PORTHOS

Towards the first large-scale CO_2 transport and storage infrastructure in the European Union

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Porthos status overview

Shareholders

- EBN, Gasunie, Port of Rotterdam Authority

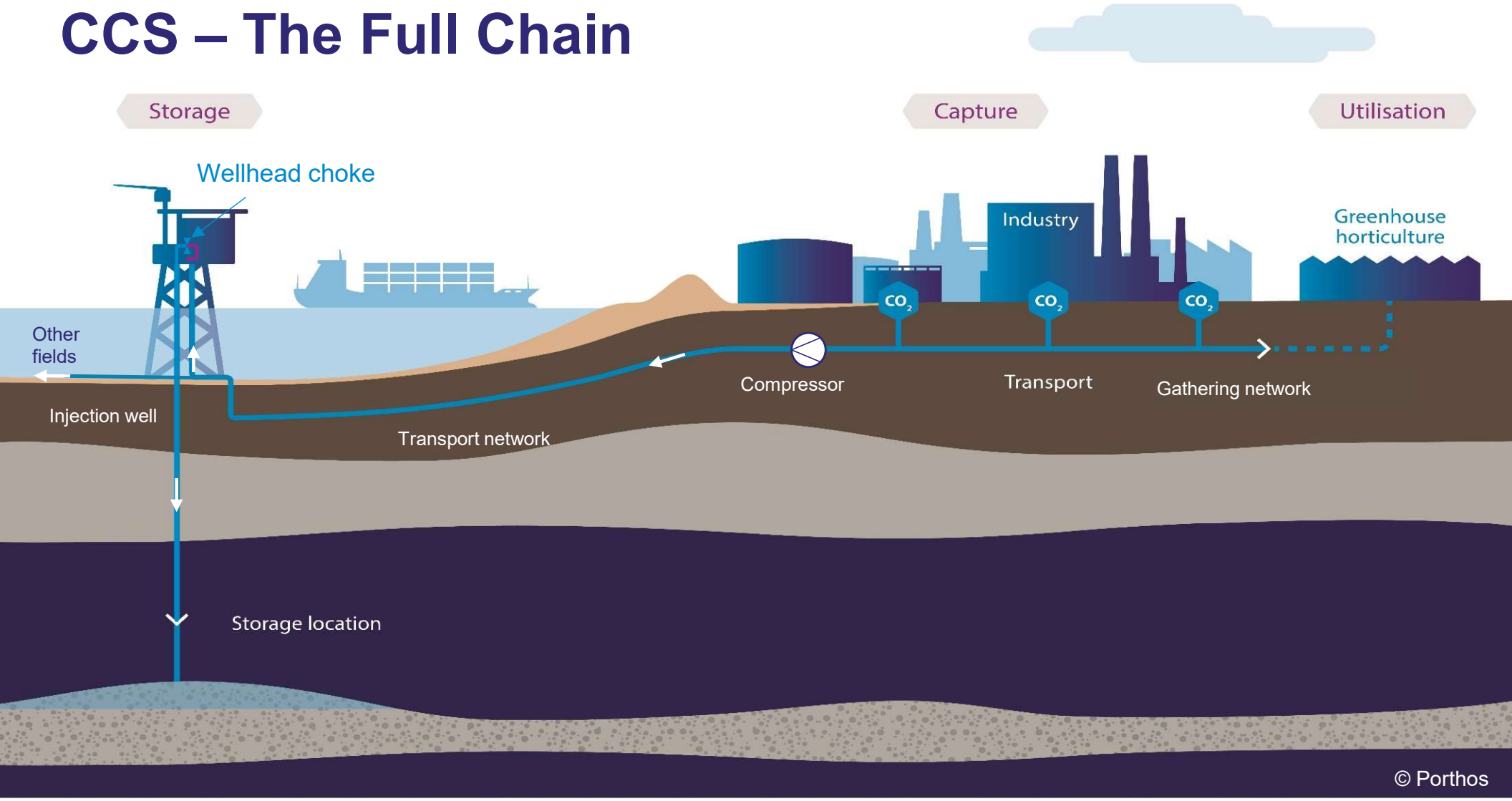
Scope

- Infrastructure for CO_2 transport and storage
  - 37 Mton, ~2.5 Mton per year for 15 years
  - Additional capacity in infrastructure for future development
- CO_2 capture by customers: Air Liquide, Air Products, ExxonMobil, Shell

Milestones

- Q4 2022: Storage permits became irrevocable
- 17 October 2023: final investment decision (FID)
- January 2024: start of construction
- 2026: ready for operations

CCS – The Full Chain



Positive ruling Council of State

November 2021:
Ngo MOB appeals against nature permits Porthos (nitrogen issue)

November 2022:
Construction exemption lapses in ruling Council of State

August 2023:
Council of State rules positively on ecological assessment Porthos

De Telegraaf
Raad van State geeft groen licht voor CO2-opslagproject Porthos

NOS
Raad van State keurt project voor opslag CO2 in Noordzee goed

REUTERS
Dutch court rules huge carbon capture project can go ahead

deVolkskrant
Raad van State: klimaatproject Porthos mag doorgaan

rtlnieuws
Omstreden CO2-opslagproject Porthos mag doorgaan

Pending the ruling…

Important conditions have been met

Contracts with customers

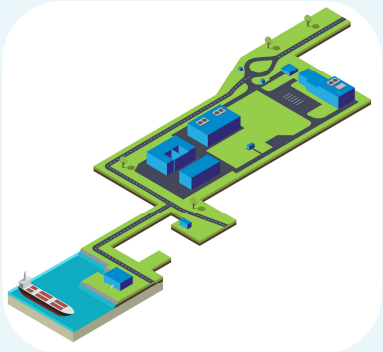
have been signed,

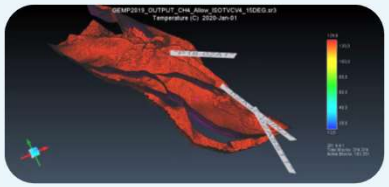
subsidies have been reserved

Air Liquide, Air Products, ExxonMobil, Shell

FEED engineering

has been completed





Irrevocable storage permits

received from Ministry

Successful decommissioning

of complex well

Pending the ruling…

Start Preparations for construction

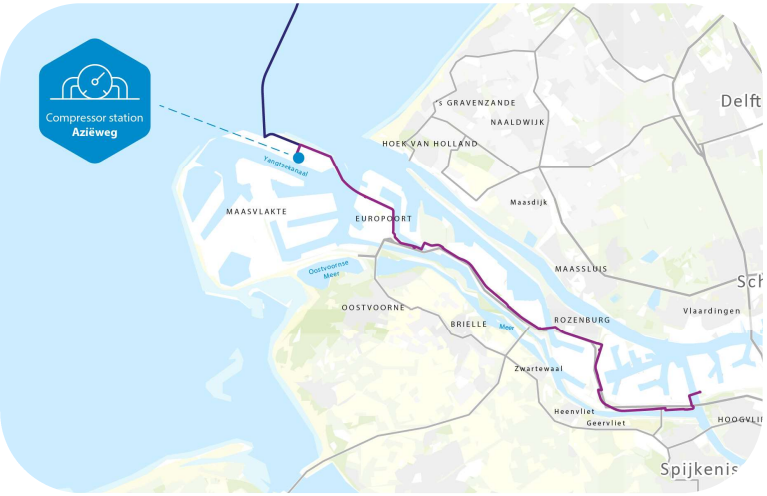
- Further delays were prevented thanks to government guarantee scheme
- Long lead items ordered
- Contractors and suppliers contracted

The first CCS project in the EU

- Porthos has started constructing the first large-scale CO_2 transport and storage infrastructure in the European Union
- CCS wil finally contribute to reducing CO_2 emissions
- All eyes on Porthos and a lot of interest in CCS
- Paving the way for other CCS projects, possible cooperation with Aramis

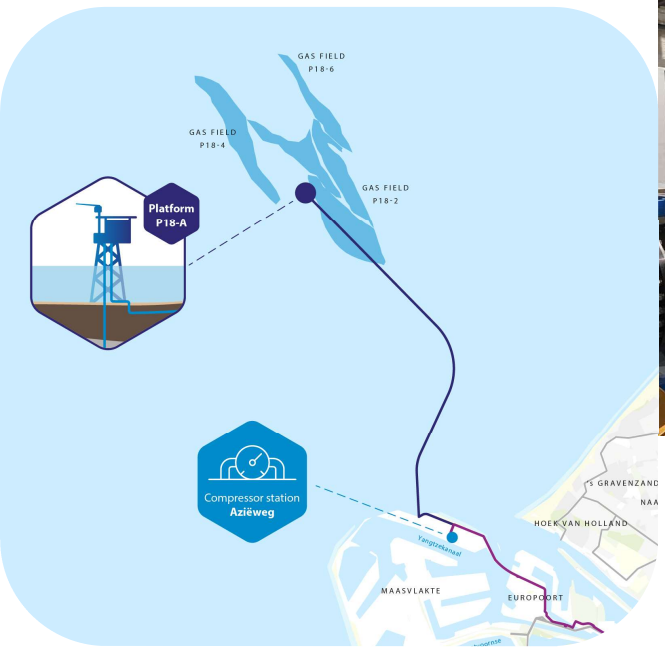
Transport: onshore pipeline

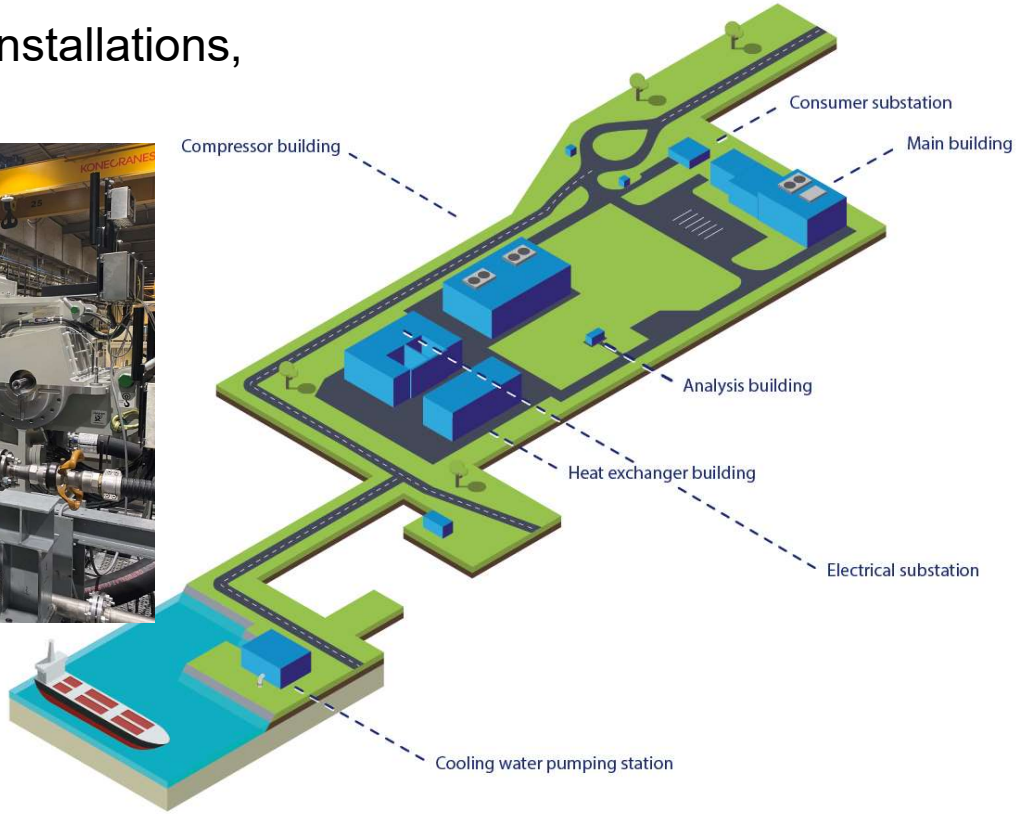
- In the Rotterdam port area
- In existing pipeline corridor
- Length: 30 km
- Diameter: 108 cm



Transport: compressor station

- Location: Maasvlakte, Rotterdam
- Plot: 2 hectare
- Facilities: compressors, electricity, cooling installations, measure and control systems





Transport: offshore pipeline

- From the compressor station to platform P18-A
- Length: 22 km
- Diameter: 40 cm

Storage

- From the platform to the P18 gas fields
- Re-use of existing platform and wells
- Natural closing through sealing layers

- 20 km offshore Rotterdam harbor
- Depth: between 3200 and 3500 mTVDss

- Storage Volume: 37.5 Mton
- Injection capacity: 2.5 MPTA

Challenges:
Unlocking the potential

Porthos forms the first of its kind

- Legislation (had to be developed)
- Technical feasibility (low pressure depleted gas fields)
- Partnerships (new partnerships)

→ ***First time right***

Porthos forms a steppingstone for CO_2 storage in the Netherlands

- Business development side by side with project development

→ ***Achieving operations as fast as possible, while keeping future options open***

Global market situation

- Competition for resources and pressure on business case

→ ***Smart solutions and partnerships***

Call for action:
CCS projects up and running

Compliance

Legislation new and CCS still developing

Conformance

Flow assurance challenges due to CO_2 behavior and field specifics

Creation

Porthos needs to be up and running to fully demonstrate potential

Thank you for your attention!

For more information, please visit:
www.porthosCO2.nl

The contents of this presentation are the sole responsibility of Porthos and do not necessarily reflect the opinion of the European Union.

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Porthos
CO_2 TRANSPORT & STORAGE