

Rotterdam CCUS project Porthos

STEMM-CCS & 4th Int'l Workshop on Offshore Geological CO₂ Storage

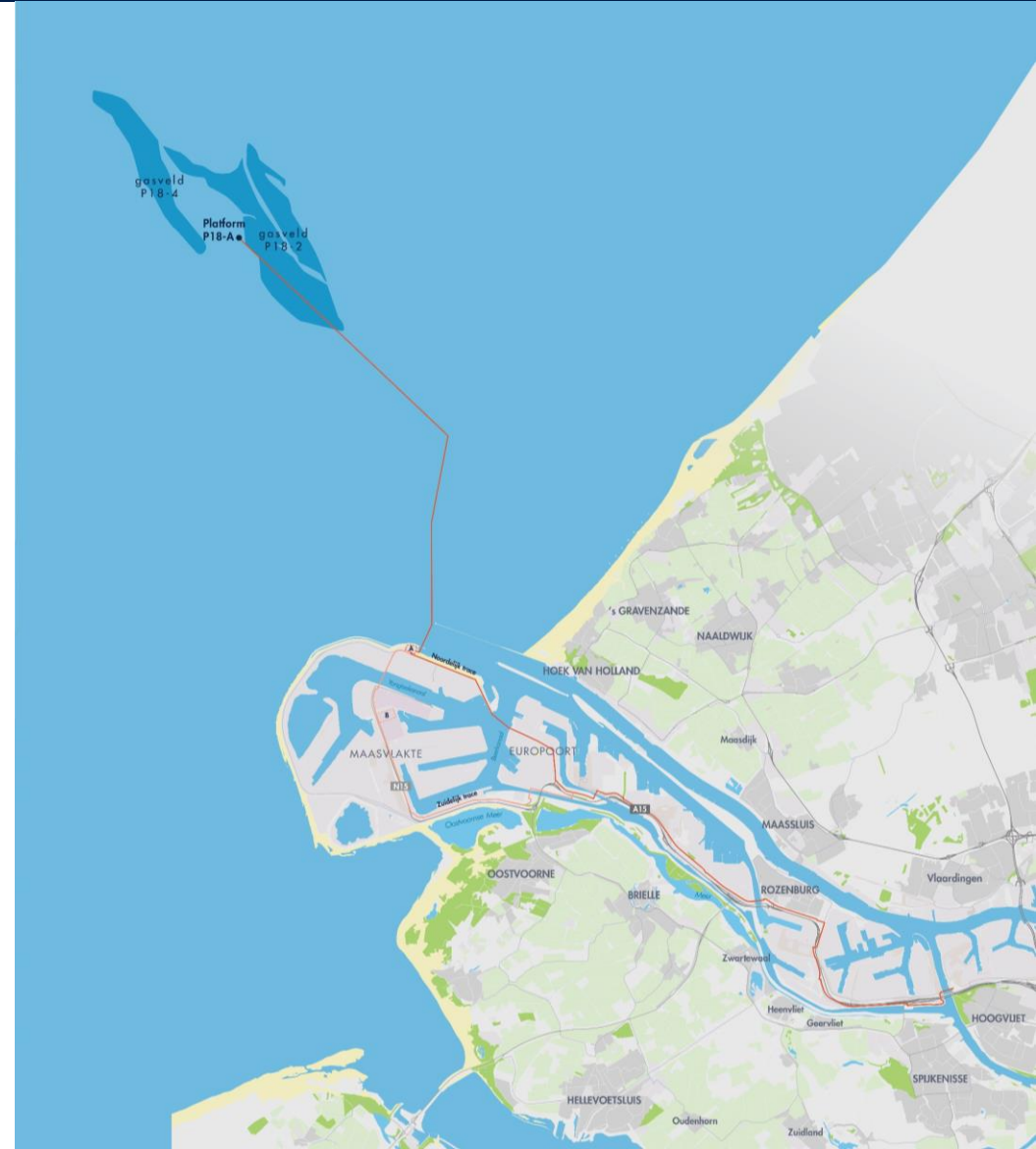
11-12 February, Bergen, Norway



Rotterdam **ccus**
project Porthos

Port of Rotterdam Transport Hub and Offshore Storage (Porthos)

- Cooperation Port of Rotterdam, EBN and Gasunie
- Open access CO₂ transport and storage infrastructure
- Capture by multiple companies: Shell, ExxonMobil, Air Liquide and Air Products first potential customers
- 54 km pipeline (33 km onshore, 21 km offshore)
- Compressorstation
- Storage capacity P-18 fields: +/- 37 Mton
- Initially 2 - 4 Mton per year, design capacity 10 Mton p/y
- CAPEX ~ € 450 mln
- Essential for development of (blue) hydrogen
- Potential solution for other NL regions, Belgium, Germany



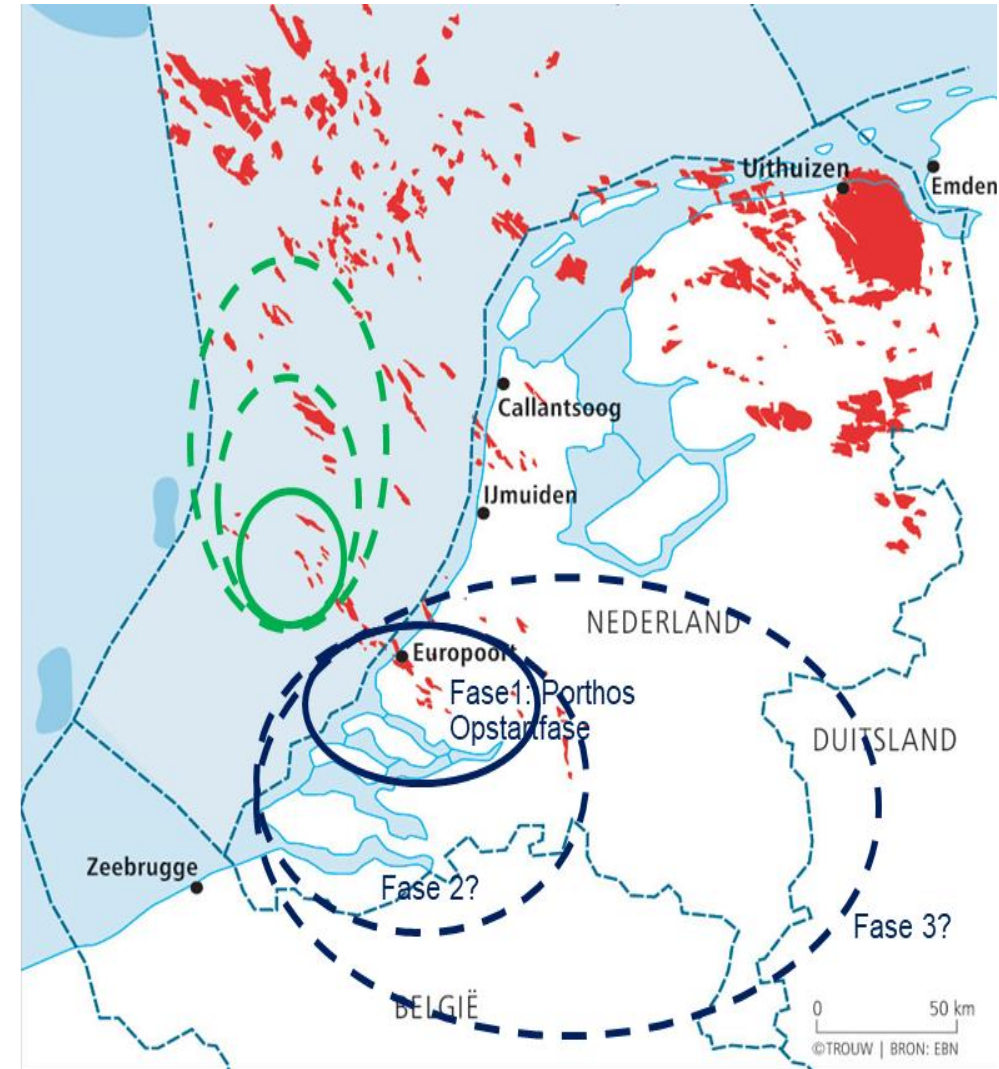
Important milestones

- 2020:
 - Technical development (FEED)
 - Environmental Impact Assessment and permits
 - Commitment from customers and government
- Mid 2020 commercial FID
- Mid 2021: FID
- End 2023: System in operation



Building a CCUS hub

- Porthos positioned as **hub**, in a next phase capacity for transport up to **10 Mton per year**
- More CCS potential anticipated in The Netherlands **beyond Port of Rotterdam**
- Longer term, possibly accommodating CO2 from **Germany, Belgium**
- Potential to further **reduce CCS unit costs** and obtain valuable expertise on CCS hub development



ATHOS

AMSTERDAM-IJMUIDEN CO₂ · TRANSPORT · HUB & OFFSHORE STORAGE

February 2020

ebn

gasunie
new energy



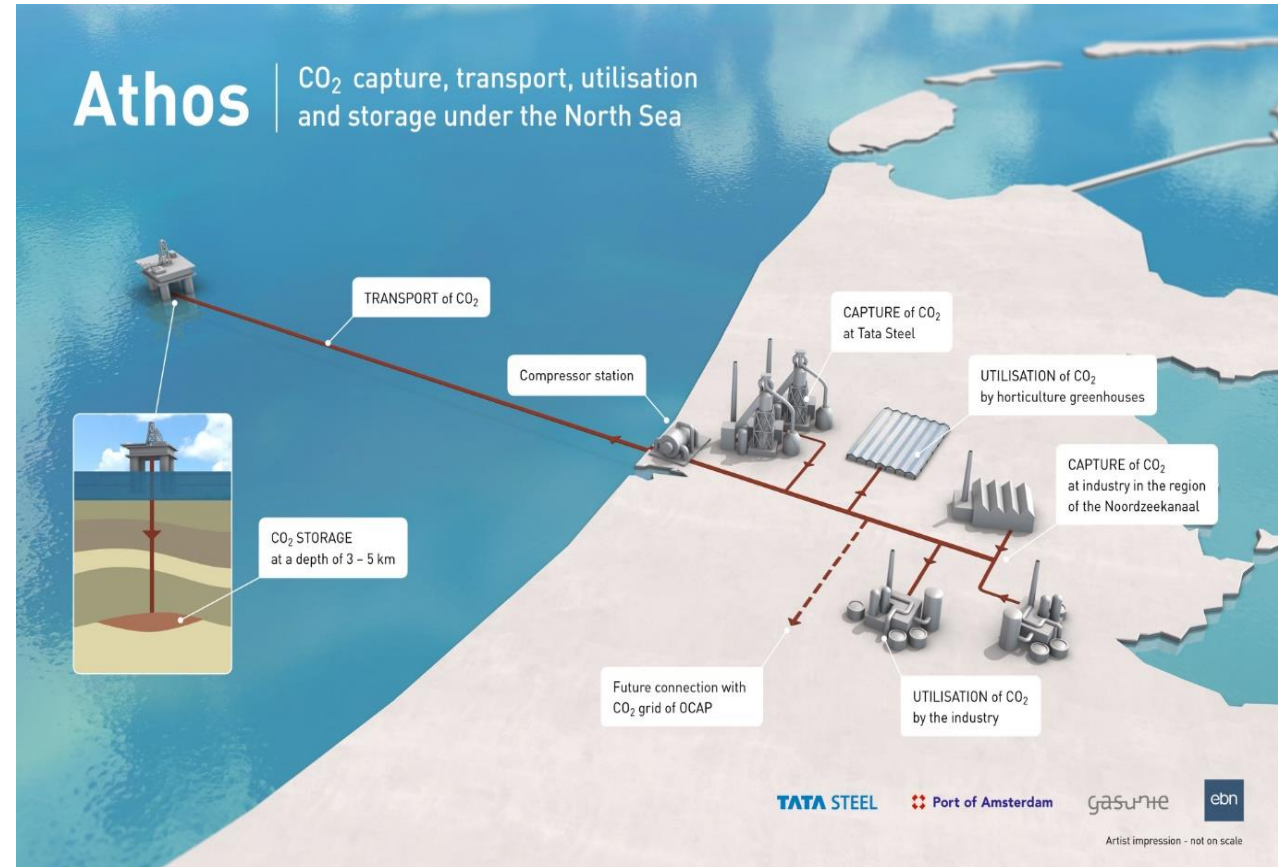
Port of
Amsterdam


TATA STEEL

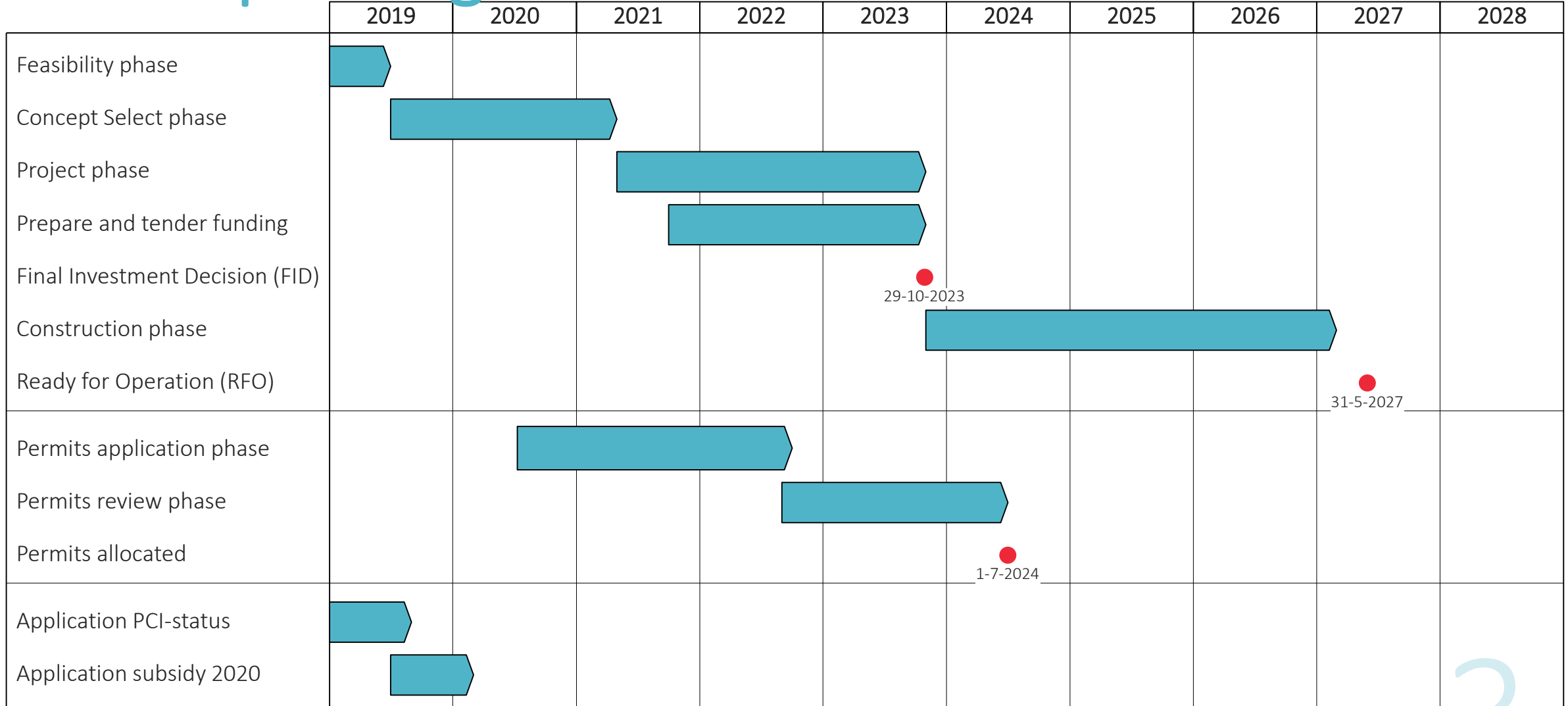
ATHOS

AMSTERDAM-IJMUIDEN CO₂ · TRANSPORT · HUB & OFFSHORE STORAGE

- Objective: realise a large scale CCUS network in the Amsterdam-IJmuiden area
- Open access & non discriminatory
- 1.5 – 7.5 Mton per annum
- RFO: 2027
- Partners: EBN, Gasunie, Havenbedrijf Amsterdam and Tata Steel

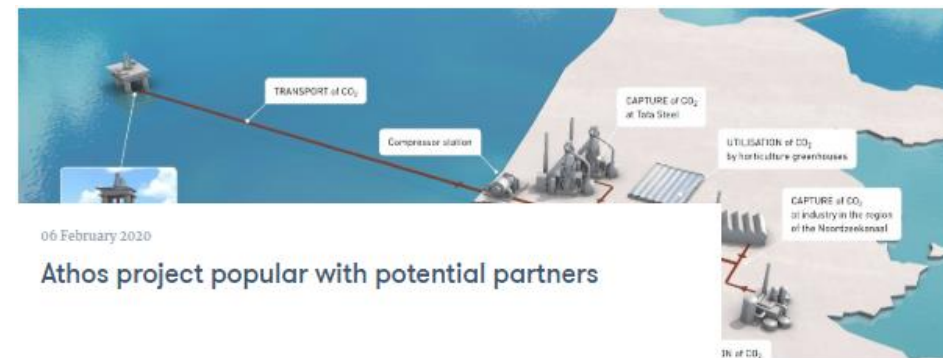
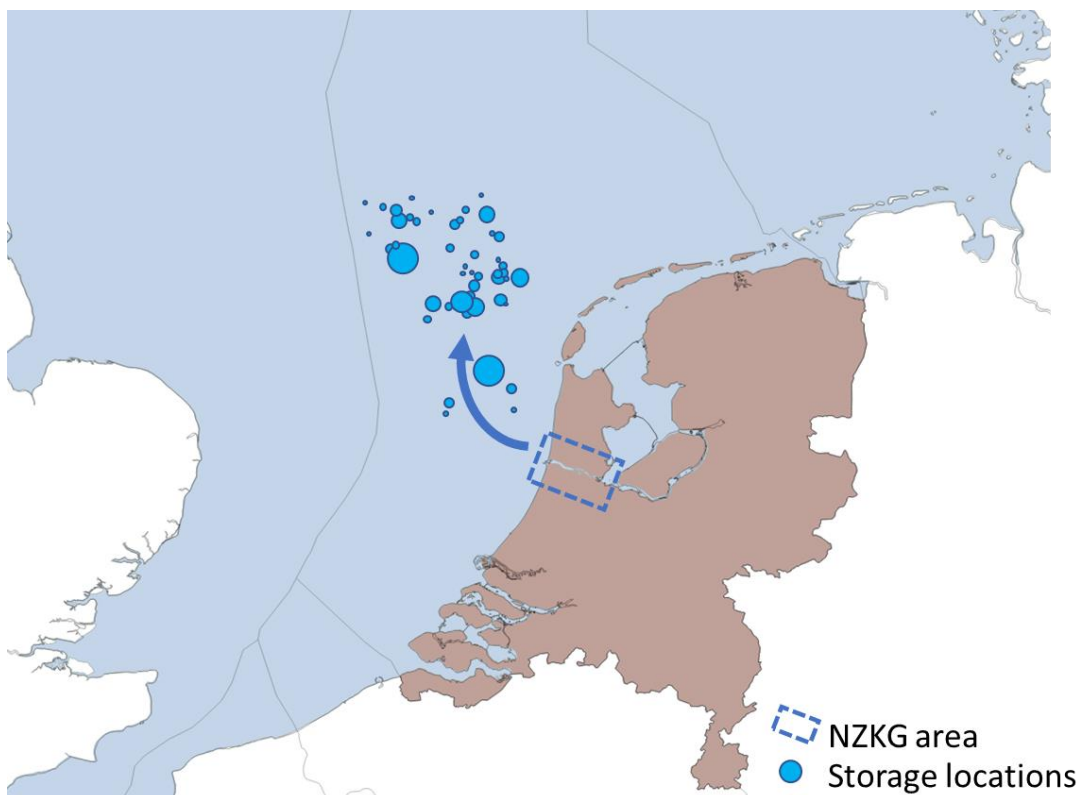


Overall planning Athos



Press release about Q4 2019 market surveys: Request for Information & Expression of Interest

<https://www.ebn.nl/en/athos-project-popular-with-potential-partners/>



06 February 2020

Athos project popular with potential partners

Athos, the joint project set up by Gasunie, EBN, Port of Amsterdam and Tata Steel for carbon capture, transport, utilisation and storage in the North Sea Canal region, put out a call for potential customers and carbon storage partners in November 2019 and received a very pleasing number of responses.

The Athos feasibility study showed that there are no technical obstacles standing in the way of carbon capture, utilisation and storage. Having ascertained this, the project organisers assessed the interest of various parties in taking part in the project using two different requests.

The Request for Information (RFI) was intended to collect information about suitable locations for carbon storage 3 to 5 km under the Dutch North Sea and about the provision of associated services. The various responses give Athos a positive basis for development of the CCUS project and follow-up studies on storage locations.

The Expression of Interest (EoI) asked which parties would like to use the planned carbon transport and storage network. Respondents included both parties who want to supply carbon for storage and parties wanting to purchase carbon for use.

Planning Athos Storage Select

