

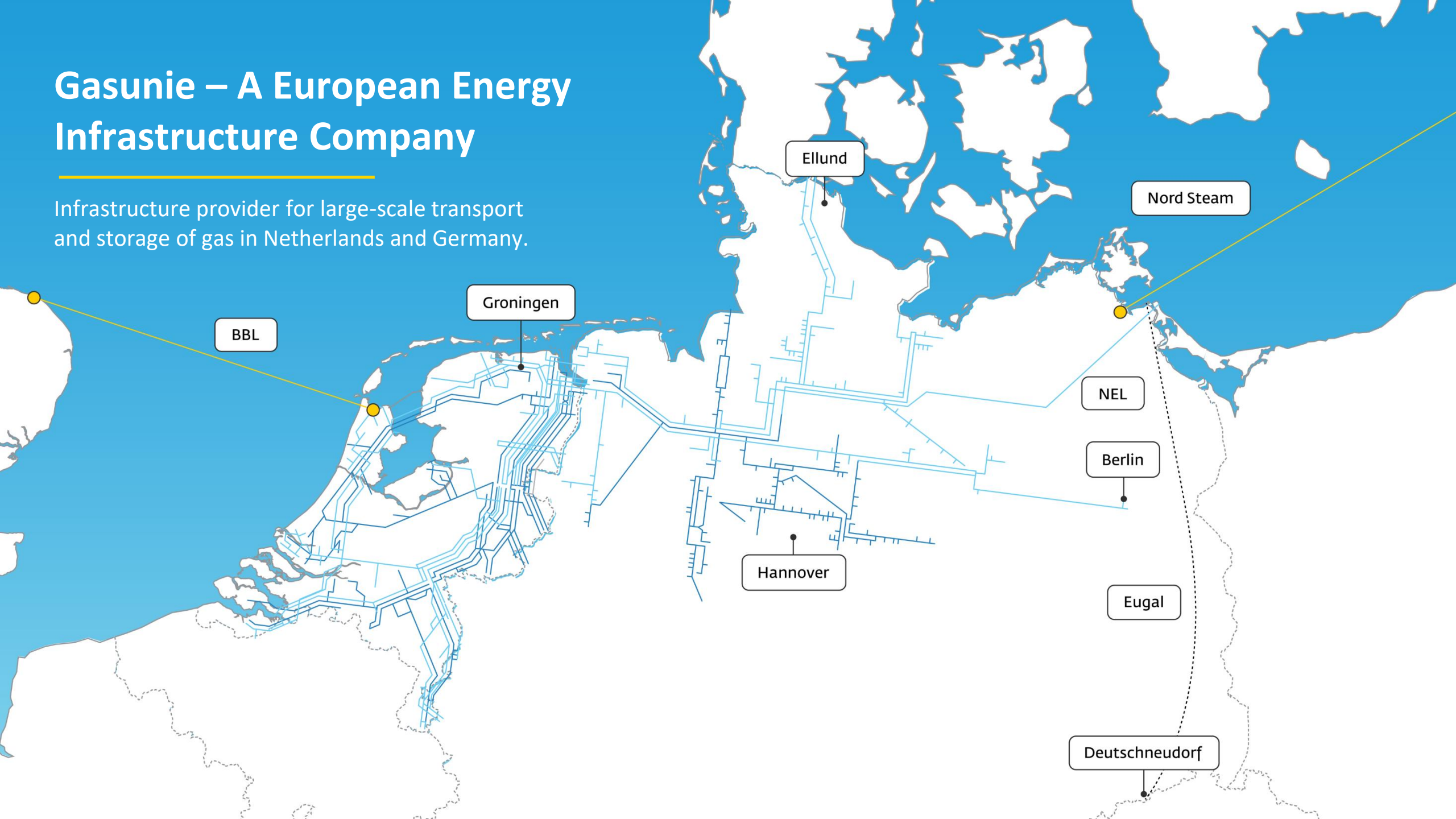
# Hydrogen and System Integration

*Werna Udding, Manager Business Development Hydrogen Offshore  
N.V. Nederlandse Gasunie*



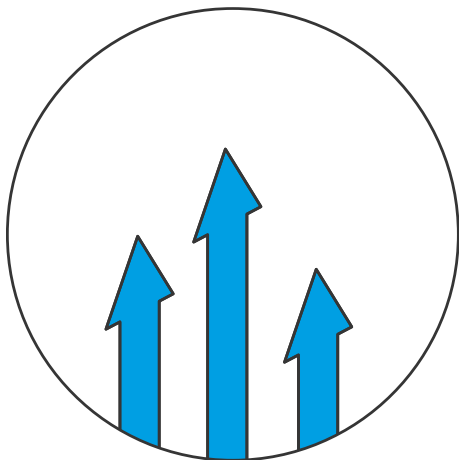
# Gasunie – A European Energy Infrastructure Company

Infrastructure provider for large-scale transport and storage of gas in Netherlands and Germany.



# Strategy

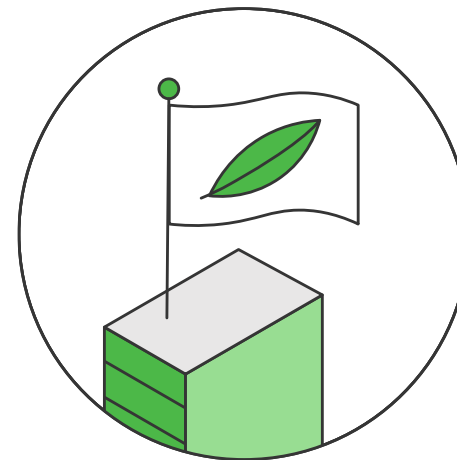
Optimising the value  
of our existing assets



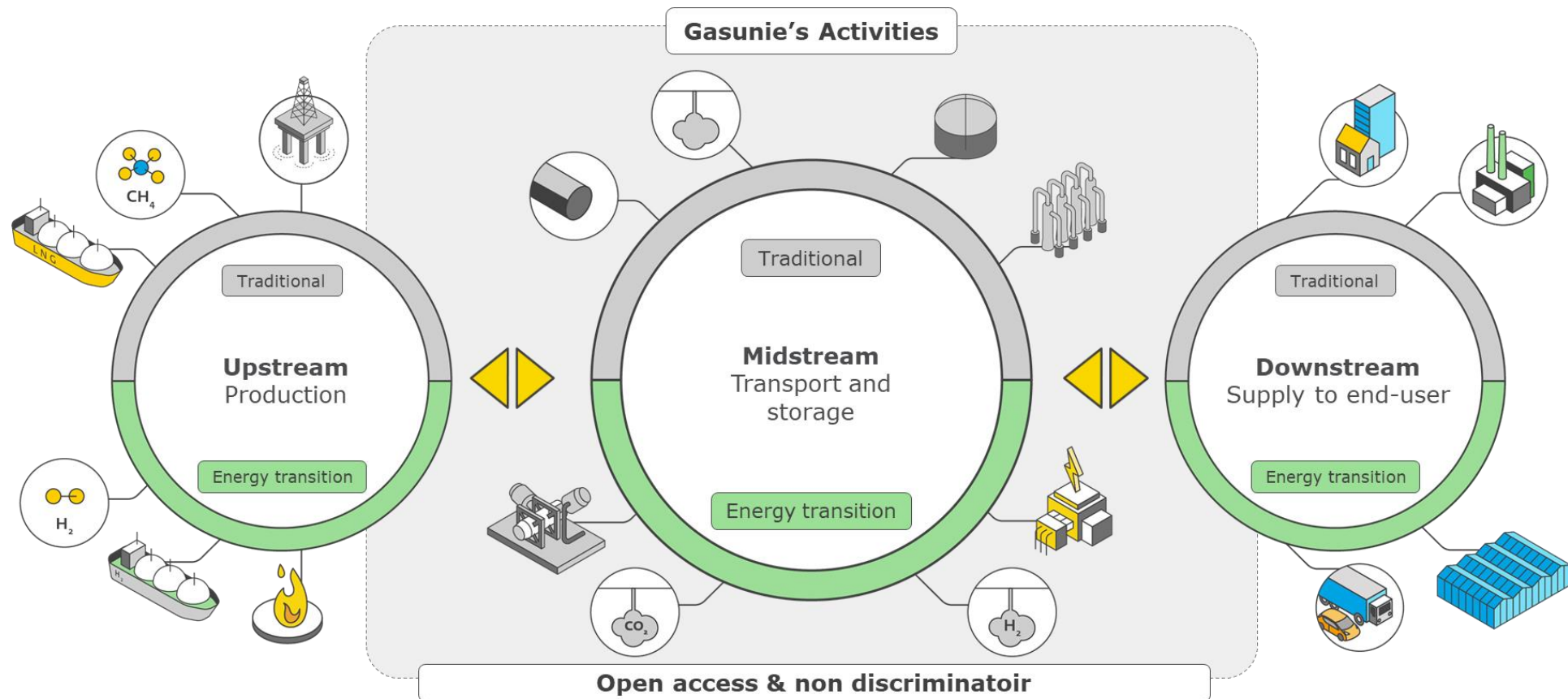
Strengthening  
our leading position  
as cross-border gas  
infrastructure company in  
Europe



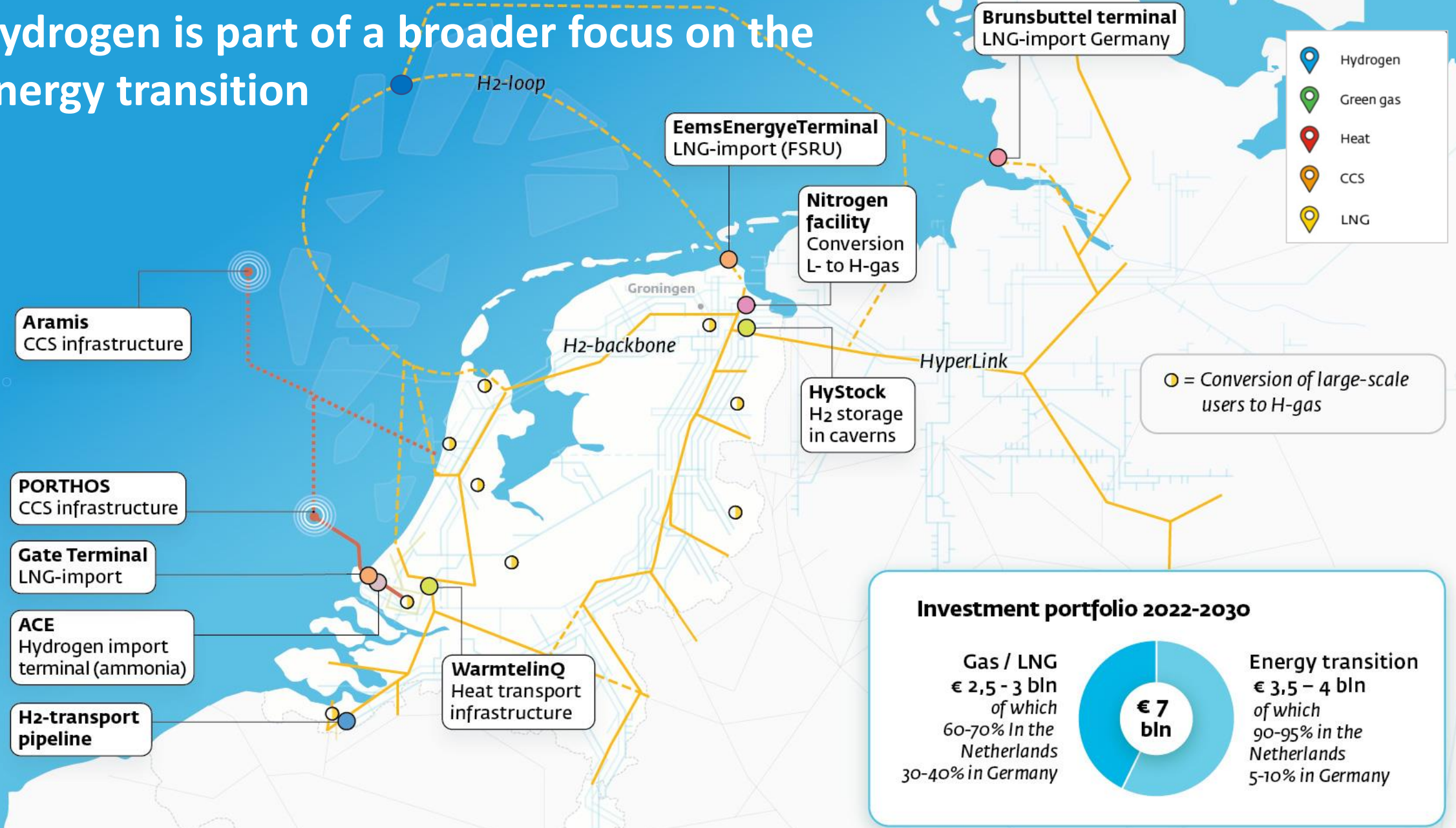
Making the transition  
towards more sustainable  
energy use possible



# Gasunie is an energy linking pin now and will remain one in the energy transition

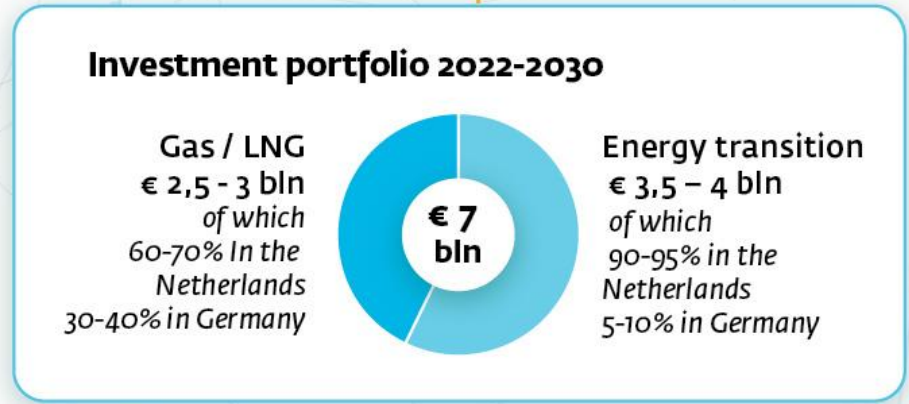


# Hydrogen is part of a broader focus on the energy transition



- Hydrogen
- Green gas
- Heat
- CCS
- LNG

= Conversion of large-scale users to H-gas



# Gasunie has organized hydrogen development activities along four lines

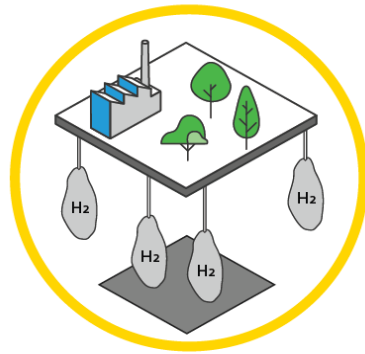
1

**Transport**



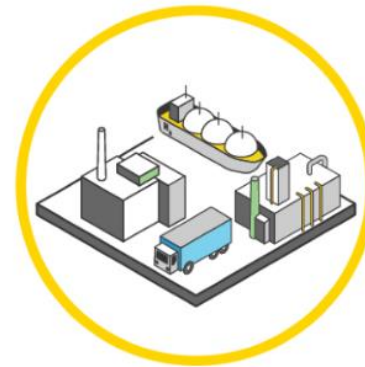
2

**Storage**



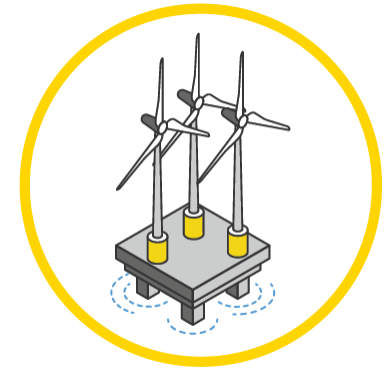
3

**Import**



4

**Offshore**



# Our vision on the European hydrogen infrastructure



# The North Sea as a green power plant for North West Europe

Including target of 20 GW on- and offshore electrolyse – 2030

[← Back to overview](#)



## Nine North Seas Countries Set 260 GW by 2050 Offshore Wind Target

September 12, 2022, by Adnan Durakovic

**Energy Ministers from the nine members of the North Seas Energy Cooperation (NSEC) have agreed to reach at least 260 GW of offshore wind capacity by 2050.**

This will represent more than 85 per cent of the EU-wide ambition of reaching 300 GW by 2050.



NOS Nieuws • 18 mei, 19:30

## Noordzeelanden gaan capaciteit windparken vertienvoudigen

Nederland, Denemarken, Duitsland en België gaan het aantal windmolens op de Noordzee de komende decennia fors verhogen. De capaciteit moet in 2030 65 gigawatt bedragen en 150 gigawatt in 2050. Dat laatste is een vertienvoudiging van de huidige capaciteit.



NOS Nieuws • 16 september, 19:52 • aangepast: 16 september, 20:57

## Kabinet wil veel meer windparken op zee, ambitie verdrievoudigd

Het kabinet wil meer windparken op zee bouwen dan eerder gepland. In 2050 moeten windparken in de Noordzee 70 gigawatt vermogen leveren. Dat is een ruime verdrievoudiging van de huidige ambitie, [meldt](#) de rijksoverheid op de website.



# North Sea as Europe's 'Green Power Plant'

## Wind Energy Targets for the North Sea

### Esbjerg Declaration




Targets of 65GW offshore wind - 2030


Target of 20 GW on- and offshore electrolyse – 2030

- Joint North Sea approach governments and TSOs
- NL chairman NSEC 2023 
- National policy-making in infrastructure plans and implementation
- Offshore infrastructure and services needed for effective deployment and integration E/H2 into energy system
- Interconnection of infrastructure needed for cross border flow
- Analysis and exploration started with electricity TSO's and gas TSO's


 **SC/UK – offshore wind**  
50 GW '30  
100 GW '50

 **BE – offshore wind**  
5.8 GW in 2030  
tot 8 GW in 2050  
Energy Hub (2026)  
Focus on import

 **NO**  
Focus on export (DE)  
Low carbon Hydrogen

 **DE – offshore wind**  
30 GW in 2030  
70 GW in 2050  
Focus on import (NOR)

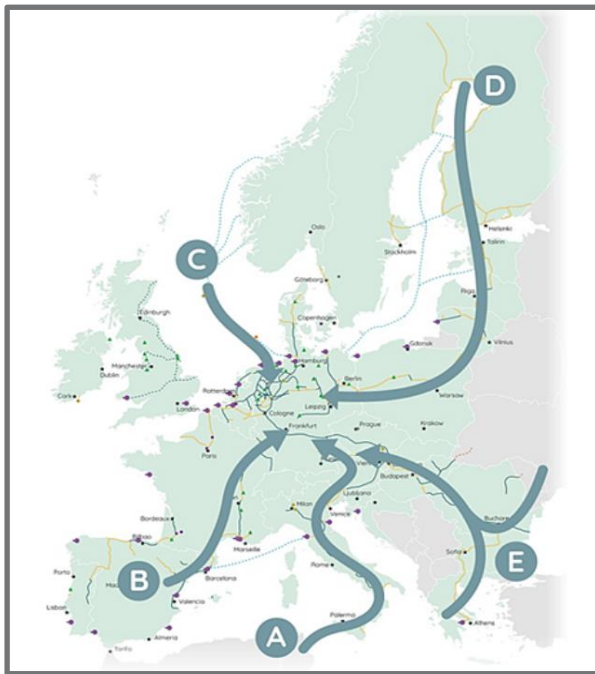
 **NL – offshore wind**  
21,5 GW in 2030  
70 GW in 2050  
Integrated Roll-out E/H2

 **DK – offshore wind**  
12.9 GW in 2030  
35 GW in 2050  
Realisation Energy Island (2030)

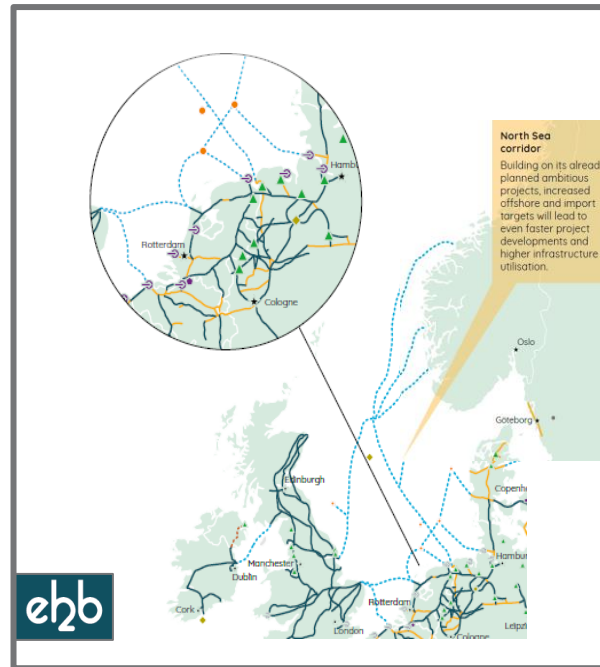


# North Sea H<sub>2</sub> Offshore Network Plans: Cross-border and Energy System integrated

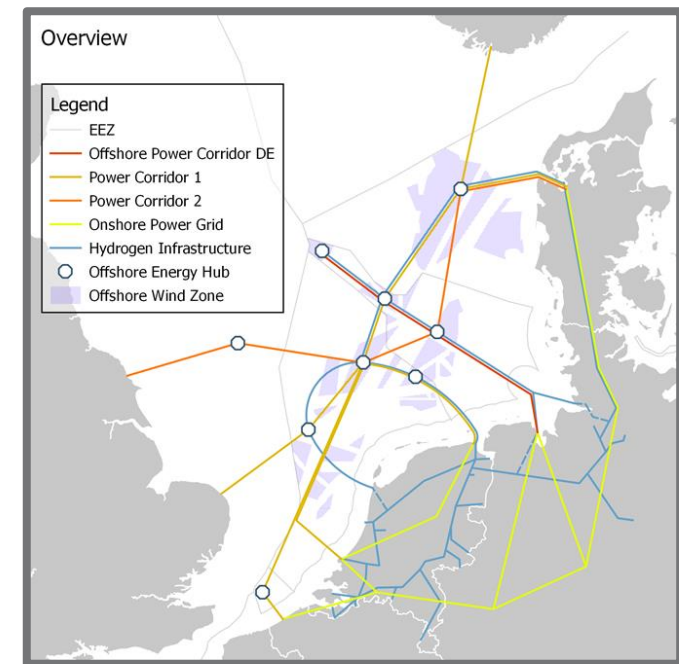
The Netherlands is geographically well positioned to play a role in future hydrogen transit flows



EHB identifies 5 import corridors

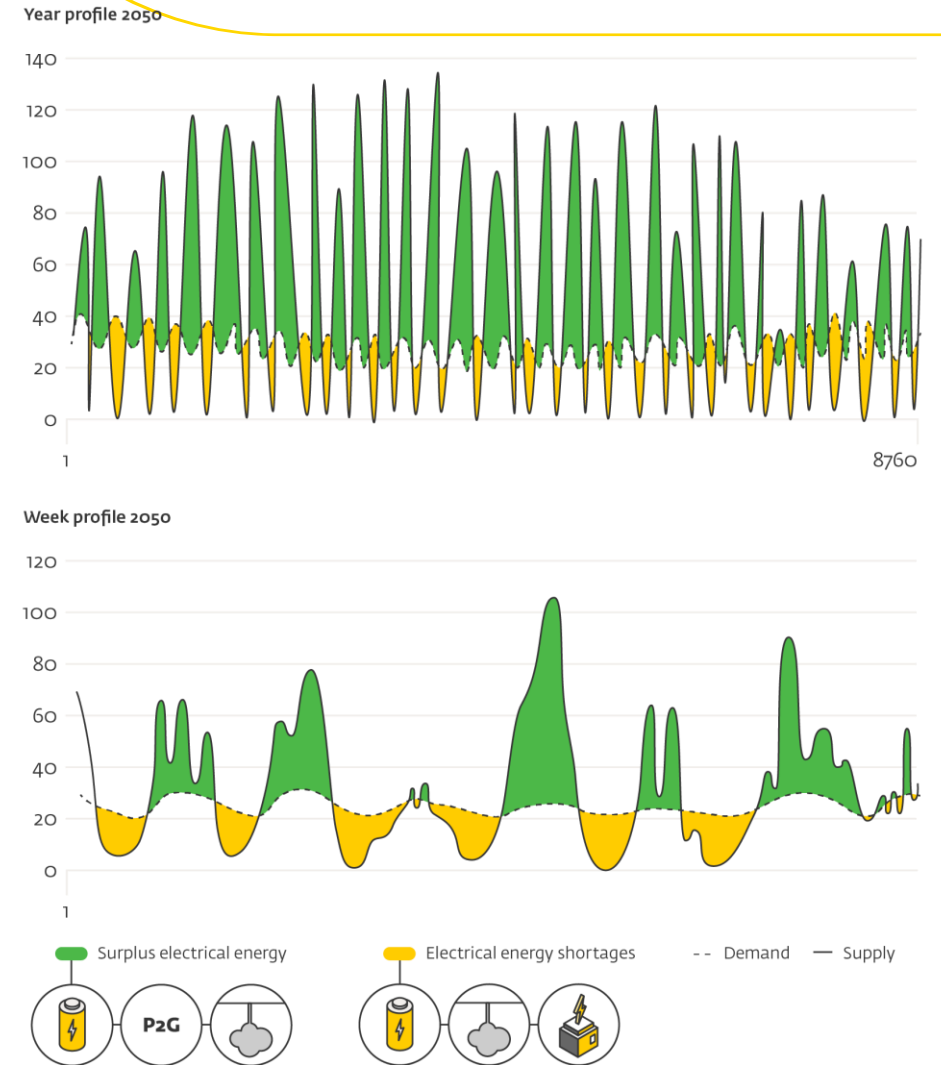
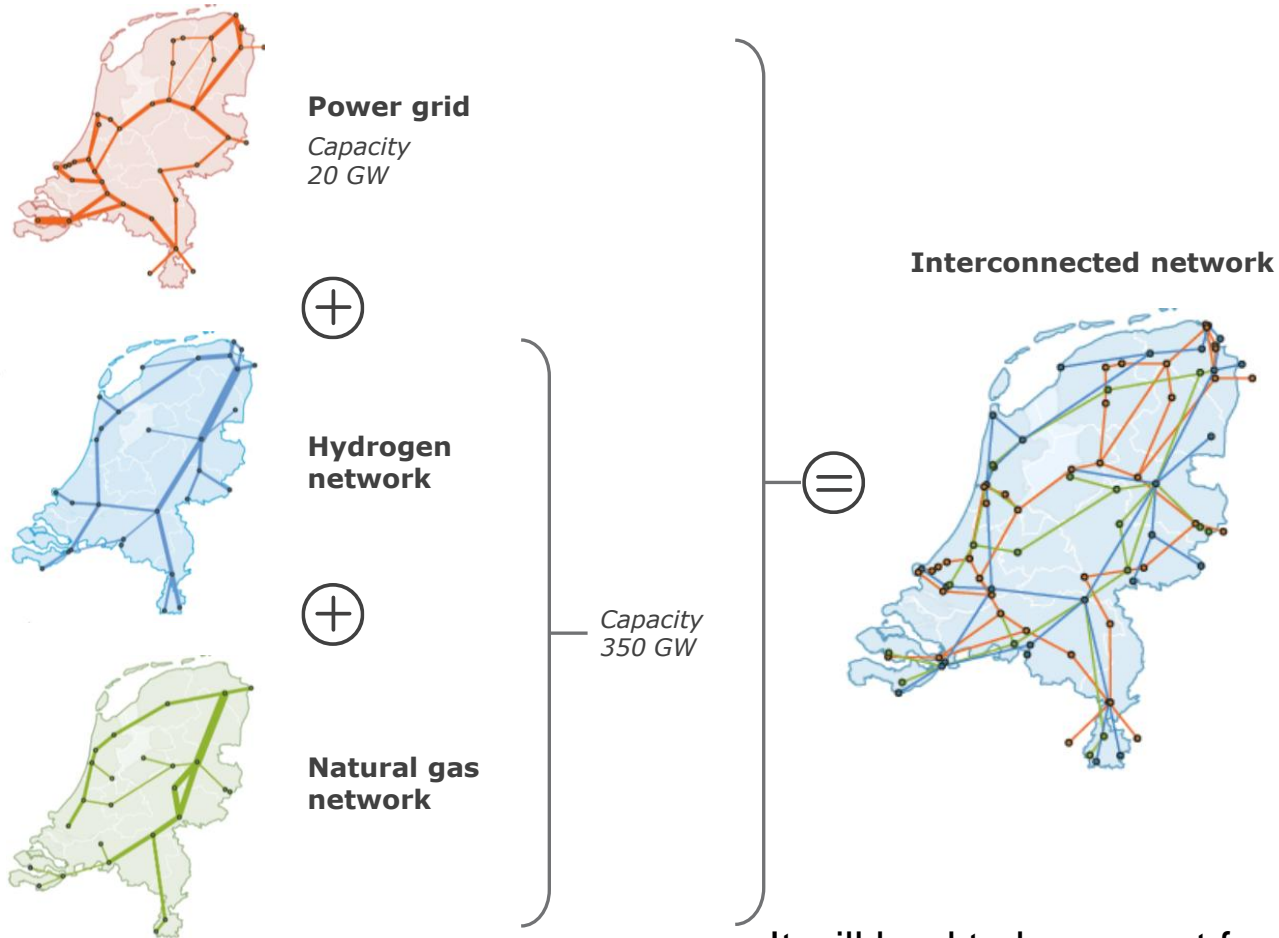


European Hydrogen Backbone as platform for H<sub>2</sub> infrastructure planning



Integrated Network Planning: Electricity and Hydrogen

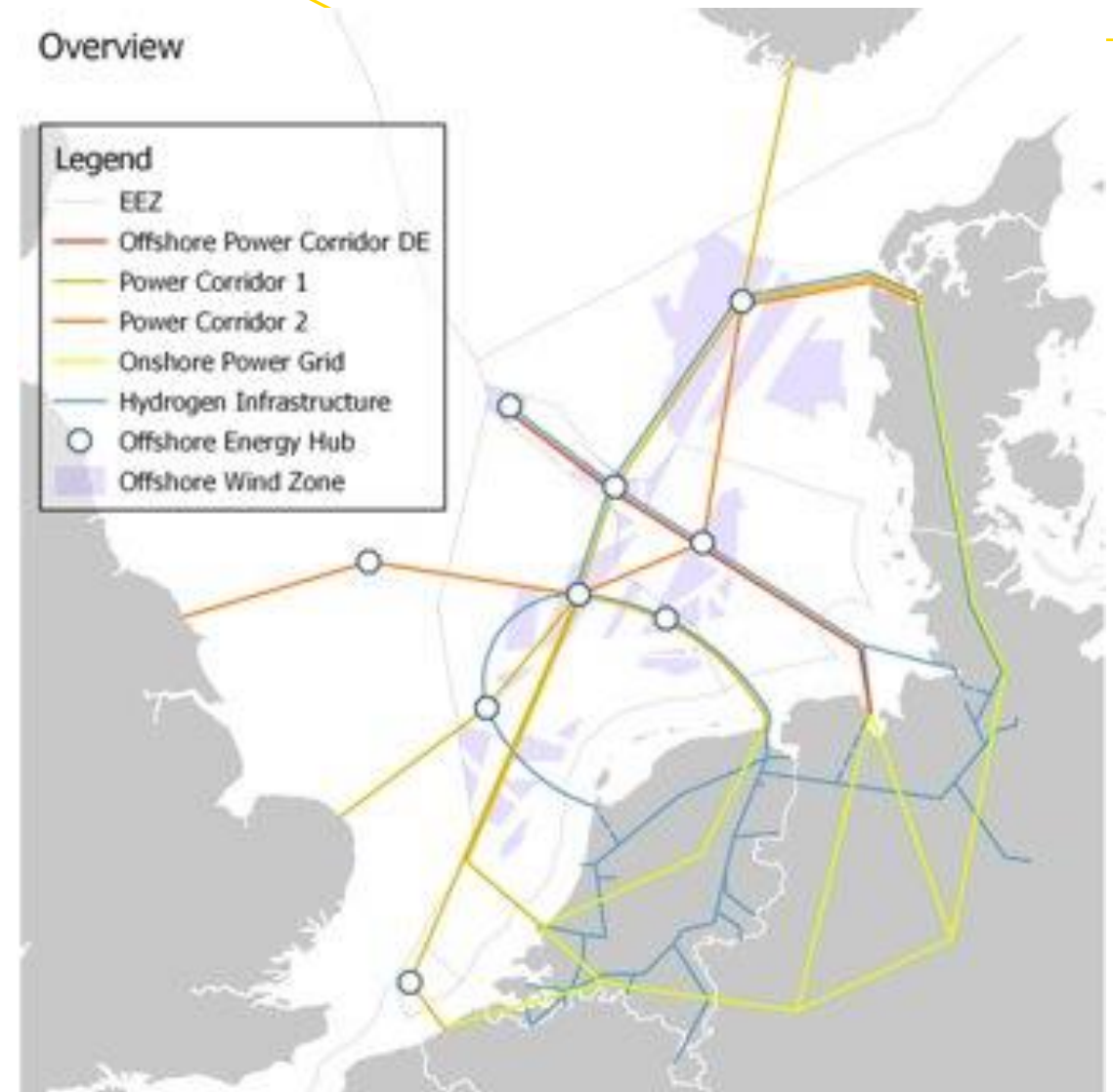
# System integration is essential



It will lead to lower cost for customers, better utilisation of the electricity supply and a more robust system

## What do we need to do?

- Integrated infrastructure planning
- Technology scale up
- Market structuring



# Thank you for your attention!

Only together we can get the future energy system going!

