

Carbon transport and storage in Norway: Complementing the value chain

Conner Love

Maritime Manager, Northern Lights





Capt. Conner Love **Maritime Manager at Northern Lights**

Since 2022, he has been responsible for Marine and Terminal operations including CO₂ shipping (Technical) at Northern Lights. Prior, he was Operations Superintendent at Shell.

In his role, he oversaw Shell's LNG & Oil/chemicals fleet and managed the delivery and commissioning of the world's first liquid hydrogen vessel.





Northern Lights

CO₂ transport and storage as a service

Capt. Conner Love, Maritime Manager, Northern Lights

10th of July 2024

Our mission:

Enabling reduction and removal of European industrial emissions



Northern Lights in numbers



Year 2024

Ready to receive CO₂ from industrial emitters



110 km

Pipeline to offshore storage site in the Aurora license



37.5 million tonnes

Injection capacity over 25 years for first phase development



4 ships

Four purpose-built CO₂ transport ships ordered and under construction



97.4%

Net abatement of CO₂ through the Northern Lights value chain



4 customers

Two as part of the state-supported Longship project and two commercial



2 600 meters

Secure geological storage site under the seabed

Northern Lights value chain



LONGSHIP

NORTHERN LIGHTS SCOPE

CO₂ capture

Capture from industrial plants.
Liquefaction and temporary storage.



Transport

Liquid CO₂
transported by ship.



Receiving terminal

Intermediate onshore storage.
Pipeline transport to offshore
storage location.

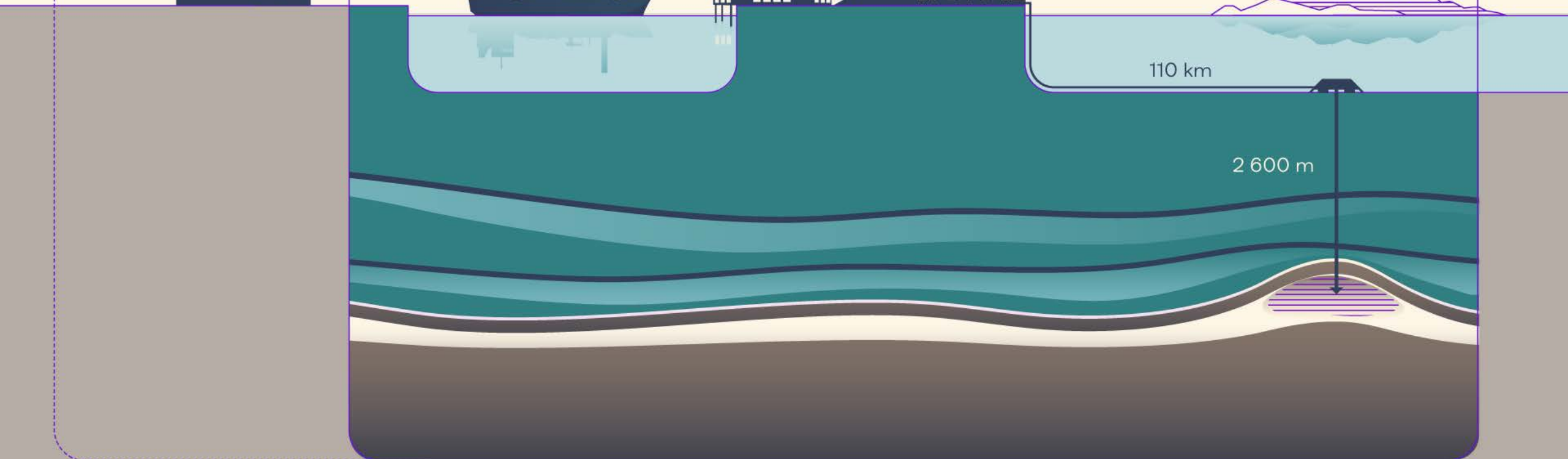


Permanent storage

CO₂ is injected into a saline aquifer.

110 km

2 600 m



Ship transport



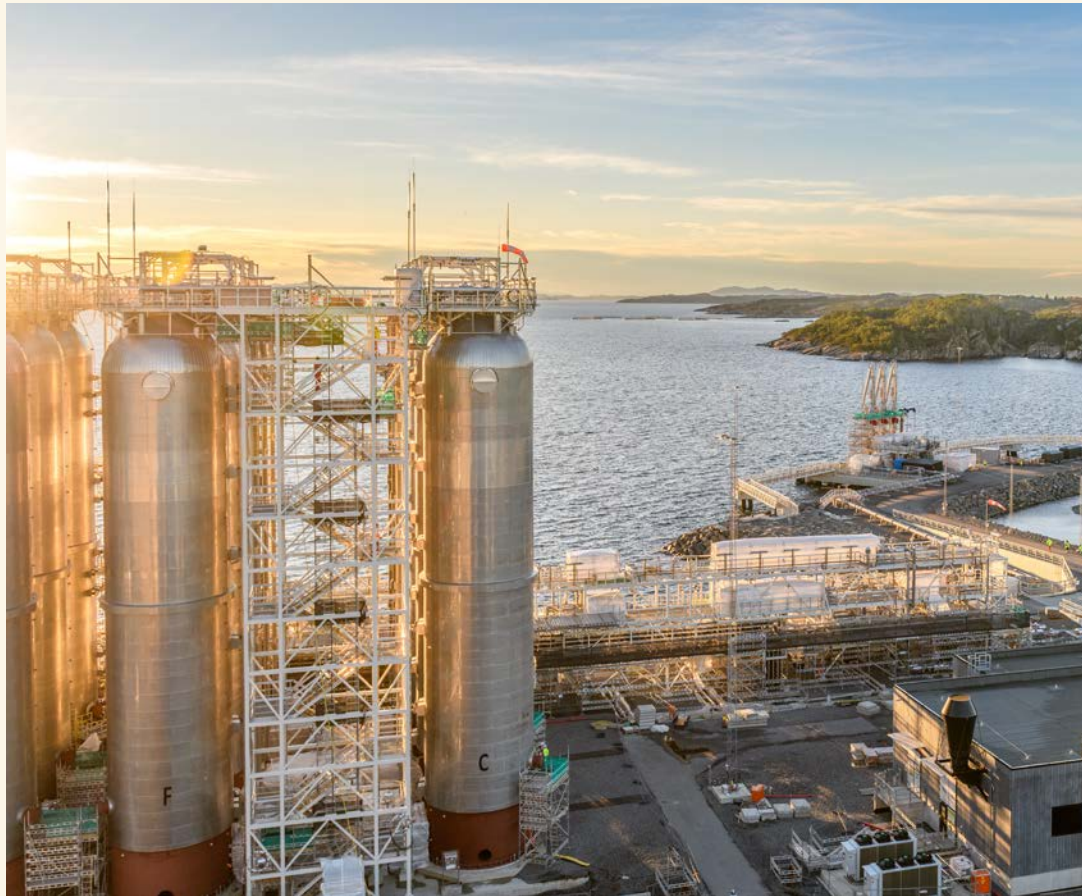
The construction of the first two ships is more than 85% completed. The ships will be delivered in 2024. Construction of a third and fourth ship has started.





Receiving terminal

The terminal in Øygarden is 98% completed and will receive shiploads of liquefied CO₂ for intermediate onshore storage before transporting it by pipeline for permanent offshore storage





Storage tanks

Future expansion

Workshop

Injection pumps

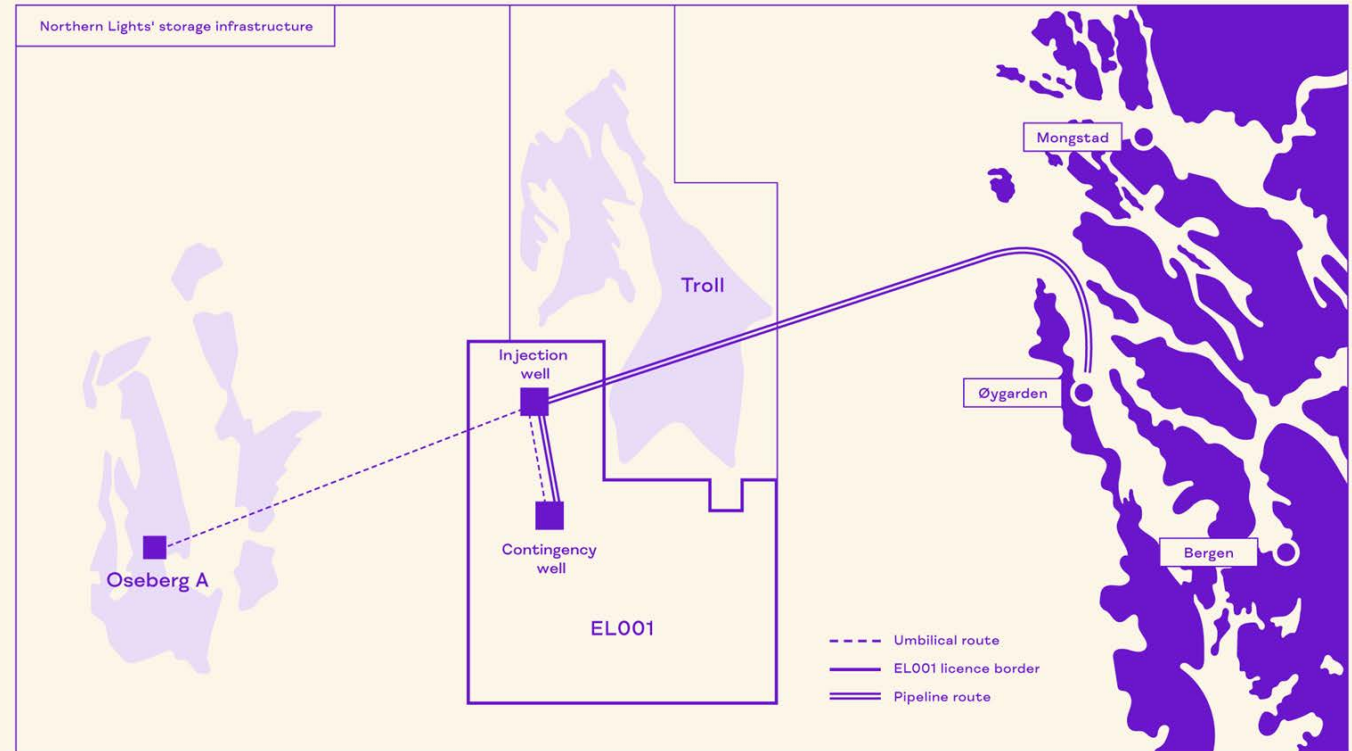
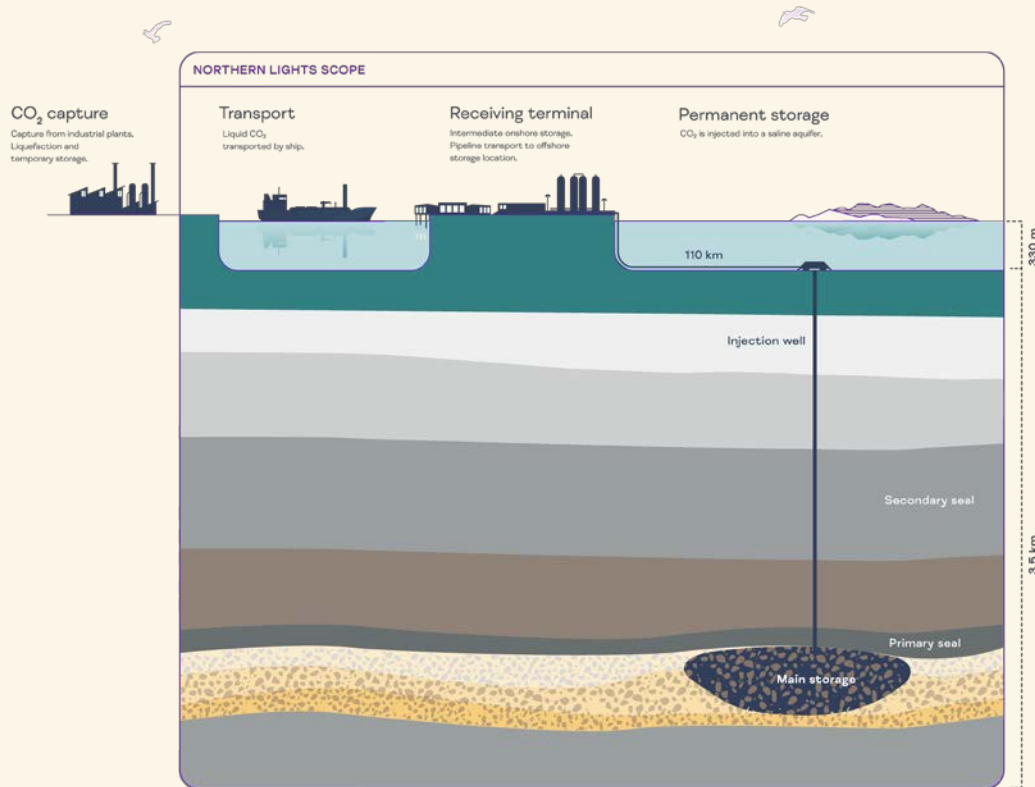
Pipeline tunnel

Admin/visitor centre

Jetty

Permanent storage

Drawing on experience from nearly 30 years of CO₂ storage on the Norwegian Continental Shelf, Northern Lights delivers safe and permanent CO₂ storage as a service – 110km offshore and 2.6km under the seabed



Significant storage potential

- Norway has the highest potential CO₂ storage capacity in Europe
- 80 billion tonnes CO₂ theoretical storage capacity on the Norwegian Continental Shelf
Norwegian Offshore Directorate
- The equivalent to 1,000 years of Norwegian CO₂ emissions

80

billion tonnes
theoretical storage
potential on NCS

49

million tonnes
CO₂ emissions
in Norway
2022

Demonstrated climate effect

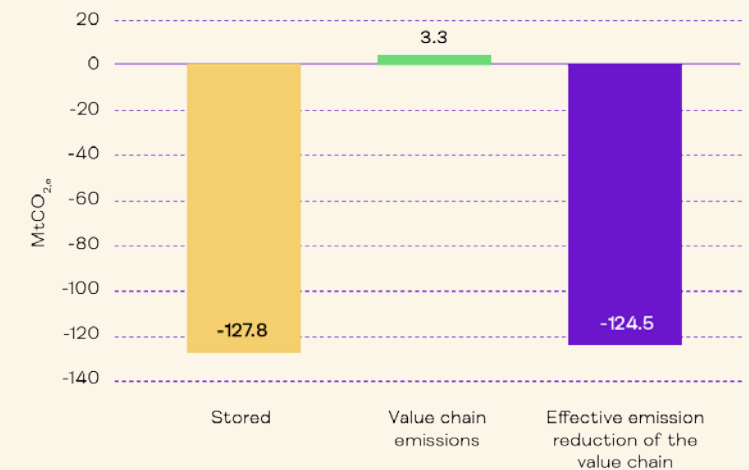


Background

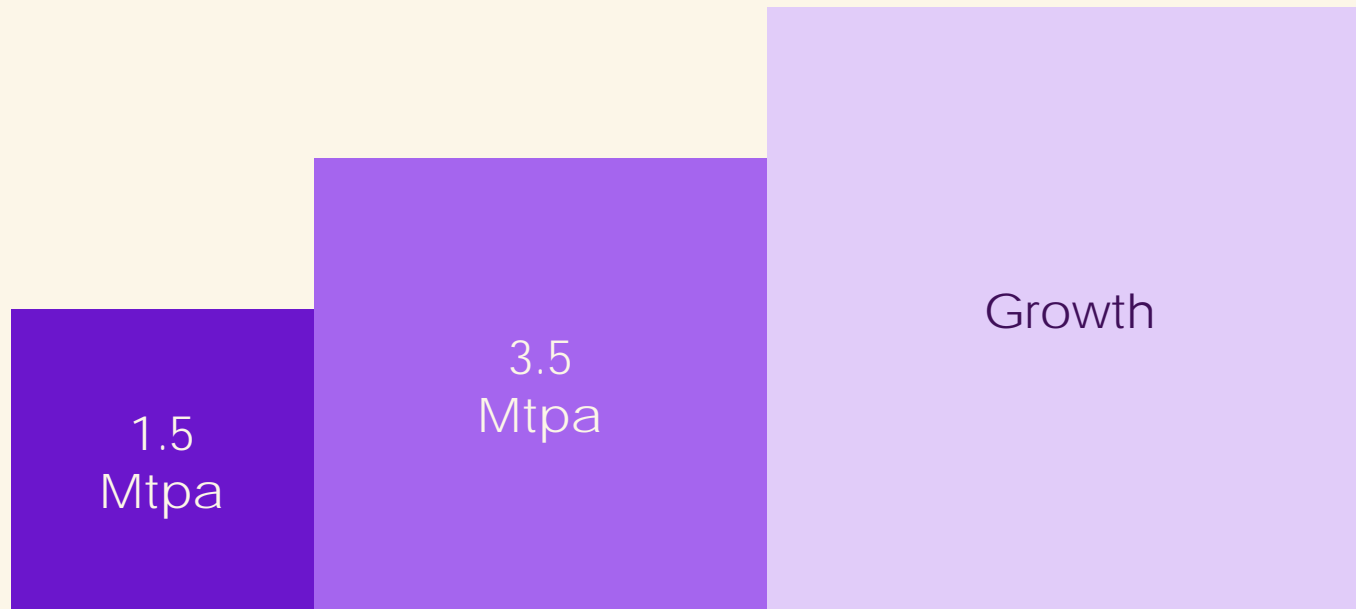
- Carbon footprint study (2023) of the Northern Lights CO₂ transport and storage value chain.
- Considers all phases of value chain lifecycle from construction to decommissioning.
- Based on first development phases with minimum injection of 5 million tonnes CO₂ through 25 years.

97.4%
CO₂ net abatement
potential through
value chain

GHG emissions from implementation and operation of the Northern Lights value chain vs the amount of CO₂ stored



Northern Lights storage development



A vision turning into reality – ready to receive CO₂ from Europe in 2024



Northern Lights CO₂ receiving terminal in Øygarden, Norway



Thank you

Visit norlights.com for more information

Questions can be sent to media@norlights.com

Resources:

Northern Lights photo archive: [LINK](#)

Carbon footprint report: [LINK](#)