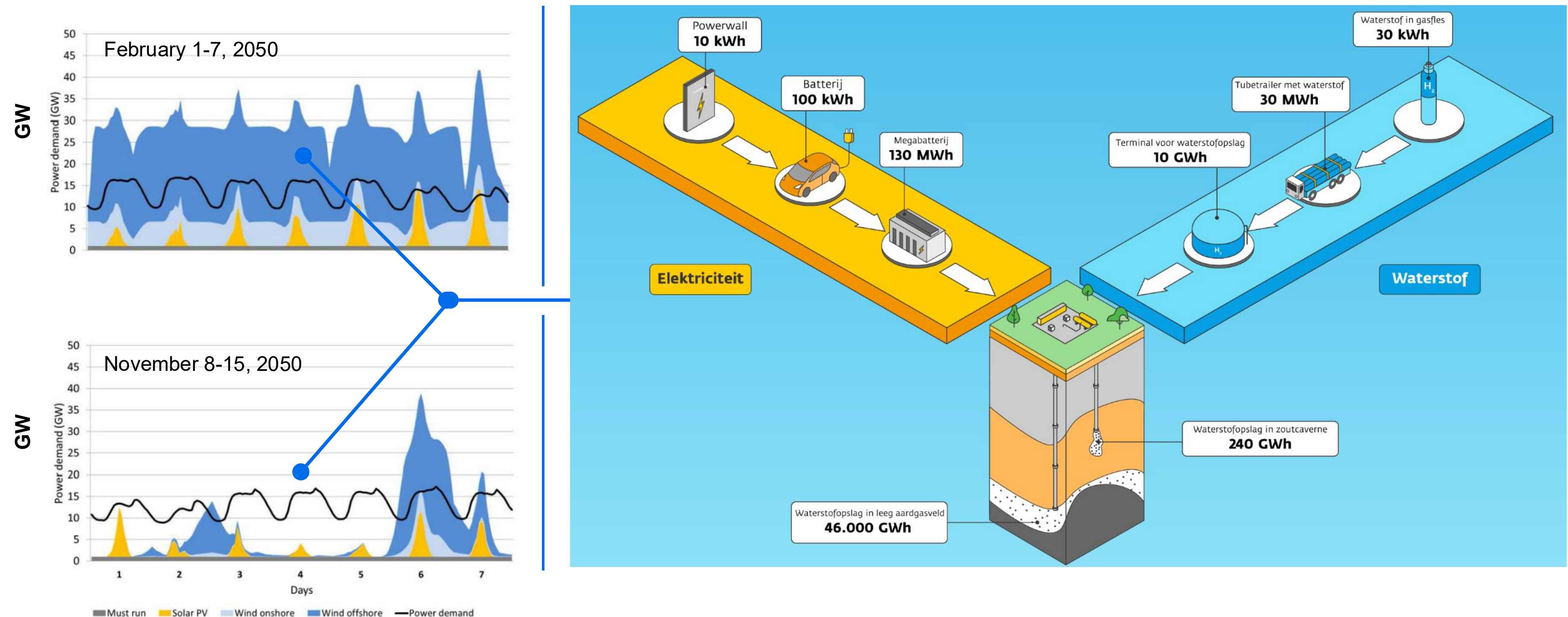
dochteronderneming van Gasunie



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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.

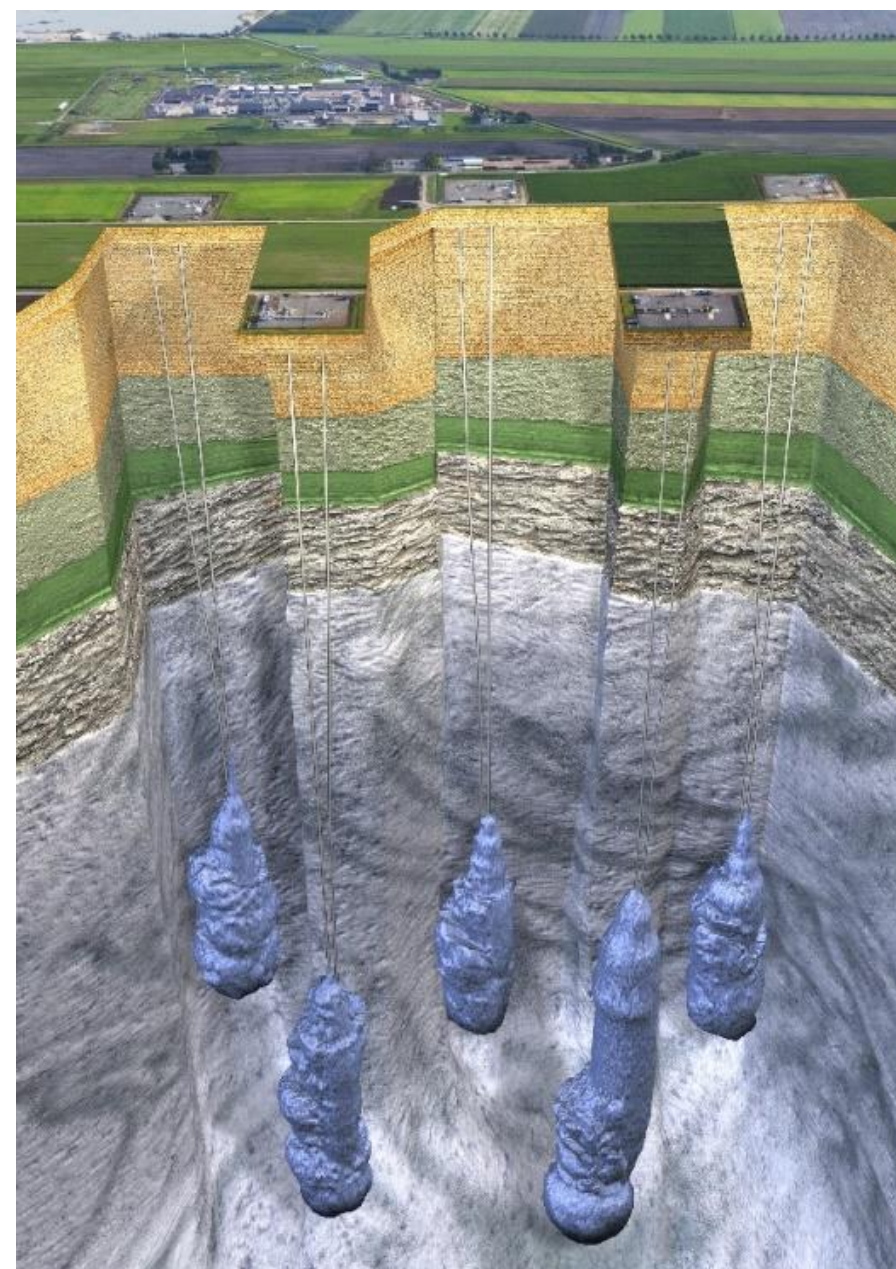


Energy Transition – Jointly Balancing the System

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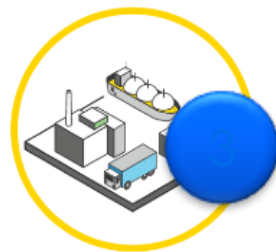
Gasunie's **HyStock** project:

- 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.



Project ACE Terminal

- Vopak and Gasunie are developing a large scale efficient NH₃ import and distribution terminal, in Rotterdam or Eemshaven
- Feasibility phase completed successfully; develop sustainable partnerships with potential customers for further development of the project



Category:	Import
Capacity:	>1 mtpa
Process phase:	Feasibility phase completed
Partners:	VOPAK
Contact:	Joost de Ruijter j.p.m.de.ruijter@gasunie.nl

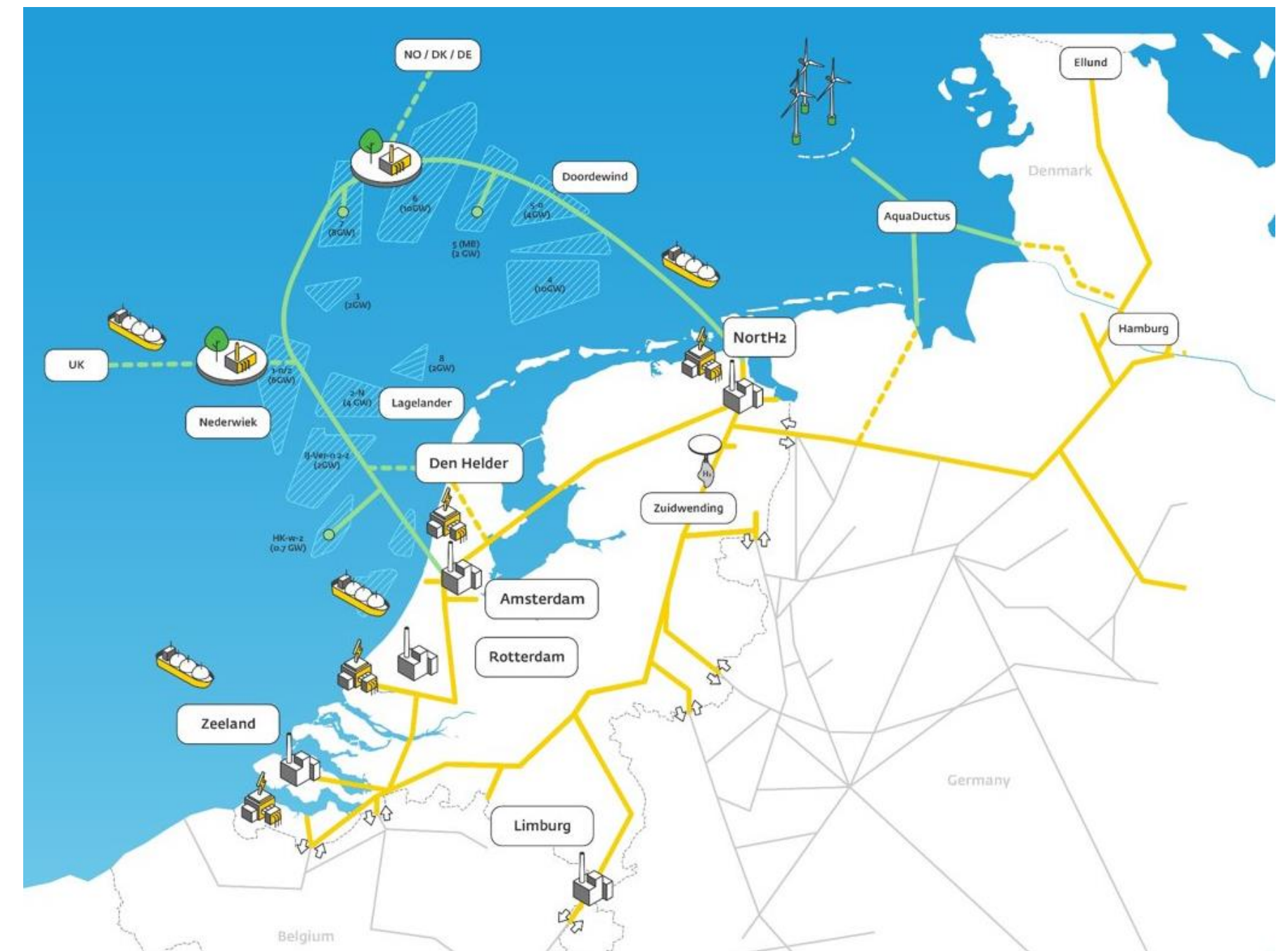
gasunie
crossing borders in energy

aee Terminal

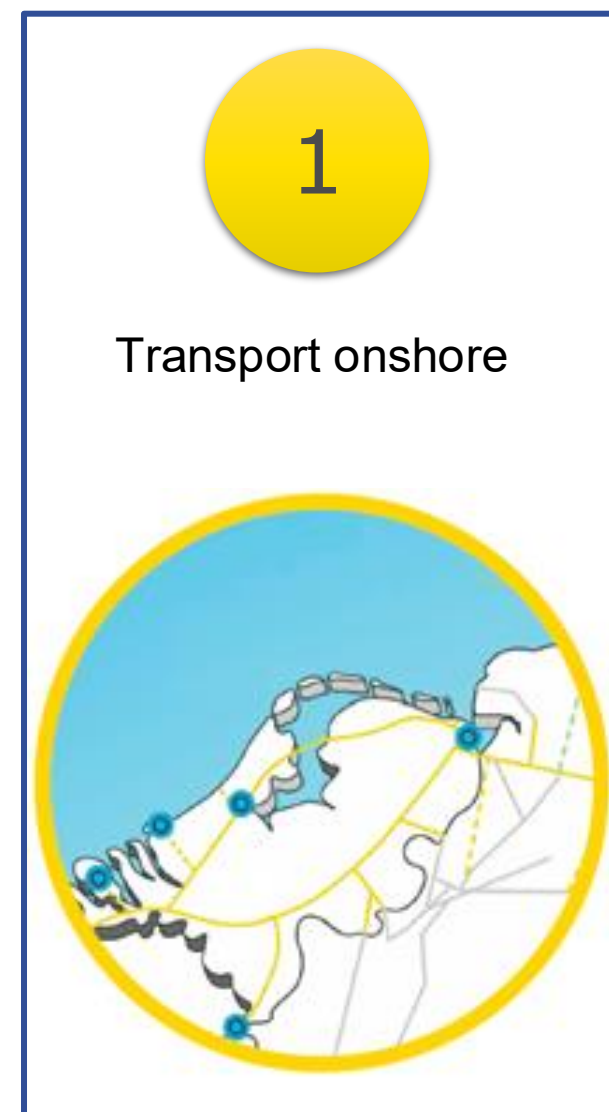


Offshore - HyOne

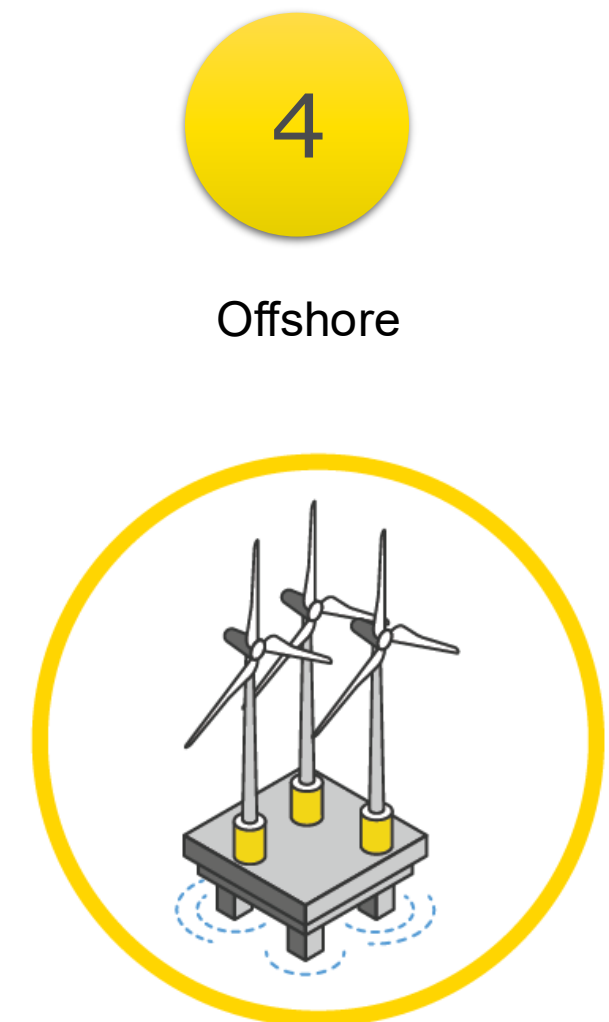
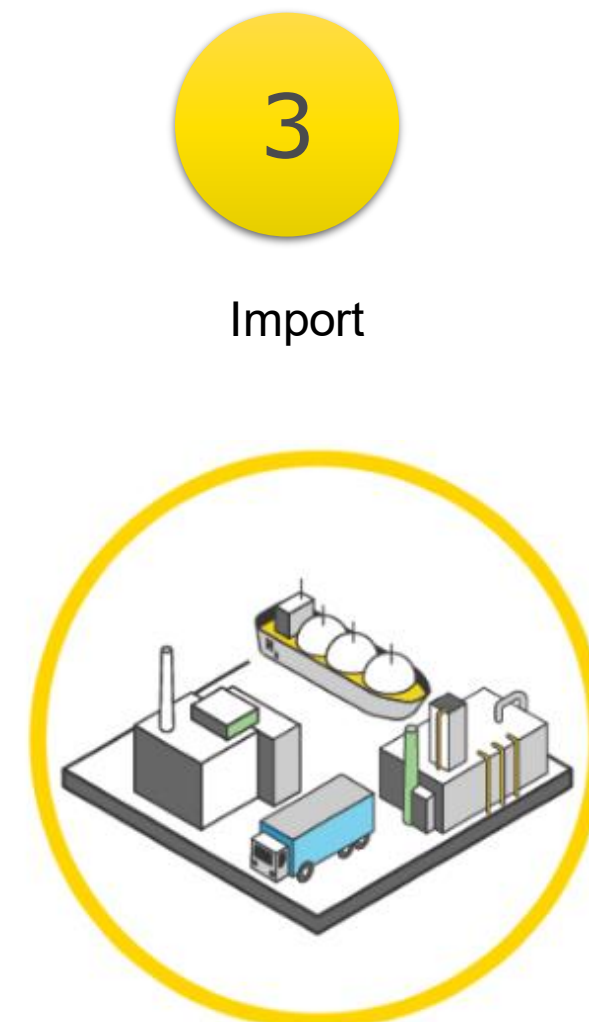
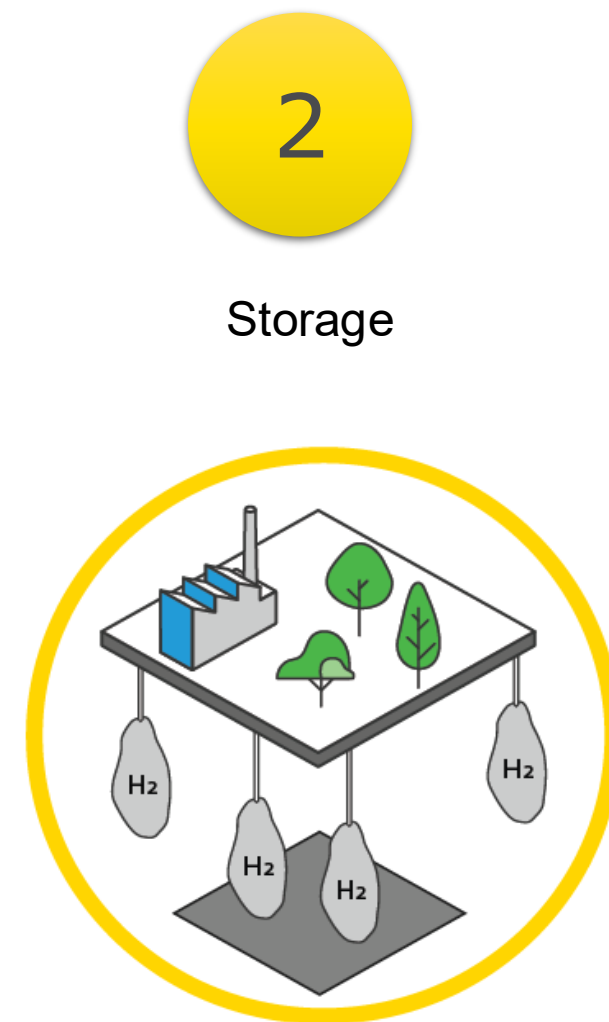
- **Ambition and goal**
Offshore hydrogen transport is required due to hydrogen production at sea, import and export requirements and transport limitations on land.
- **Approach**
Gasunie aims to build open access offshore hydrogen transport systems. Therefore, we're involved in offshore hydrogen supply chain and (knowledge)development projects: AquaVentus/-ductus, North Sea Windpower Hub, PosHydon.
- **The role of Gasunie**
Gasunie can develop offshore transmission networks and can provide services for assembling, compression, storage, etc in the Netherlands and Germany.



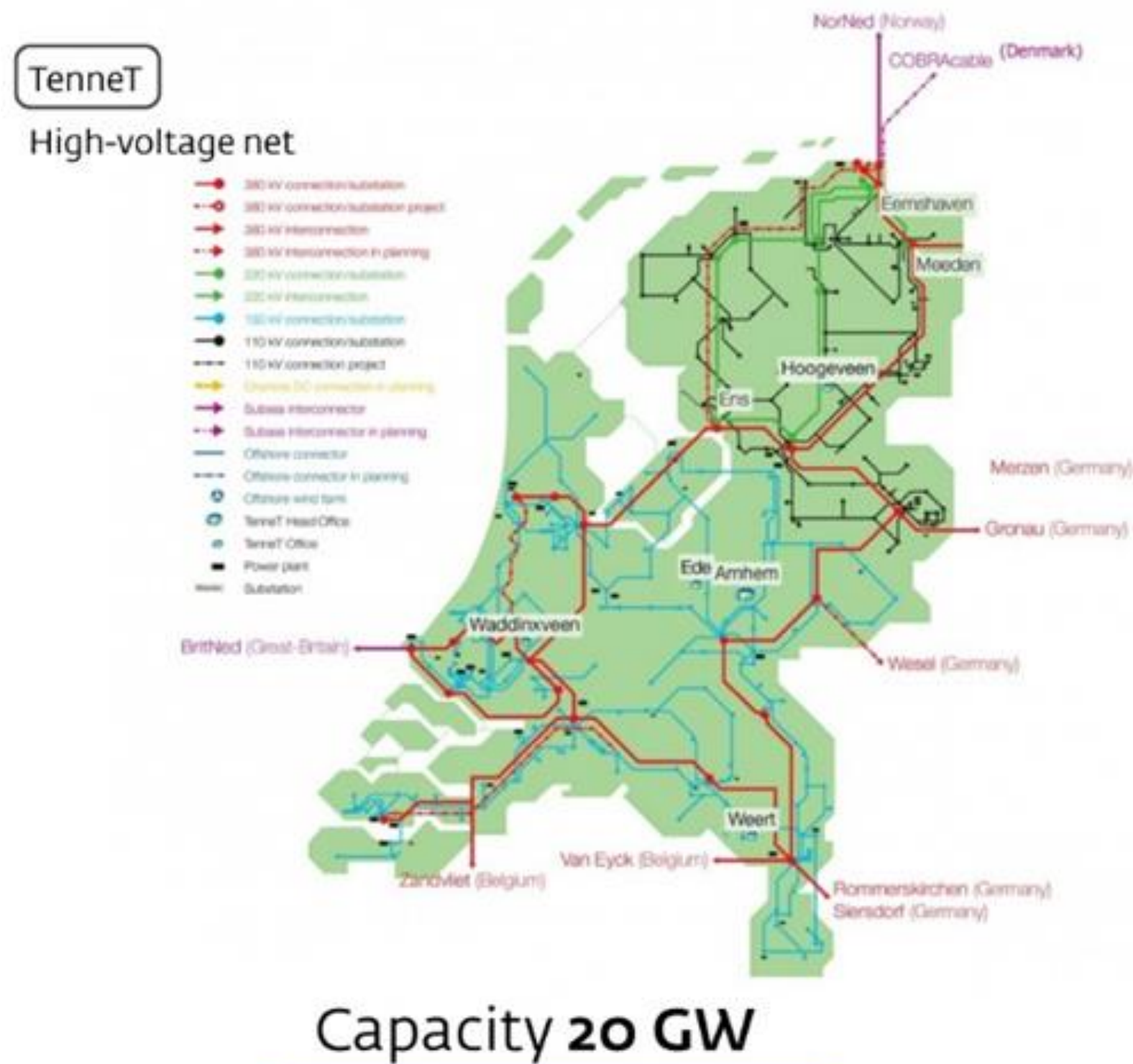
Hydrogen transport



hynetwork



Electricity & natural gas networks in the Netherlands



Repurpose
opportunity

Natural gas:
Domestic: **200 GW**

Export: **150 GW**

Hydrogen network development - Netherlands

- 2018 Local industry project in SW Netherlands, repurpose natural gas pipeline
- 2019 Start of the plan for a national network
- 2020 Hyway27 - detailed plan (Gasunie, Tennet, Min. of Ec Affairs)
⇒ Principle decision, rollout-plan, market design, market development
- 2021 The ministry appoints Gasunie/ Hynetwork to develop & operate national network
⇒ Next to that Gasunie also intends to develop H2 storage and import facilities
- 2023 FID is taken for first pipeline Rotterdam (Maasvlakte – Pernis)
- 2024 Updated rollout-plan Towards a robust design and outlook
⇒ Plan consulted and will soon be approved

First FID: Network development started in Rotterdam – Oct' 2023

#21



dochteronderneming van Gasunie

hynetwork

Phase 1: Rotterdam (2026)

Develop a national hydrogen network that connects to storage, to the main industrial areas in NL, GE, BE



Hydrogen network Netherlands



Industry



Import



Hydrogen storage (salt-caverns)



Phase 2: Coastal industries (ultimate 2030)



Phase 3: Connect (2031 – 2033)

National hydrogen network, connecting to storage and to the main industrial areas in NL, GE, BE

- 1 100 km pipeline
- 60% existing pipeline
- Initially 30 – 50 bar pressure regime
- Capacity 10+ GW without transport compression



Phase 4: Strengthening (after 2033)



Hydrogen network 2030 and beyond

Legend

- Hydrogen network
- Possible hydrogen pipelines
- Industry cluster
- Import
- Wind region
- Offshore wind farm
- Electrolyser
- Storage (salt cavern)
- Import terminal

Natural gas capacity being replaced by hydrogen capacity

2030



2050

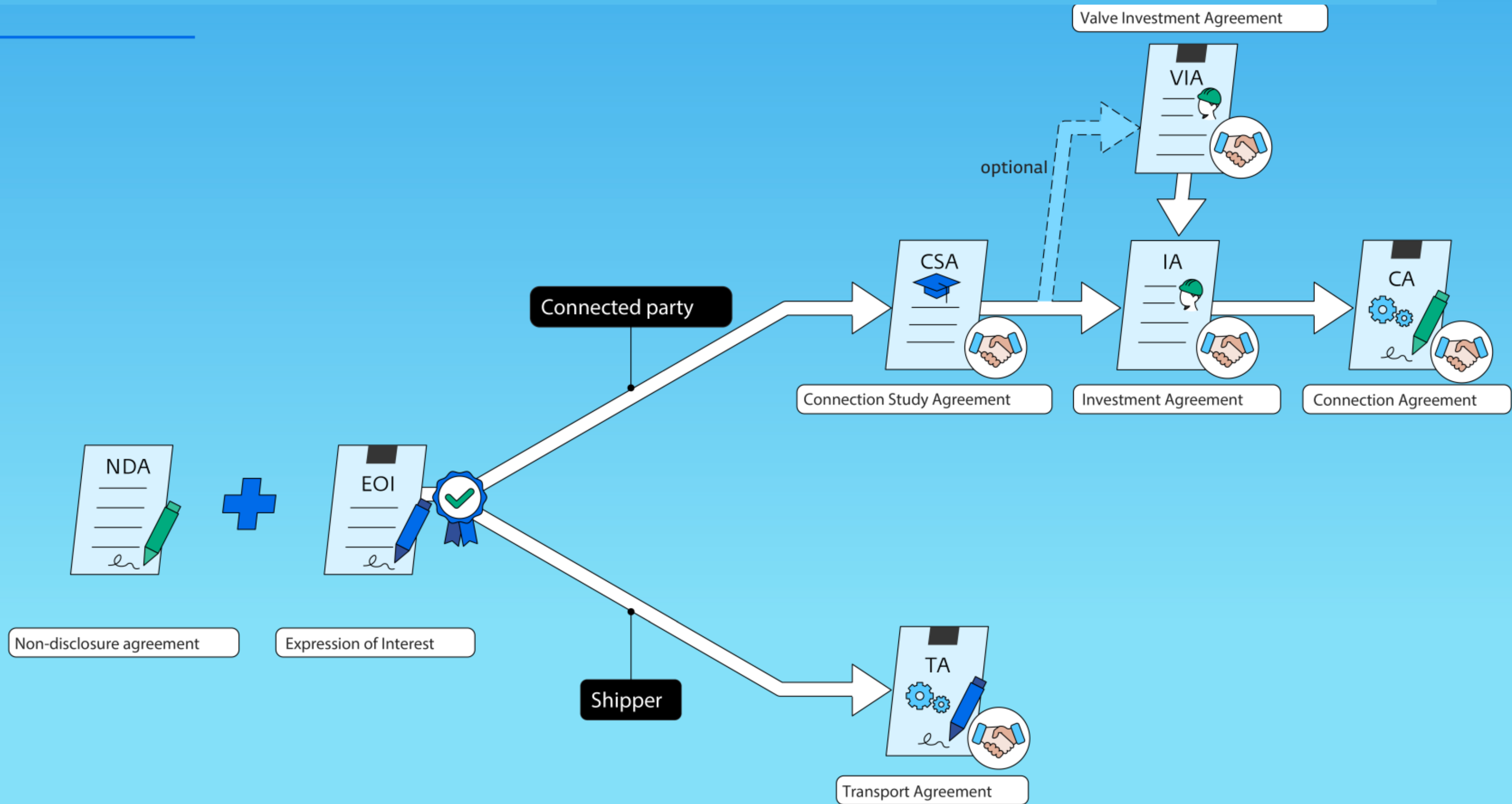


Overview of hydrogen networks NL, DE, BE



- All border point connections are now being developed in cooperation with the cross border NNO's
- Cooperation includes full alignment on timing, capacities, specifications (pressure, quality)
- Capacities to and from Germany according to Kernnetz publication
- Capacities to and from Belgium according to mutual HNS / Fluxys estimates
- Between 2027 and 2032 the main near border industrial areas in NL, BE and GE planned to be interconnected

Contractual set-up



CCS

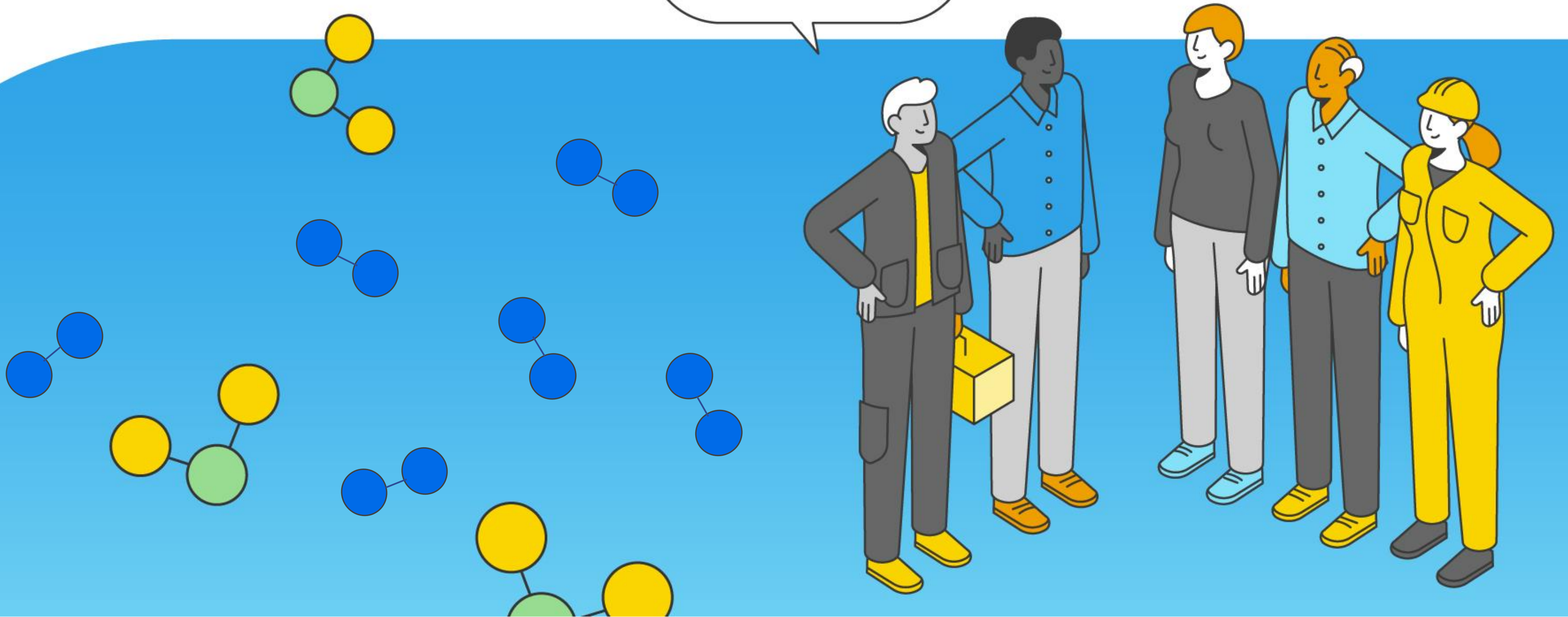


[Discover the cross-border CO₂ transport system › Gasunie](#)

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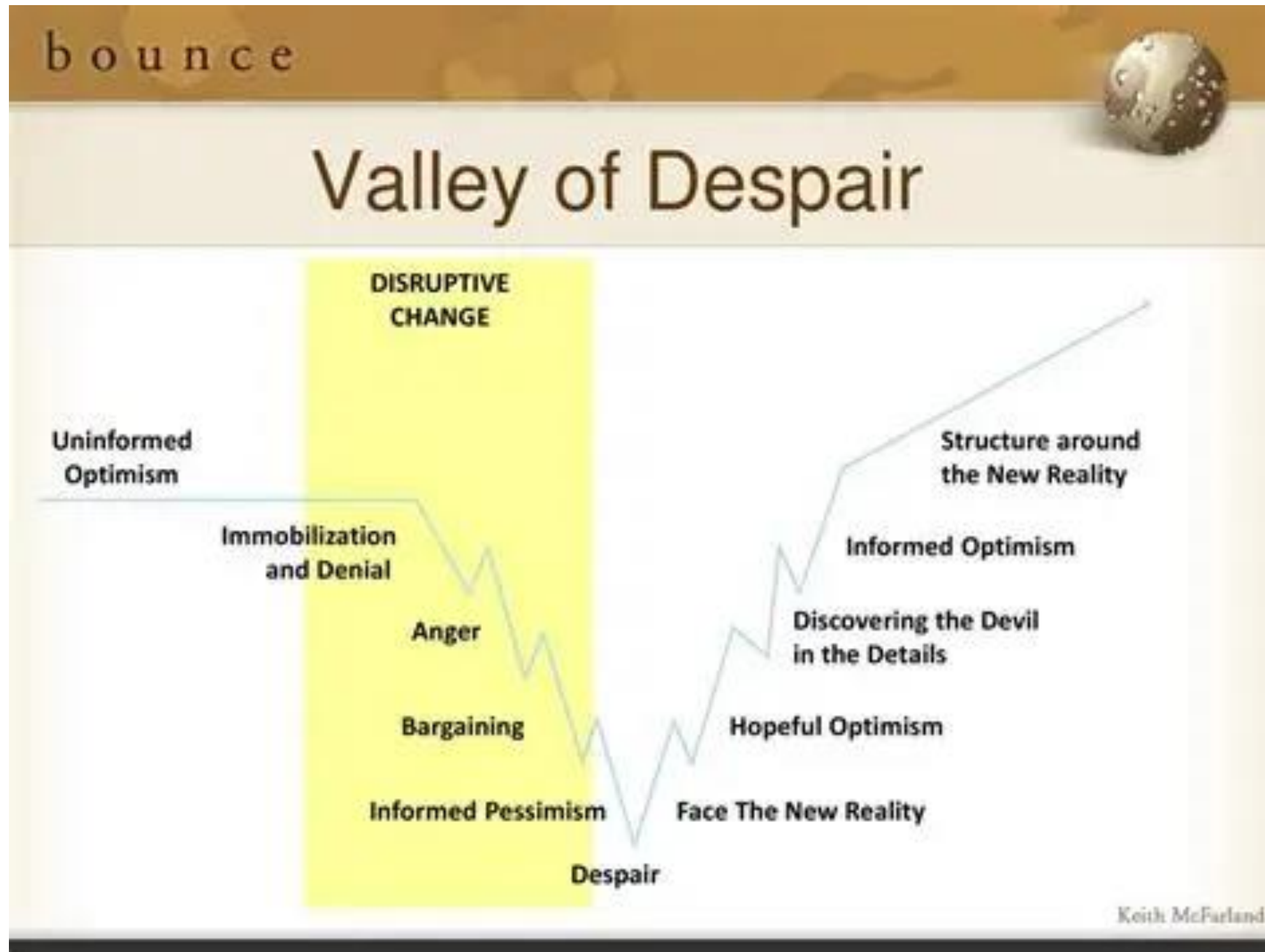
Thanks!



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The challenges we have been facing



Gasunie's Dutch Hydrogen Network Hits Delays, Costs Climb to €3.8Bn — But Commitment and State Support Hold Strong

Our interest will be mostly from the strategic planning perspective.

Gasunie:

- ❑ what was the impetus for Gasunie to shift toward hydrogen
- ❑ what types of projects are underway - perhaps including a brief overview of all of the areas you mentioned, with an emphasis on the CCS and the build-out of the pipeline infrastructure to transport/distribute H2.

Patrick and Gasunie:

- ❑ anything you can share on the business case for transitioning to H2 (e.g. key areas of anticipated growth, your vision for reducing or eliminating the NG side of your business, projected environmental benefits)

Patrick:

- ❑ any challenges in securing the workforce with the skills needed to grow this side of your business
- ❑ local and national policies, incentives, and partnerships that have been critical to your progress

Will this deal lead to more blue hydrogen towards Europe?

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Trump's \$750 Billion Deal for U.S. Energy Collides With Market Reality

EU has pledged to increase purchases of American oil, natural gas and nuclear fuels, but exporters might struggle to meet demand

By *Georgi Kantchev* [Follow](#) and *Ed Ballard* [Follow](#)

July 28, 2025 12:35 pm ET