

**nea**

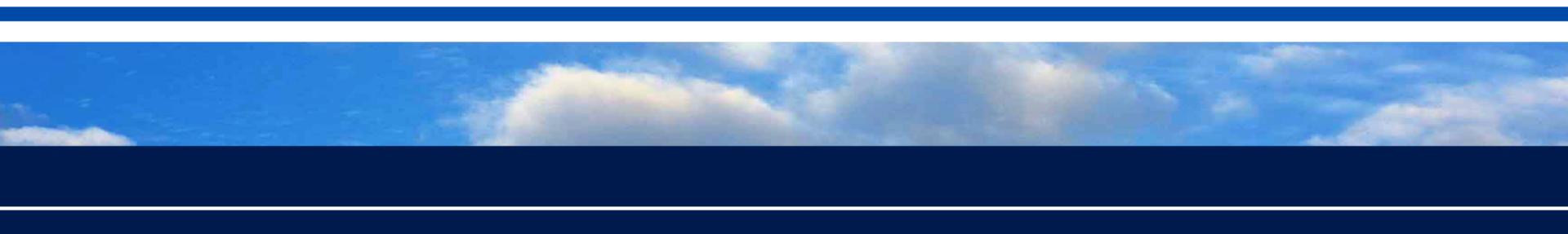
**Nederlandse Emissieautoriteit**

**Dutch Emissions Authority**



# CCS in the Netherlands

## Projects and implementation issues



## Porthos and Aramis

- Porthos:
  - work started in 2010 as the Road-project
  - start is scheduled for 2024/2025
  - designed for companies that are all located in the port of Rotterdam
  - CO2 transport by pipeline
- Aramis (under development):
  - open access
  - CO2 transport by ship
  - onshore CO2 collection hub

# Porthos and Aramis



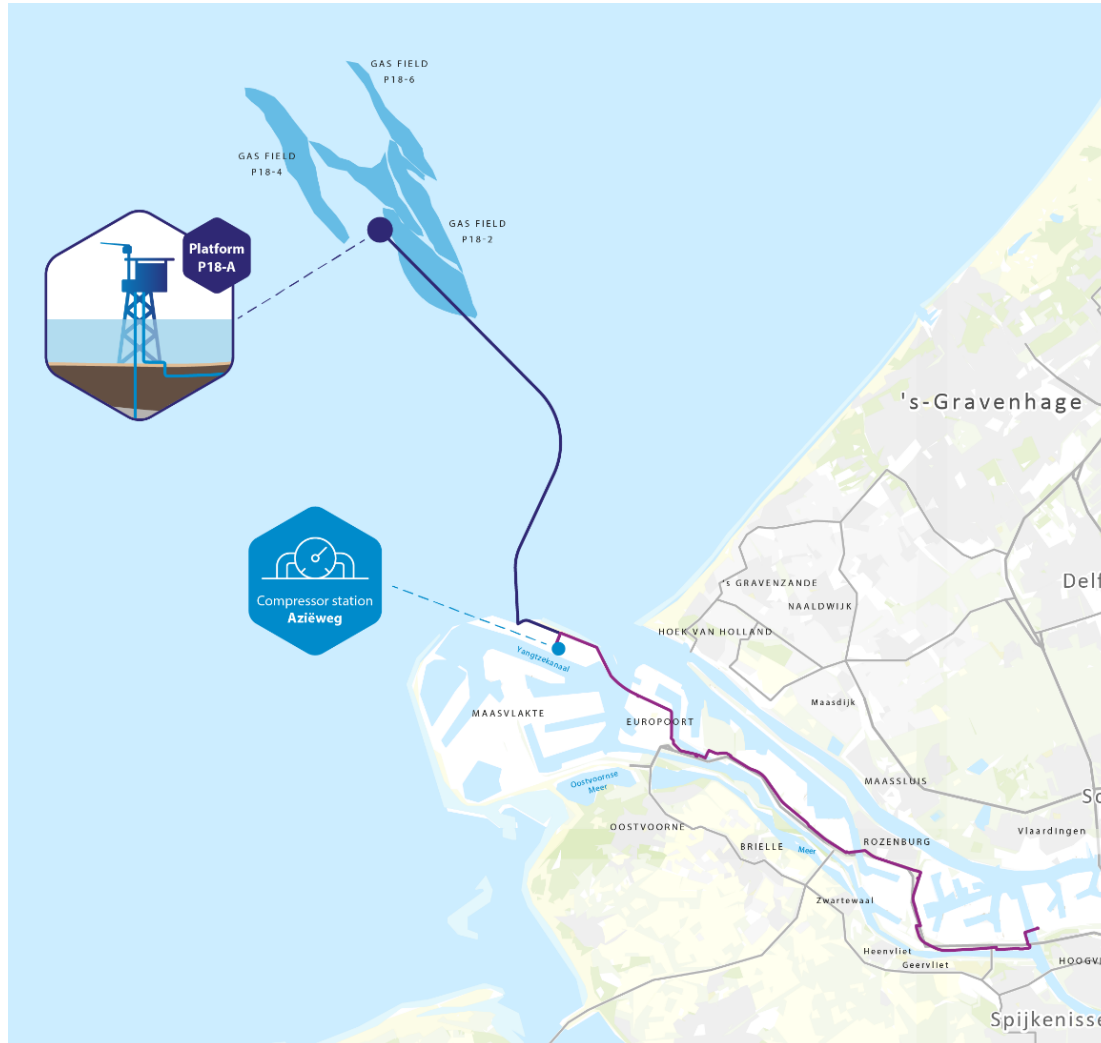
# Delta Corridor



## **Delta Corridor, Aramis and Northern Lights (Norway)**

- Delta Corridor (under development):
  - CO2 transport by pipeline
  - Chemelot, industrial complex in the Netherlands
  - companies in Germany
- Foreign companies can join CCS projects in the Netherlands
- Dutch companies can join foreign CCS projects; Yara Terneuzen plans to transfer CO2 by ship to Northern Lights project in Norway
- Evolving and subject to change

# Porthos first phase: CO2 storage in empty gas fields under the North Sea



## **Porthos first phase; entirely under the ETS directive**

- Participants have committed themselves in advance:
  - permit holder EBN/Gasunie; government organisations and wholly owned by the state
  - fossil CO<sub>2</sub> captured by ETS companies; Shell, ExxonMobil, Air Liquide and Air Products
- CO<sub>2</sub> transport by pipeline
- Entirely under the ETS directive
- Project is now on hold; awaiting decision on the nitrogen deposition permit



## **Porthos in the future: possible link with non ETS activities**

- Porthos could be expanded :
  - fossil and biogenic CO2 supply by waste incineration plants and other non ETS installations;
  - fossil and biogenic CO2 supply to greenhouses combined with CCS
- Connection to other CCS networks like Aramis
- Creates complex CO2 networks
- Not entirely covered by the ETS directive

## CCS implementation issues Netherlands

- Aramis, Northern Lights and Delta Corridor projects:
  - cross-border CO<sub>2</sub> transport
  - transport of captured CO<sub>2</sub> by ship (or truck)
  - onshore CO<sub>2</sub> collection hub
- Commission confirmed:
  - mobile transport of CO<sub>2</sub> does not prevent right to subtract CO<sub>2</sub> transferred to a pipeline or storage site
  - capture installation; account for CO<sub>2</sub> lost in transport
  - receiving installation; measure and provide (verified) evidence of the amount of CO<sub>2</sub> received

## CCS implementation issues Netherlands

- Complex CO2 networks:
  - supplying CO2 to purposes other than CCS
  - CO2 captured from non ETS installations
  - CO2 from fossil, biogenic sources and a mix of both
  - determine CO2 leakage, CO2 reduction (CO2 stored), resulting CO2 emissions
- Commission confirmed:
  - transport and geological storage of CO2 under ETS  
Annex I does not cover CO2 captured outside the ETS
- No explicit MRR monitoring rules for mixed CO2 streams

## Draft workplan Task Force CCS

No.	Activity and its purpose	Deliverable	Lead/ Support
2a	Split between fossil and biogenic CO <sub>2</sub>	Discussion FAQ	NO raised issue All to provide input
2b	How to treat CO <sub>2</sub> captured from biogenic sources	Discussion FAQ	NO and NL raised issue All to provide input
2c	How to determine emissions for complex networks	Discussion FAQ	NL raised issue All to provide input
2g	How to license hub function	Discussion FAQ	NL raised issue All to provide input

## CCS in the Netherlands

Thanks for the attention, do you have any questions?

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