**Northern Lights Project Information**

**Project Developer Website**

Northern Lights

A collaboration agreement between Equinor, Shell and Total governs the study and execution preparation work and the preparations for establishing a Joint Venture Agreement.

<https://northernlightsccs.eu/>

**Project Location**

Naturgassparken, Norway

**Project Type**

Transport and Storage

**Project Description**

The Northern Lights project comprises the transport and storage part of the Norwegian full-scale Carbon Capture and Storage (CCS) project. The full-scale project is planned to demonstrate a full CCS value chain with carbon capture at one or two Norwegian industrial facilities, transport of CO2 by ship and offshore pipeline, and permanent CO2 storage in a North Sea saline aquifer. Once the CO2 has been collected by the Northern Lights partnership, it will be transported by ship to a dedicated onshore facility prior to being injected and safely stored in a North Sea reservoir. Geological surveys and drilling operations have confirmed the presence of a suitable storage reservoir 110 kilometres off the Norwegian coast and over 3,000 metres beneath the surface. The initial storage capacity will be 1.5 million metric tons of CO2 per year, but plans exist to increase the capacity to 5 million tons per annum with additional phases of development, and an increasing customer base.

The concept provides industrial emitters from across Europe an opportunity to permanently store their CO2 safely underground. The project has been awarded status as a European Project of Common Interest (PCI).

**Operational Status**

Design & Engineering Phase

Storage permit secured and FEED studies completed.

Drilling of a confirmation well was completed March 5th 2020, with [promising results](https://www.regjeringen.no/en/aktuelt/ett-skritt-narmere-et-co2-lager-i-nordsjoen/id2692396/).

Conditional investment decision [taken by Northern Lights partners Equinor, Shell and Total on May 15th 2020](https://www.equinor.com/en/news/2020-05-northern-lights.html). Final investment decision expected by the Norwegian Government by December 2020.

Planned start-up early 2024.

**Technology Description**

Transport: one ship per capture site with a capacity of 7500m3 liquid CO2 per ship at 13-18 barg pressure. CO2 to be offloaded at onshore storage tank facility ready for pipeline transport to offshore storage site.

Pipeline: 110km un-insulated carbon steel pipeline for transport of single-phase liquid CO2.

Storage: Aurora field (Lower Jurassic Johansen Formation) at approximately 3000m depth. Reservoir pressure is hydrostatic at approximately 250-300 bar and 100 °C.

**TRL Progression**

Starting: TRL 7

Target: TRL 9

**CO2 Reduction Potential**

Storage reservoir capacity: The design assumption is that each well will have a capacity of around 1.5 million tons per annum (Mtpa) of CO2. Phase 1 will be designed for a capacity of 1.5 Mtpa, with an additional 3.5 million tons of annual capacity to be added in Phase 2. The Phase 1 pipeline is designed for 5 Mtpa. Upscaling to Phase 2 is planned to be modular.

**Project Financing**

Phase 1 of Northern Lights is planned to be financed with support from industry partners (Shell, Equinor and Total) and the Norwegian Government. The Northern Lights partners Equinor, Shell and Total have taken conditional investment decision. Final investment decision expected by the Norwegian Government by December 2020.

[The initial investments will total almost NOK 6.9 billion.](https://www.equinor.com/en/news/2020-05-northern-lights.html)

On July 17th, the EFTA Surveillance Authority approved the state aid scheme for the Norwegian Full-Scale CCS project. The approval covers two capture projects, transport and storage with a budget of up to EUR 2.57 billion (NOK 27.6 billion) for construction and 10 years of operation. The Norwegian government would cover around 80% of the project’s estimated budget. The Norwegian government is now preparing the basis for a final investment decision by the Norwegian Parliament, expected in the 2021 state budget which is to be presented in October and approved by the Norwegian Parliament by December 2020.