

ACCELERATING THE TRANSITION TO CARBON NEUTRALITY THROUGH PIONEERING PROJECTS

Horisont Energi - Schlumberger Digital Forum 2022

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Horisont energi

About Horisont Energi

A Norwegian energy company that provides clean energy, carbon transport and storage.

Our mission

Accelerating the transition to carbon neutrality through pioneering projects

Horisont Energi has two main business areas

1

Clean ammonia

Projects: Barents Blue & Polaris, Green ammonia

Why?

- The world needs clean energy
- Increased pace needed to solve the global energy crisis



2

European CCS

Project: Errai

Why?

- Massive demand for 3rd party storage in Europe to strengthen the green shift



PROJECT Barents Blue

Europe's first world-scale clean ammonia facility

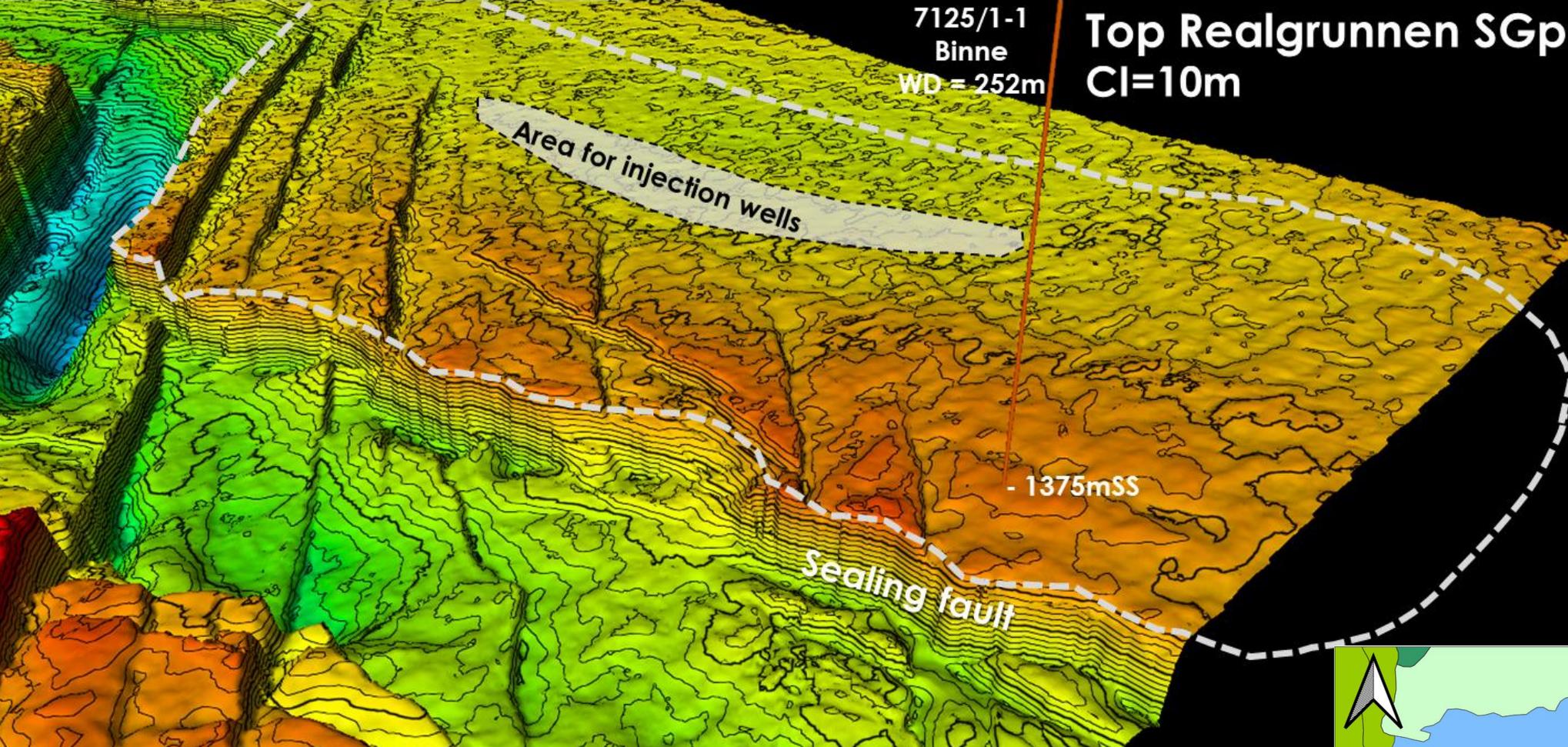
HAMMERFEST | EST. START 2026/27



Annual production by 2030:
1-3 million tonnes

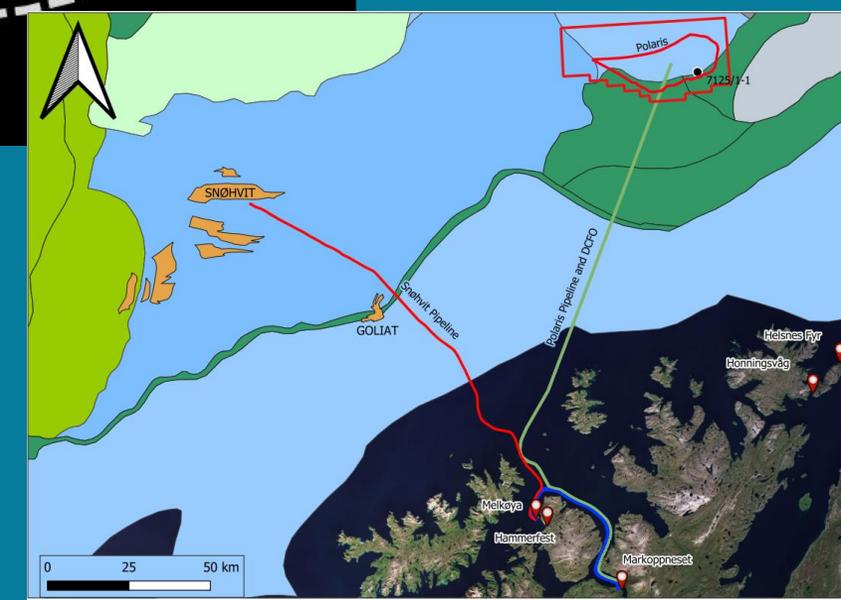


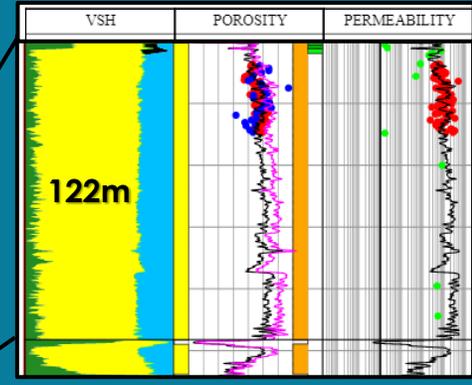
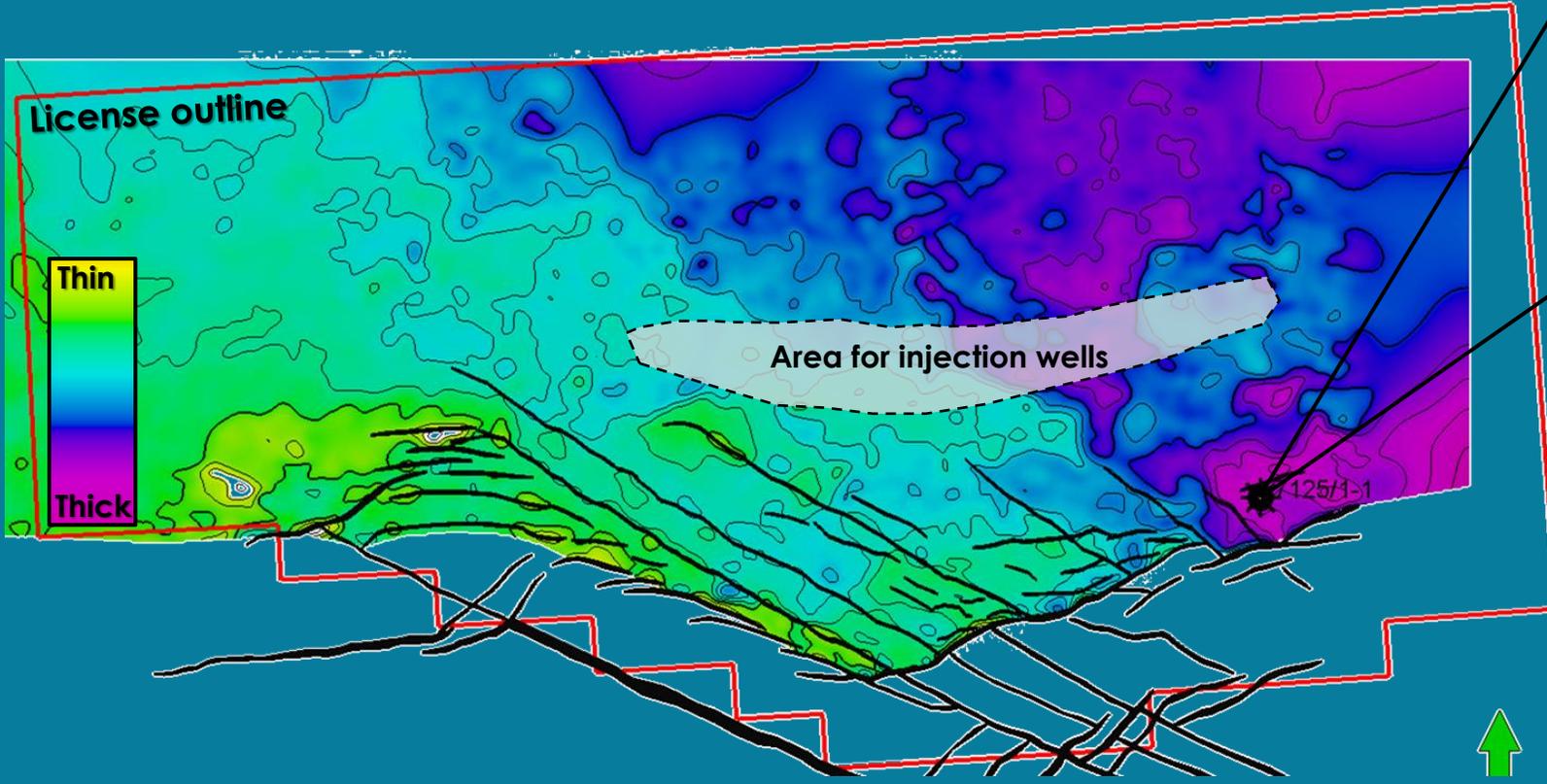
- **EU's first world-scale clean ammonia plant, has been awarded a NOK 482 million grant from Enova SF to participate in the Important Projects of Common European Interest (IPCEI) Hydrogen**
- Signed an extended concept study contract with Saipem who will cooperate with the technology licensor Topsoe completion planned around year end
- On-going impact assessment in cooperation with Multiconsult and other suppliers
- FEED studies being prepared for the next phase of the project



Polaris CCS License (EXL 003) awarded June 2022

- ▶ Owner share: Equinor 40% (operator), Horisont Energi 30%, Vår Energi 30%
- ▶ Injection capacity sufficient for Ammonia Plant CO₂ discharge and potentially 3rd party





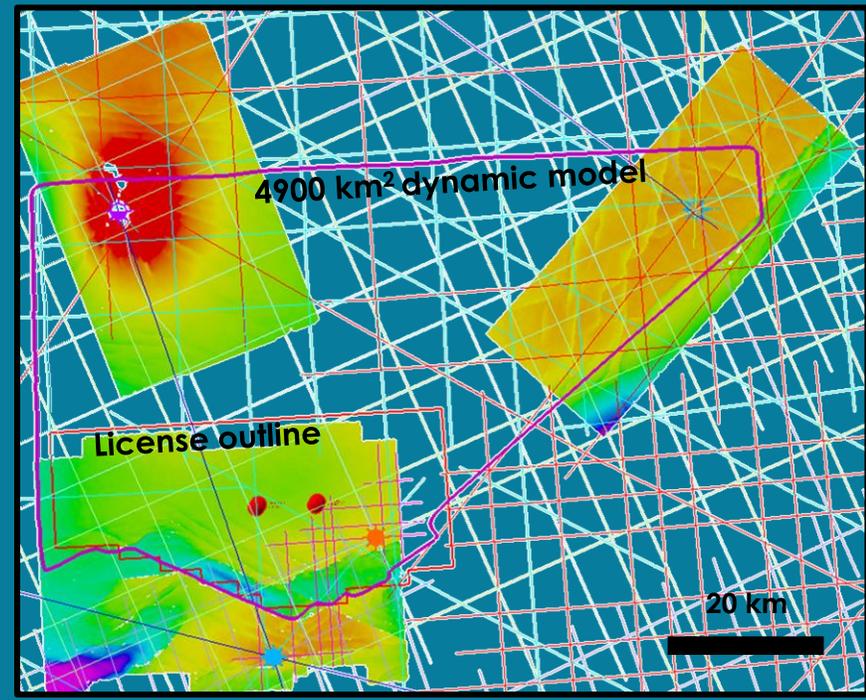
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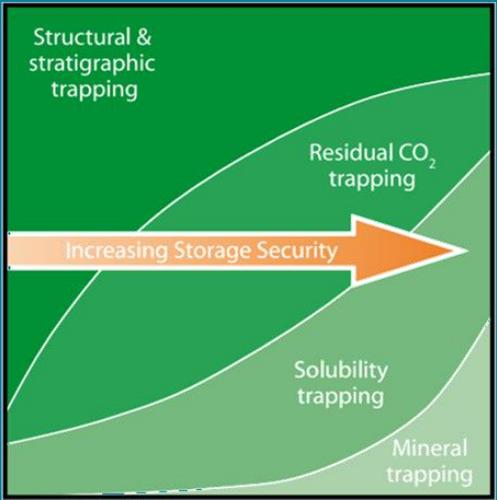
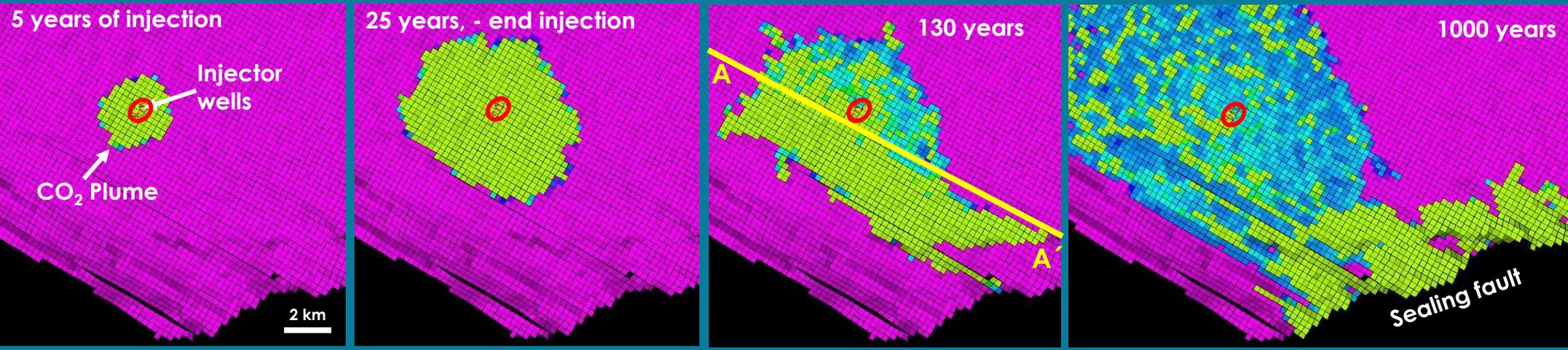


Polaris Storage Reservoir, De-Risking

Volume Capacity - Injectivity - Containment

- ▶ Lateral reservoir development / Geomorphology
- ▶ Total connected pore volume
- ▶ Fault leakage potential





IPCC, 2003

Polaris – Optimized usage of trapping mechanisms

Modified NPD CO₂ Atlas (phenomenologic) model, closed system

- ▶ 2MT CO₂ injected per year, in 25 years (total 50 MT)
- ▶ 130 years before CO₂ reaches the structural apex (low structural dip)
- ▶ Optimized well placement -> Majority of CO₂ trapped residually and dissolved in the formation-water (70-90%)

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Projects: Barents Blue & Polaris, St1

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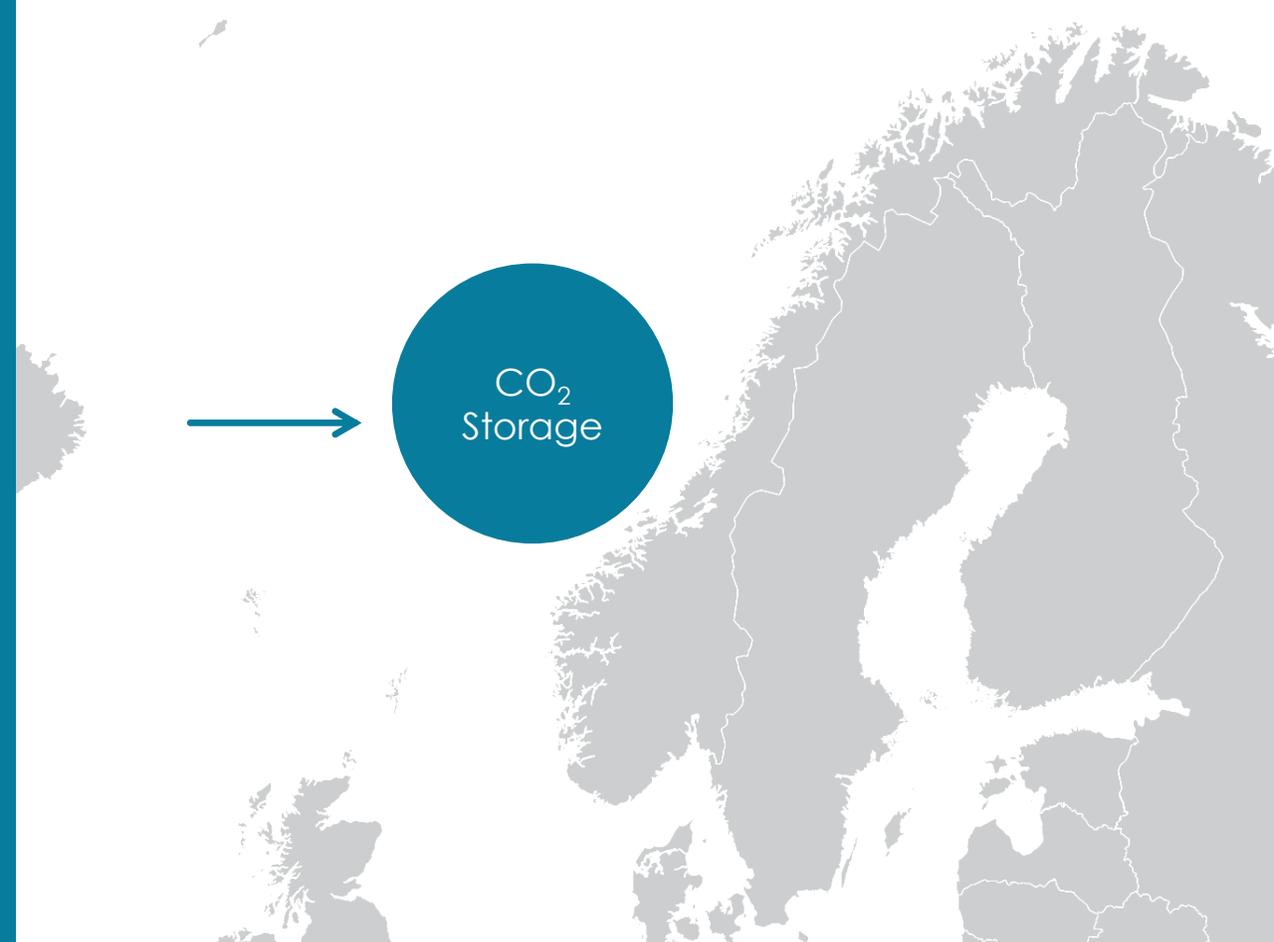
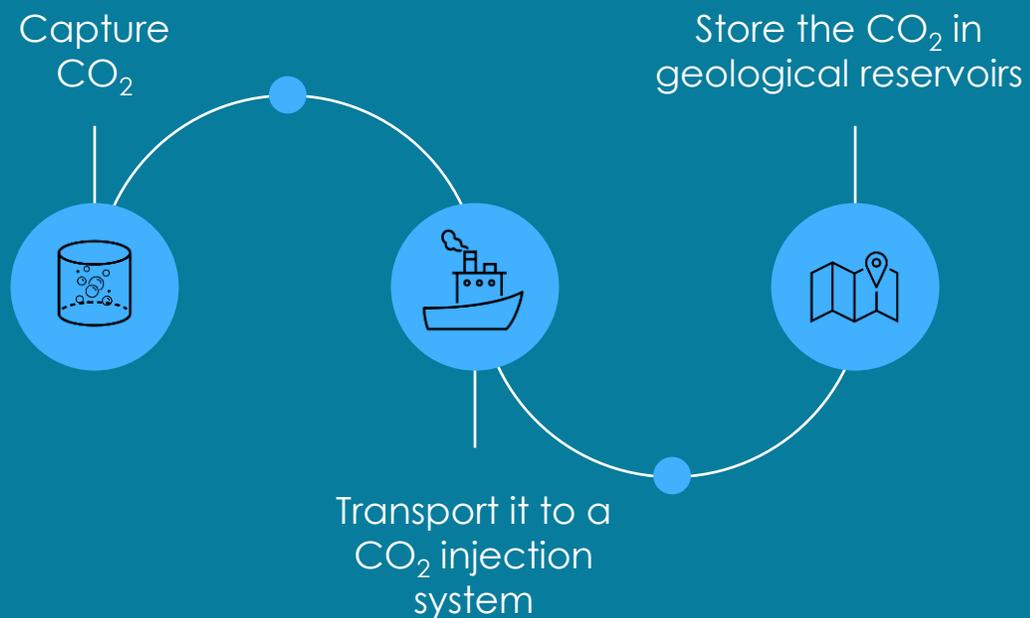
Projects: Errai & Polaris

Why?

- CCS will be an important business in order to reach net zero by 2050
- The demand for CO2 storage is high in the European market



This is how we address the European demand:



Horisont Energi and E.ON enter cooperation agreement with E.ON acquiring 25% stake in Horisont Energi



Horisont and E.ON want to play a decisive role in the decarbonization of key industrial sectors in Europe, whilst scaling up and commercializing CSS and clean ammonia

Value chain



CAPTURE



TRANSPORT



STORAGE

PROJECT Errai

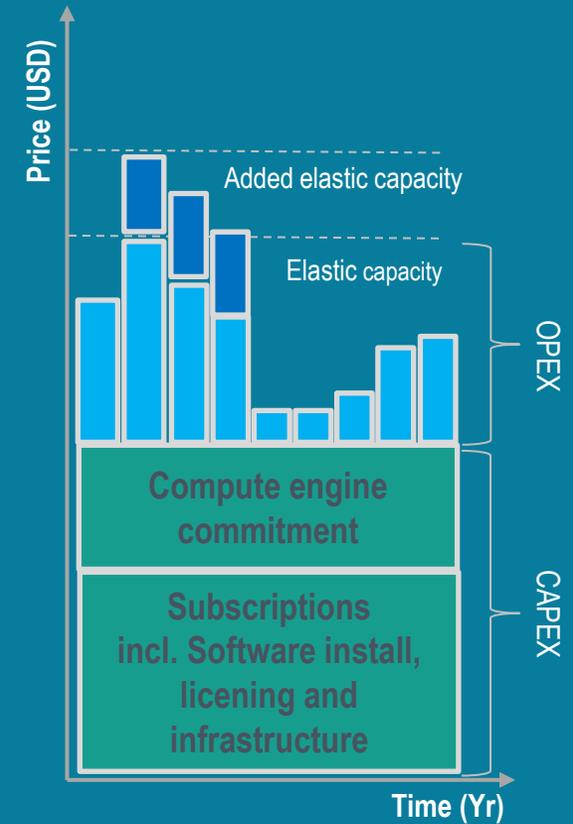
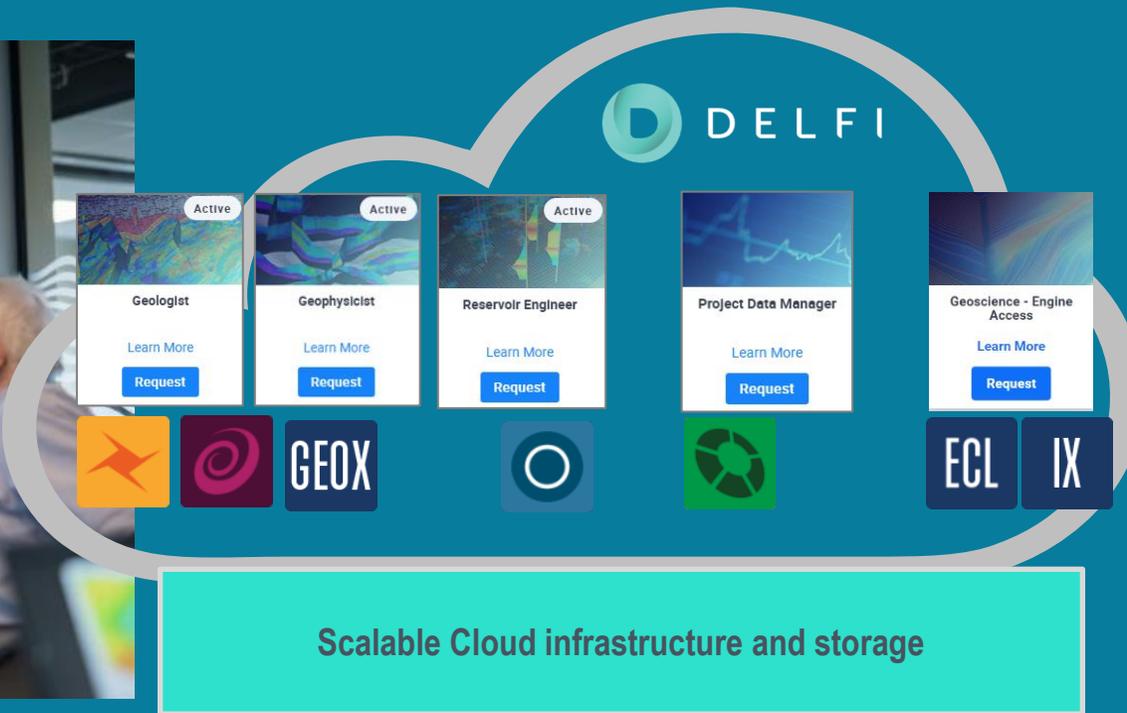
Horisont Energi and Neptune Energy plan to develop a carbon capture and storage (CCS) project for 3rd party customers in Europe



Project highlights

- The project includes an onshore terminal for intermediate CO2 storage, with the intention to permanently store the CO2 in an offshore reservoir
- Annual storage: 4-8 million tonnes in first phase
- Evaluating several onshore locations in the South of Norway
- The plan is to store CO2 for European customers, including from the planned CO2 terminal at the Port of Rotterdam

Subsurface Team Success Criteria



IT infrastructure ?

of users ?

We strive for keeping
our lean technical
team flexible, highly
skilled and armed
with the best tools!



Start-up / Scale-up

No/small IT-department



Wide sub-surface scope

External experts required



Partner Contributions

Joint team



Work-place flexibility

Geographical spread



Time variant tool kit needs

Cost awareness

Thank you!

