

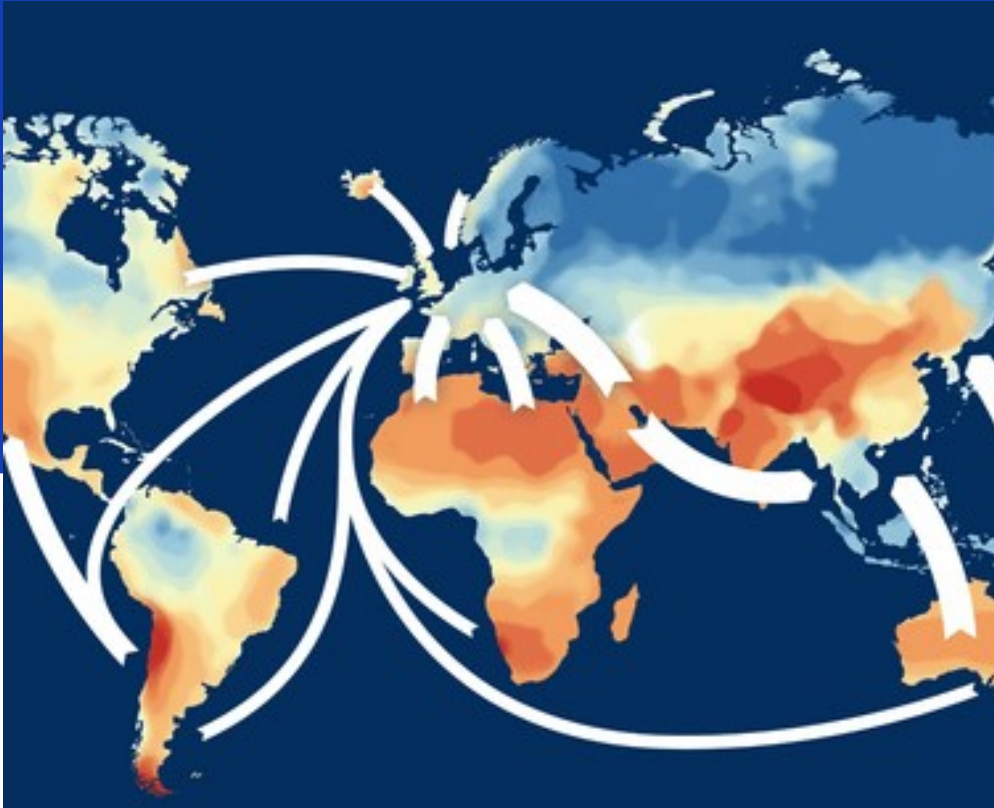


SHIP>NL sessie IV 2024

Drs. M.C.M. Rijkers

[Start presentation](#)

Agenda SHIP>NL sessie 17 April 2024



1. Welkom
2. Deep dive: European Hydrogen Backbone
Anouk van den Berg & Bert Kiewiet | Gasunie
3. Afsluiting

Huisregels

- Camera aan, microfoon op 'mute'
- Vragen?
 - Plaats verduidelijkingsvragen in de meeting chat; of
 - Steek je hand op!
- De moderator zorgt ervoor dat je vraag beantwoord wordt (eventueel achteraf).
- Slides worden na de sessie gedeeld en zijn te vinden op [SHIPNL: Sustainable Hydrogen Import Program Netherlands | Nationaal Waterstof Programma](#)
- We bespreken uiteraard geen marktgevoelige zaken.
- Chatham house rules: De besproken informatie mag gedeeld worden, maar zonder de spreker te onthullen.

Meerjarig kennisprogramma met 5 lijnen

- In deze sessie:

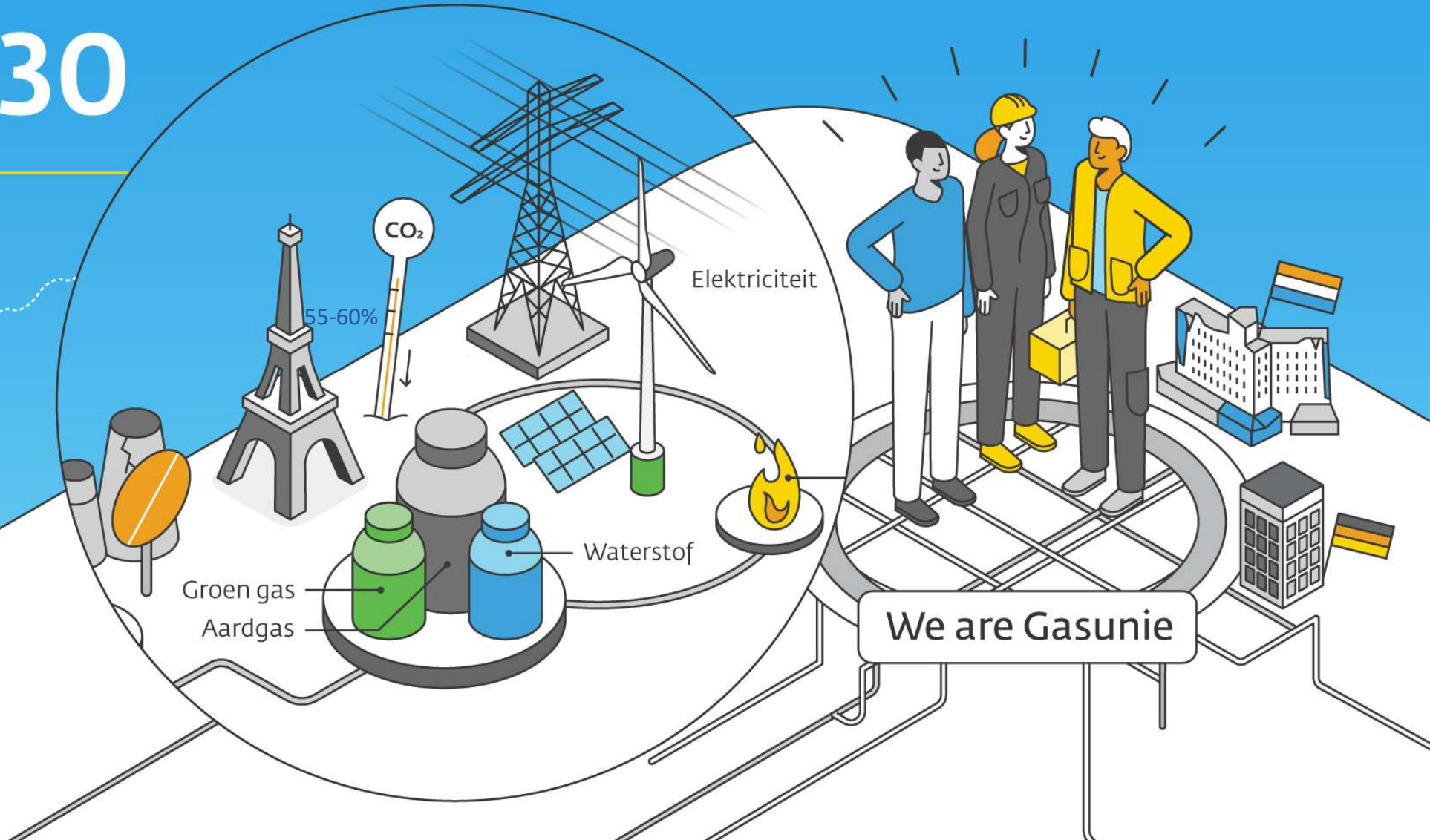
1 Technisch economisch	2 Beleid	3 Markt	4 Internationaal	5 Omgeving
<ul style="list-style-type: none"> Inzicht in importketens productie-conversie-transport-opslag-reconversie-gebruik Vraagontwikkeling, scenario's Infrastructuur & systeemintegratie: corridors, benutten bestaande infra. Technology assessments, R&D 	<ul style="list-style-type: none"> Impact van 'Fit for 55', REDII, Delegated acts, ETS/CBAM, etc. Impact van certificering en CO2 allocatie: emissiefactoren, LCA ketenanalyse, etc. Financiering en stimulering (EU & NL): IPCEI, PCI, TEN-E, JTF, EIB, Horizon Europe, MOOI, DEI, MIEK, SDE++, etc 	<ul style="list-style-type: none"> Marktmodellen: bilaterale contracten, vrije handel, waterstofbeurs Internationale handelsstromen: verwachte vraag- en aanbodvolumes en transportstromen Importtarieven, trade agreements en handelsbeperkingen, WTO, etc. 	<ul style="list-style-type: none"> Samenwerking met omringende EU/niet-EU importlanden om corridors te ontwikkelen Concurrentie met omringende EU/niet-EU importlanden Geopolitieke aspecten: strategische voorraden, afhankelijkheid, politieke stabiliteit van exportlanden 	<ul style="list-style-type: none"> Ruimtegebruik van ketenelementen Veiligheid: brandbaarheid, zorgwekkende stoffen, risicocontouren, etc Milieu: stikstof, lekkage Maatschappelijke acceptatie MVO / samenhang met SDG's in exportlanden

Building hydrogen infrastructure

- Anouk van den Berg & Bert Kiewiet | Gasunie

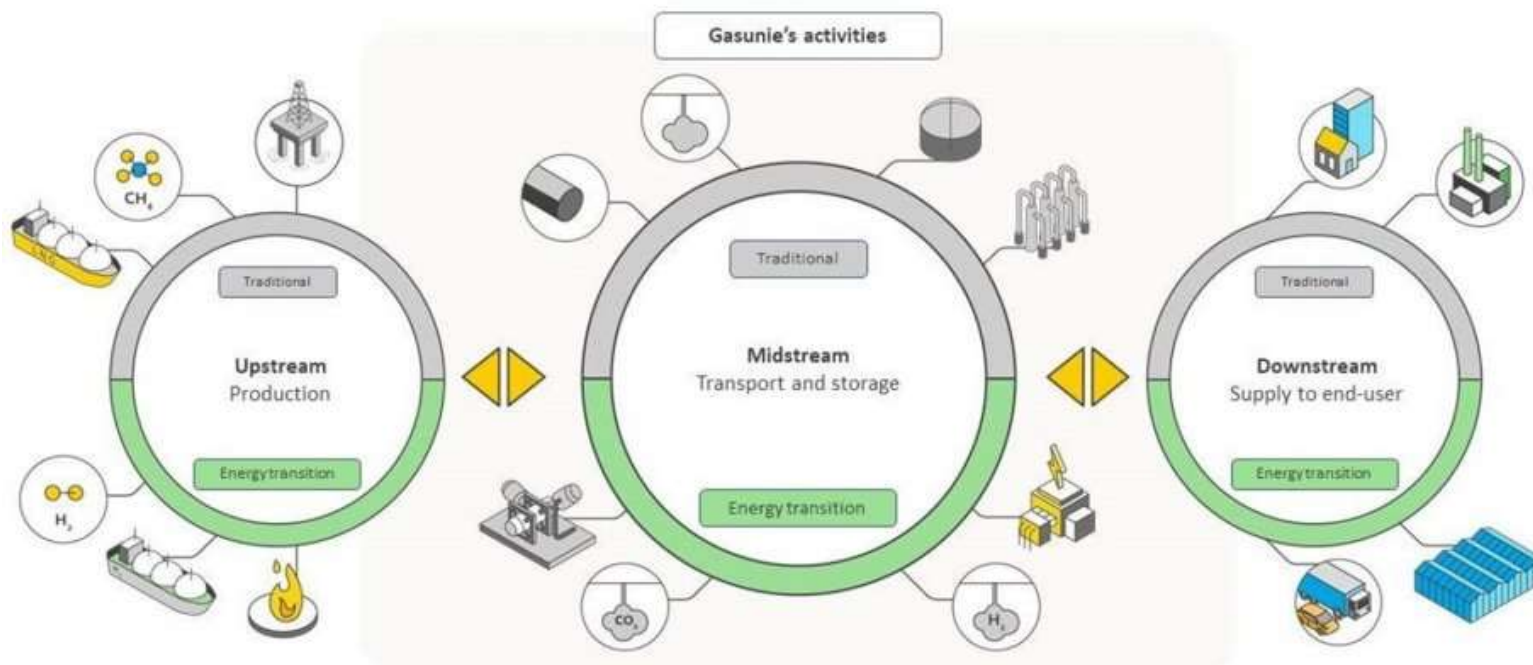


2030



Gasunie: a connecting factor in the energy value chain

Providing open access and non-discriminatory infrastructure in The Netherlands and the Northern part of Germany

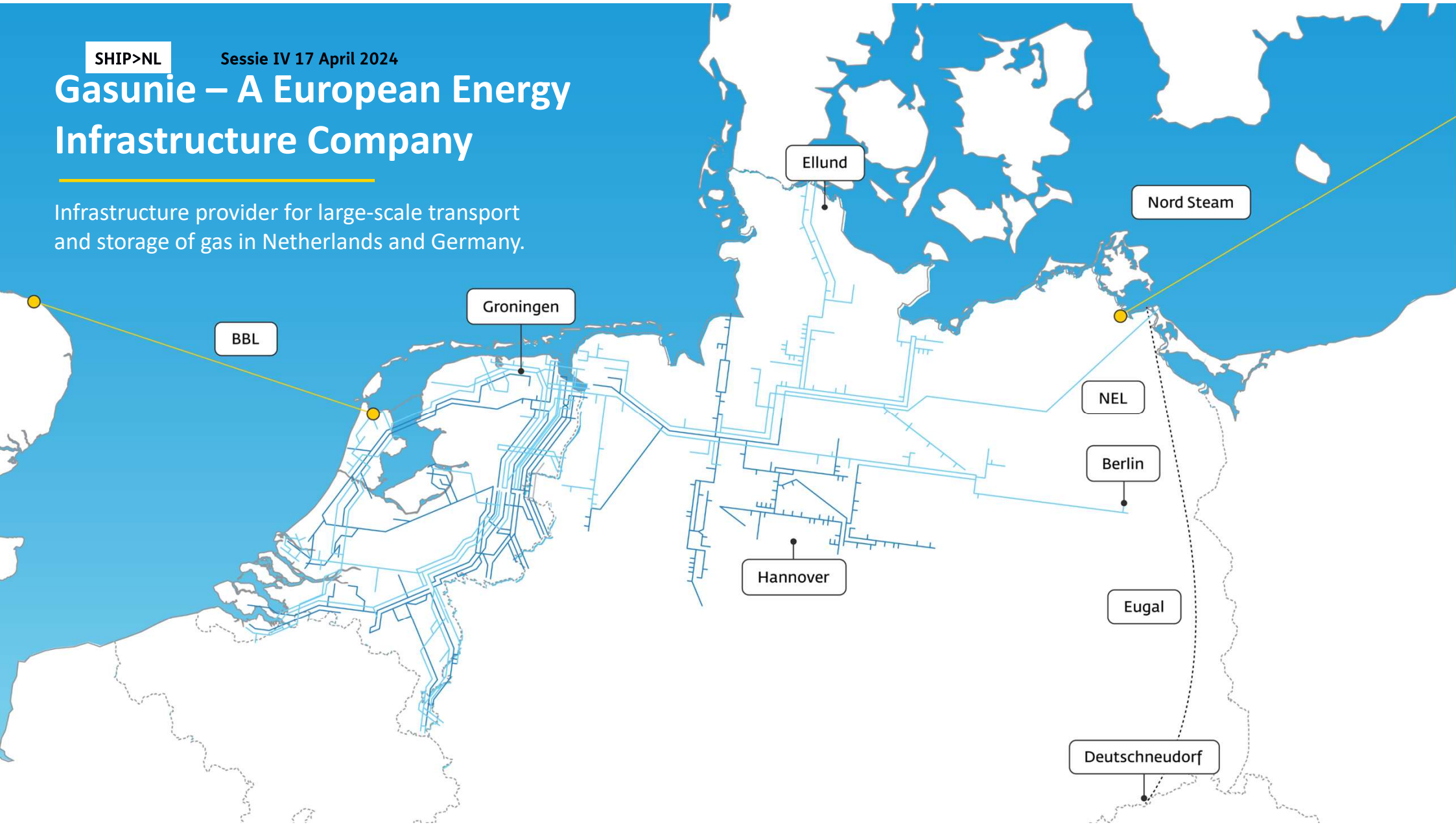


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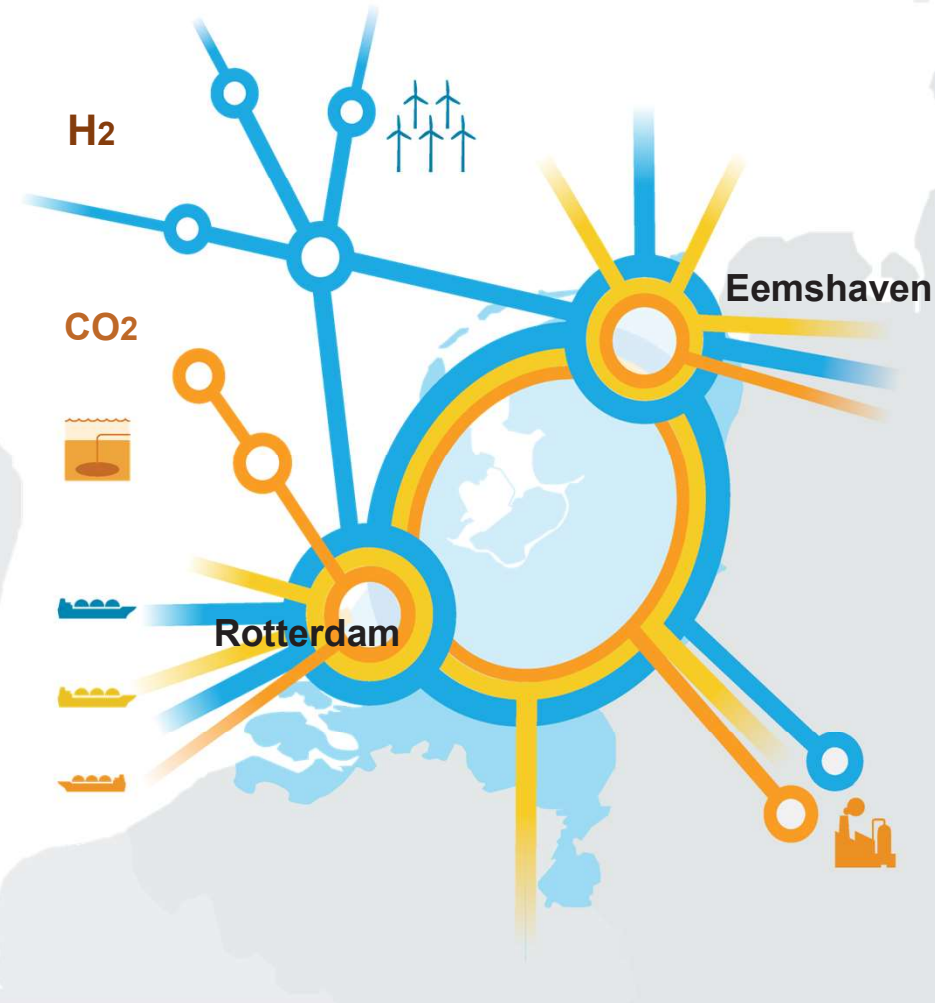
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Gasunie – A European Energy Infrastructure Company

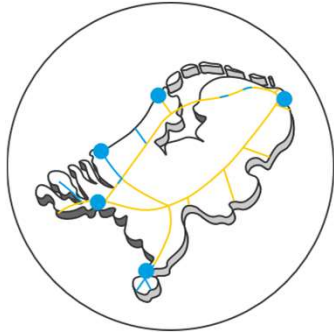
Infrastructure provider for large-scale transport and storage of gas in Netherlands and Germany.



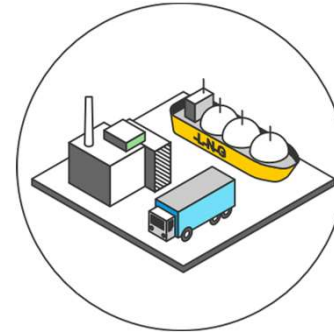
The Netherlands: energy hub in north-west Europe for H2 and CO2



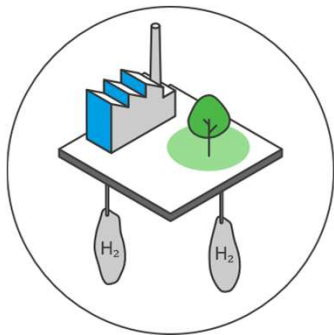
Hydrogen programme: four pillars



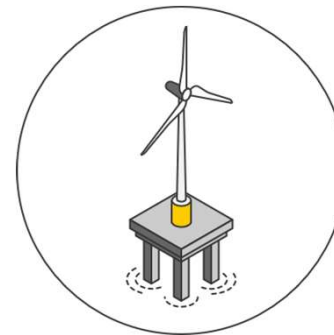
Transport



Import

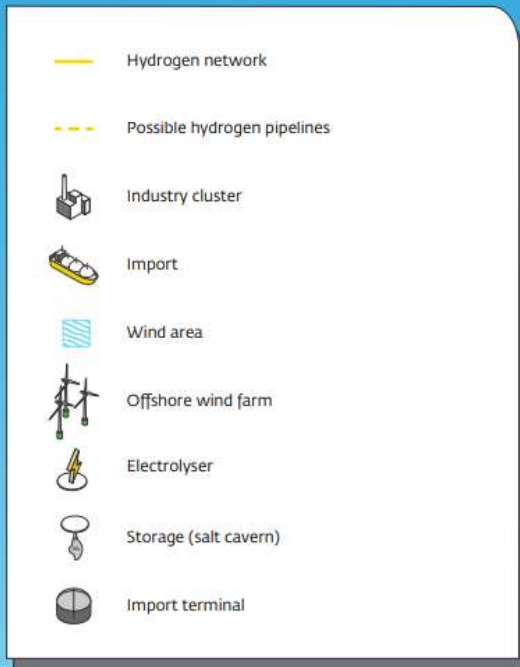


Storage

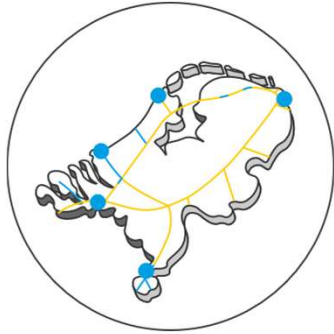


Offshore

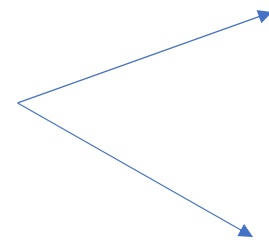
Hydrogen network 2030



Hydrogen programme: four pillars



Transport



Netherlands

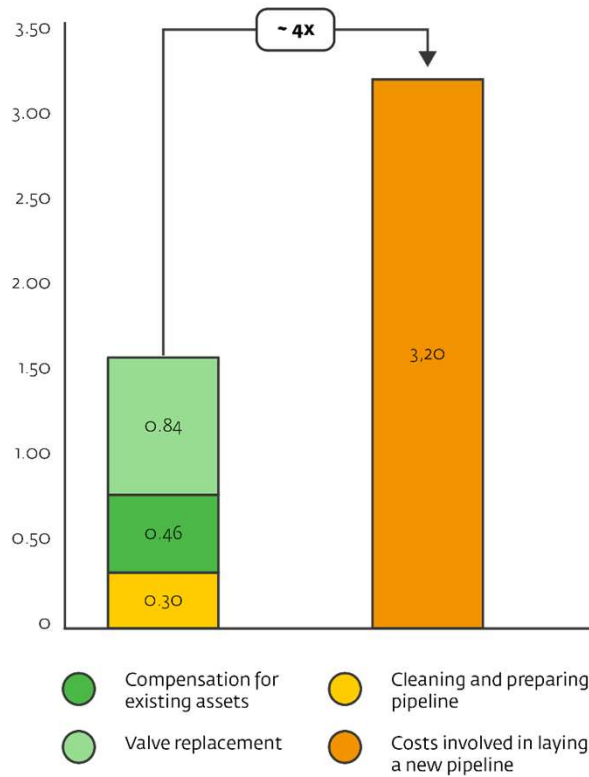
Germany

Hynetwork Services

- 100% subsidiary of Gasunie.
- Assignment of EZK “services of general economic interest”
- Responsible for the development of the national hydrogen network
- We connect 5 industrial clusters with each other, neighbouring countries, storage and import.
- Conversion of natural gas infrastructure
- Phased development
- Key features:
 - Open-access
 - Non-discriminatory
 - Safe and reliable

Transport: New-build or reuse?

Comparison of per-km investment required for reuse and new-build (millions of € per km, based on 36-inch pipeline)



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Phase 1: 2025-2027



- Hydrogen network
- Industry cluster
- Import
- Hydrogen storage (salt cavern)
- Import terminal







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Phase 2: 2028-2029



- Hydrogen network
- Industry cluster
- Import
- Hydrogen storage (salt cavern)
- Import terminal

Phase 3: 2030 and beyond

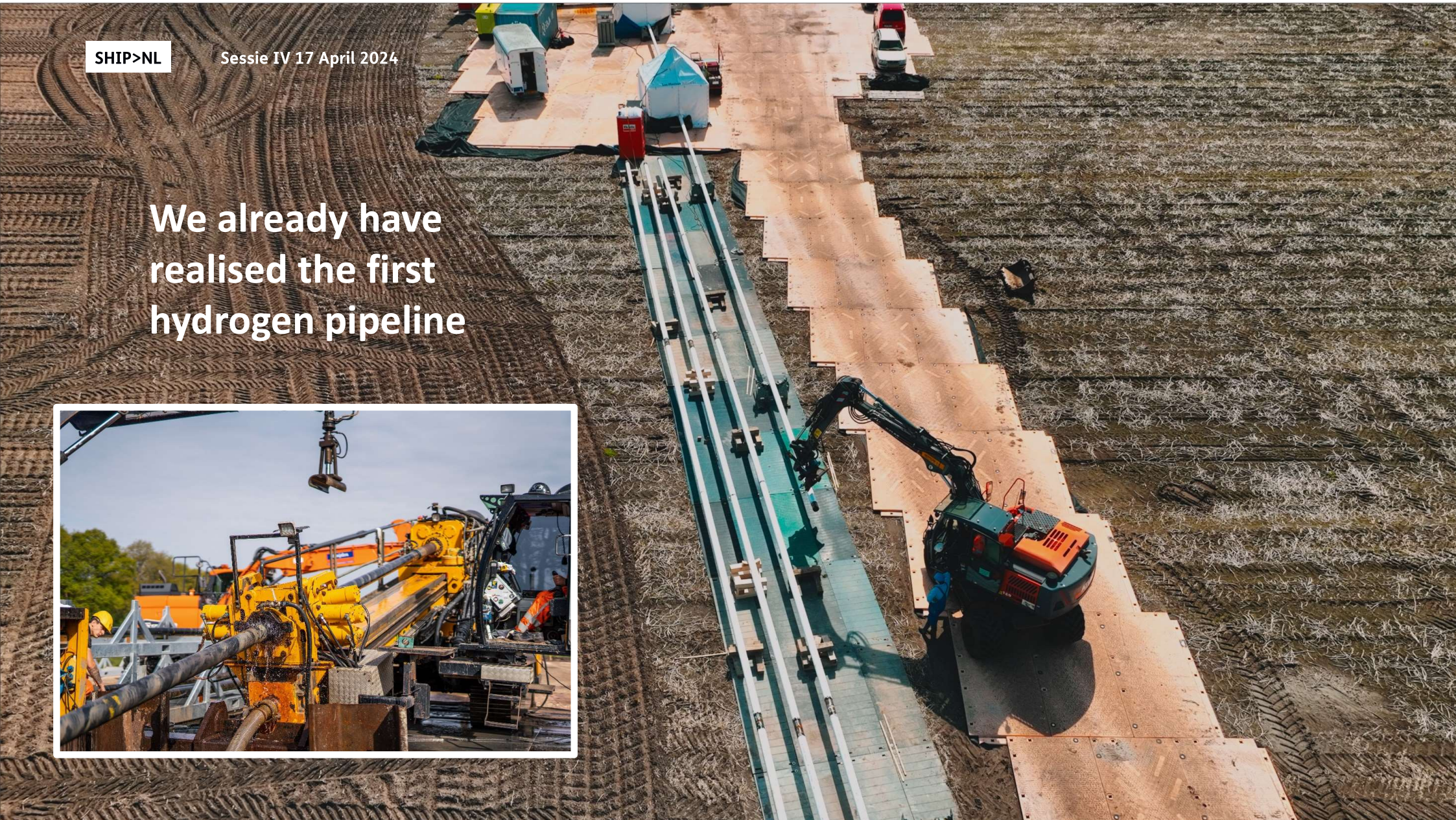
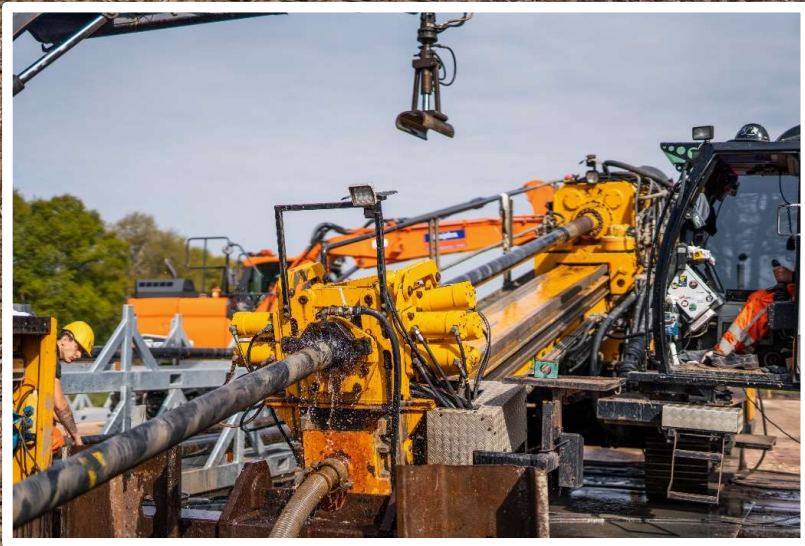


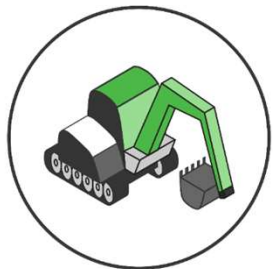
-  Hydrogen network
-  Potential (offshore) hydrogen network
-  Industry cluster
-  Import
-  Hydrogen Storage (salt cavern)
-  Import terminal

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We already have
realised the first
hydrogen pipeline

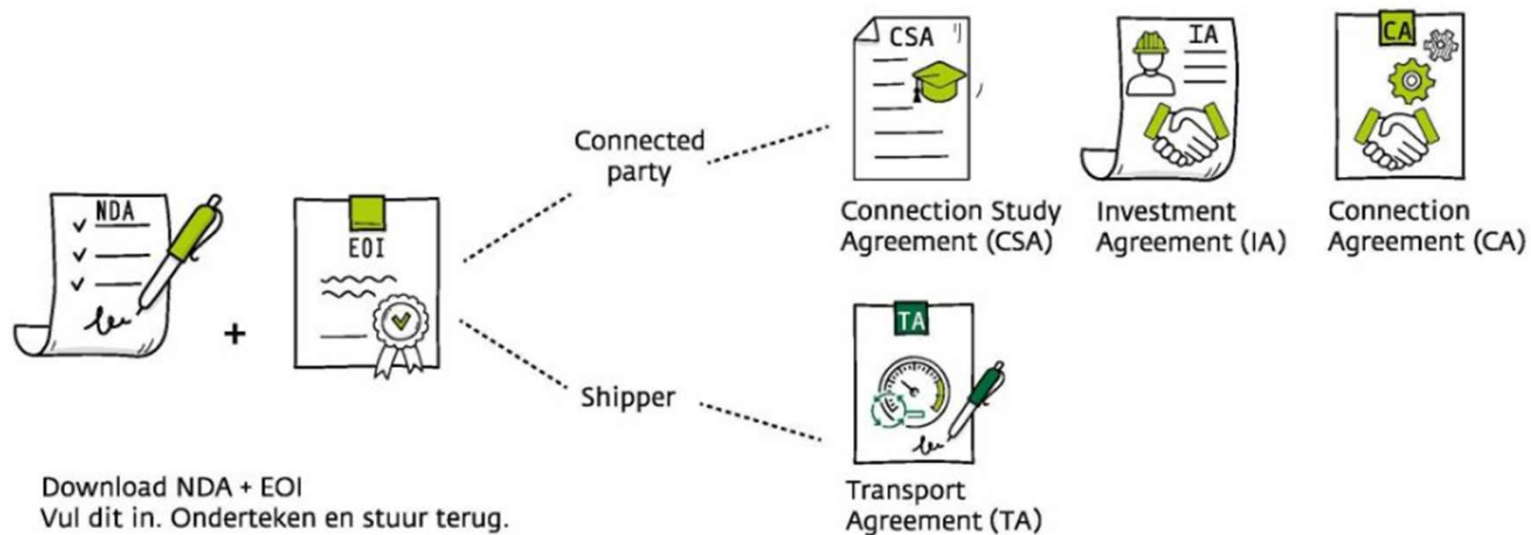




And have started construction in Rotterdam

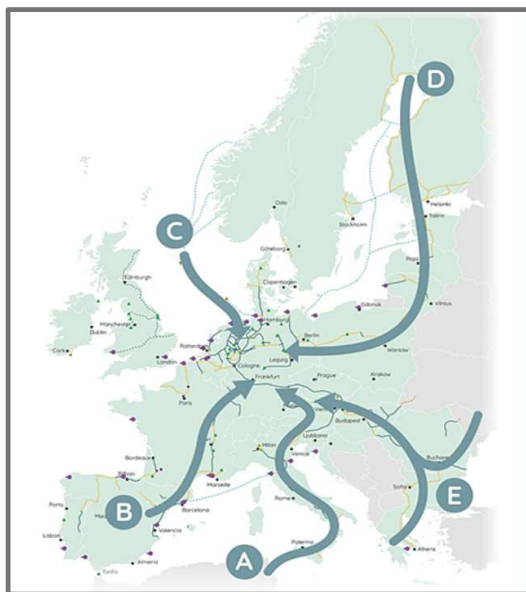
[Gasunie Setting The Scene 4k \(1\).mp4](#)

Interested? How to become a customer?



Interconnectivity – European context

The European Hydrogen Backbone identifies 5 import corridors. Gasunie plays a central role in the North Sea H₂ corridor (C).



The European Hydrogen Backbone identifies 5 import corridors. Gasunie plays a central role in the North Sea H₂ corridor (C)



The EU launched a financing instrument to accelerate the establishment of a full hydrogen value chain.



The EU Decarbonisation Package defines the role of the Hydrogen Network Operators. The Delegated Act supports usage of renewable H₂

Interconnectivity – International cooperation

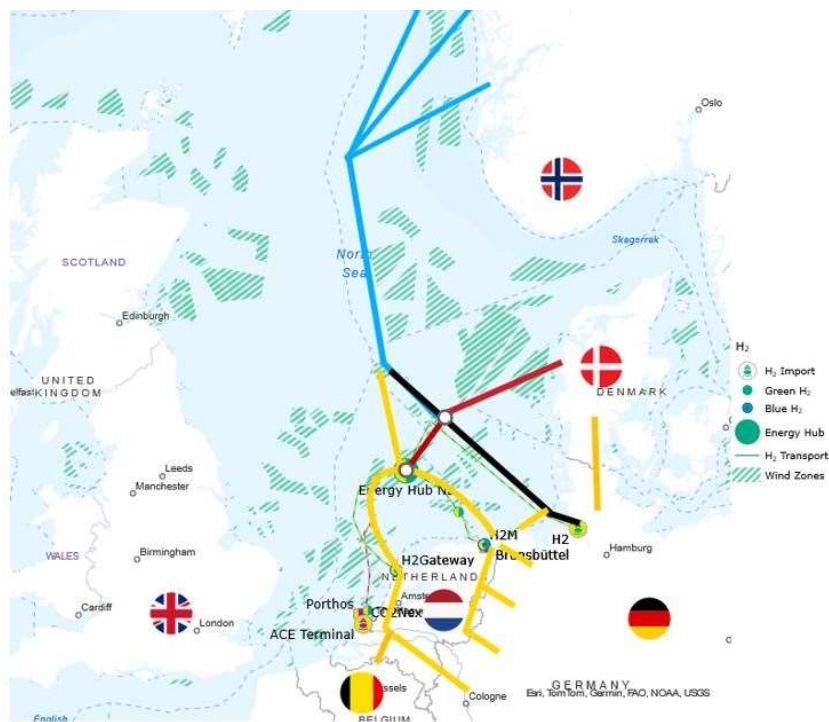
Transmission System Operators (TSOs) submitted hydrogen infrastructure plans for the 2024 Ten Year Network Development Plan (TYNDP). Offshore connections are part of the TYNDP.



The Netherlands realizes offshore imports of blue and green hydrogen from **Norway** and **Denmark**. Next to domestic production, imports are required to fulfill the hydrogen demand of **The Netherlands** and **Germany**.

Gasunie developing the offshore hydrogen hub

Offshore imports of H₂ are essential in the transition phase – The Netherlands playing a role in international H₂ transit in NW Europe. The map shows the outlook of a **potential North Sea H₂ system**.



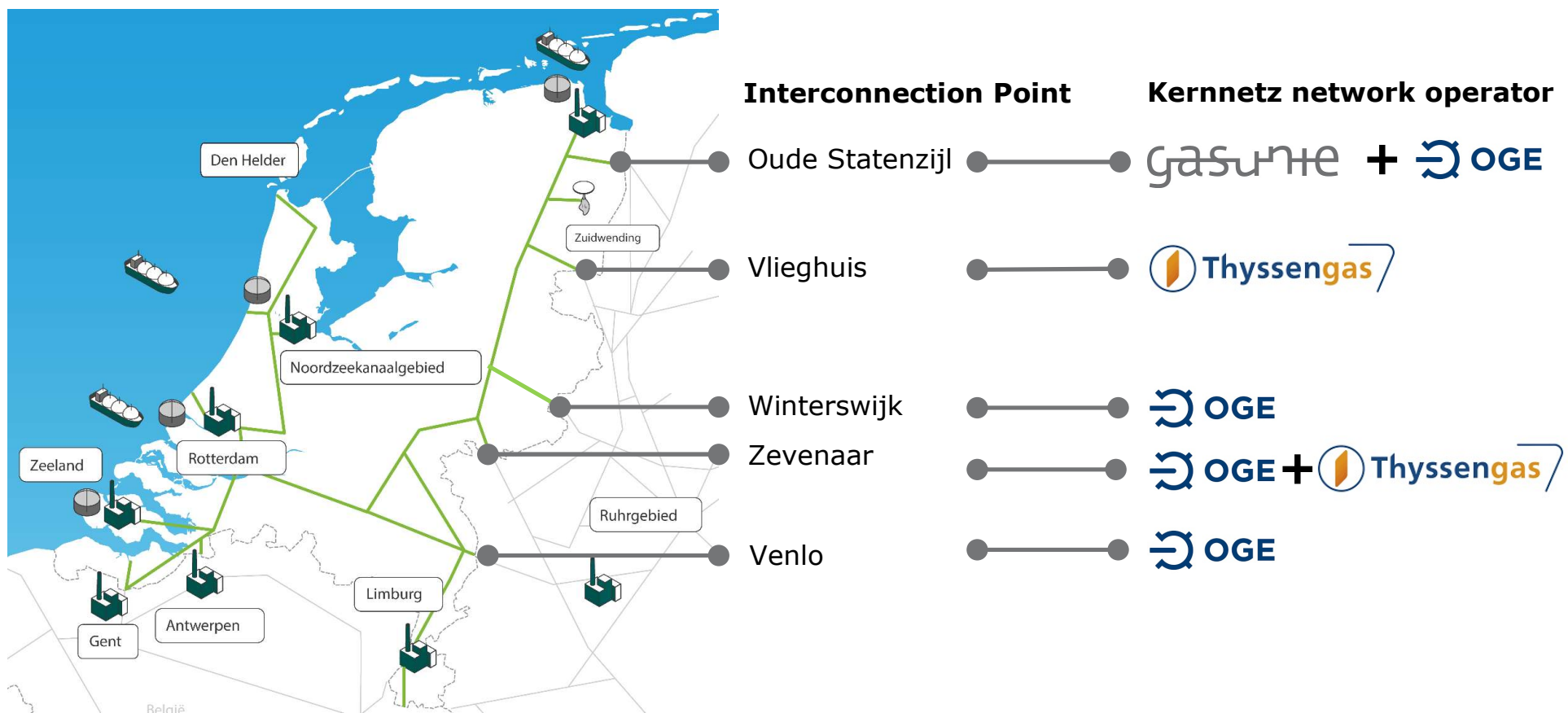
Gasunie's role in the North Sea

- Gasunie as collection and transit **hub of H₂** combining production and imports of H₂ to The Netherlands, Germany and Belgium.
- Gasunie's investments in **offshore pipelines** for hydrogen, will provide a low-cost route for import from **Scandinavian low carbon H₂** to NL and Germany.

H₂ in the North Sea

- Norway, Denmark and the Netherlands are offshore interconnected with projected landfalls in Eemshaven and Den Helder.
- Netherlands and Germany have vast hydrogen import needs, Denmark and Norway are exporters.

Onshore connections - cross border points



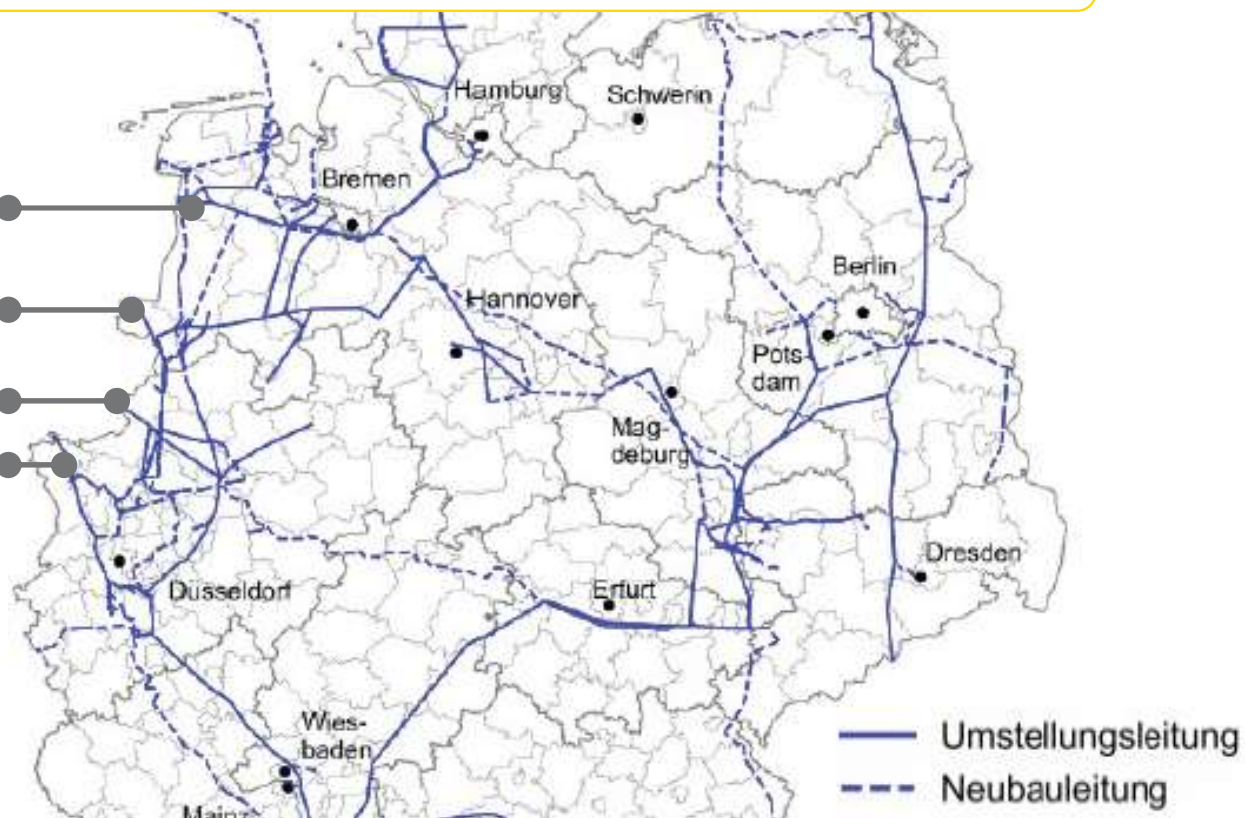
Onshore connections - cross border points

Oude Statenzijl/Bunde ● —● 2027/2028 ●

Vlieghuis (TG) ● —● End 2027 ●

Winterswijk/Vreden (OGE) ● —● End 2030 ●

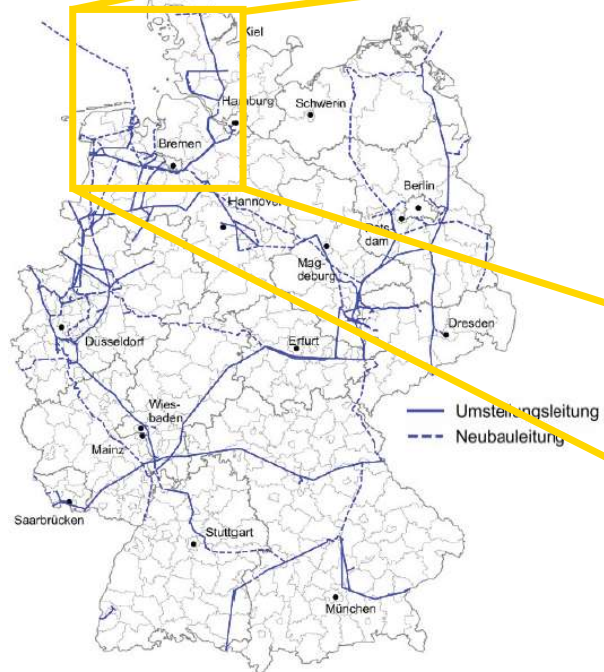
Zevenaar/Elten (TG, OGE) ● —● 2028/2029* ●



Kernnetz planning: 2030 latest

Gasunie's Hyperlink part of the German Kernnetz

Gasunie's project Hyperlink is included in the northwestern part of the draft Kernnetz.



Thank you for your attention!



Volgende kennissessie

- Volgende sessie woensdag 22 mei a.s.:
 - 14.30-15.00 Ontvangst
 - 15.00-15.30 Tour de table
 - 15.30-15.40 Terugblik WHS |
Carla Robledo Min. EZK & David Koole RVO
 - 15.40-17.00 Trading-off economics of H₂carriers and environmental impact |
Alessandro Arrigoni JRC & Thomas Hajonides TNO
 - 17.00-18.00 Borrel

Datum	
Woe 22 mei	F2F
Woe 19 juni	Online
Woe 10 juli	F2F
Woe 18 september	F2F
Woe 16 oktober	Online
Woe 20 November	F2F
Woe 18 december	Online

Hartelijk dank voor uw aandacht

Vragen? Neem gerust contact met mij op:

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+31 6 23 34 65 16

De slides van alle sessies zijn te vinden op:
[SHIPNL: Sustainable Hydrogen Import Program Netherlands |
Nationaal Waterstof Programma](#)