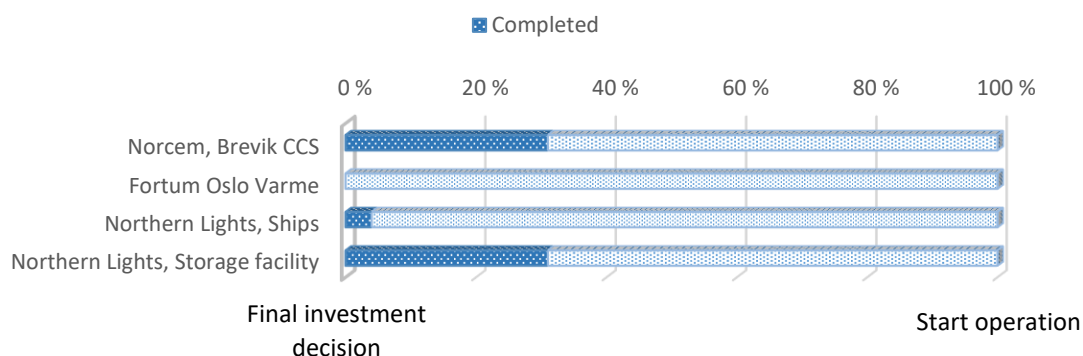


## Status, Longship 13.05.2022

### Highlights

- Construction of the Northern Lights CO<sub>2</sub> transport and storage infrastructure and the Norcem plant is on schedule to start operation in 2024 as planned.
- Brevik CCS is 31% completed, Northern Lights storage facility is 31% completed.
- In the revised national budget, the government proposes a financing solution that facilitates the construction of the CO<sub>2</sub> capture project at the waste incineration plant at Klemetsrud. According to plan the capture plant will be operational from 2026. Final decision is expected to be taken in June by the Parliament.
- Overall progress of Longship's construction phase:



### Background – about Longship

- The CCS project Longship, partly funded by the Norwegian government, includes the capture, transport and storage of CO<sub>2</sub>.
- A carbon capture facility is currently being built at the Norcem's cement plant in Brevik, Norway, by Heidelberg Cement. According to plan, the facility will capture approximately 400,000 tonnes of CO<sub>2</sub> from 2024.
- Fortum Oslo Varme will, according to plan, capture approximately 400,000 tonnes of CO<sub>2</sub> annually from its waste-to-energy plant in Oslo from 2026.
- Northern Lights is currently developing a solution for the transport and storage of CO<sub>2</sub>. The CO<sub>2</sub> will be transported by ship from the various emission sources to a receiving facility near

Bergen, before being transported by pipeline for permanent storage in a reservoir located 2600 metres below the seabed.

- Several measures are needed to enable European countries to achieve carbon neutrality. Longship will help the hard-to-abate industries reduce their CO<sub>2</sub> emissions and make carbon negative emissions possible.

### Roles in Longship

- **Ministry of Petroleum and Energy** – Responsible for Norway’s CCS policy and Longship on behalf of the Norwegian government
- **Ministry of Foreign Affairs** – Coordinates Norway’s foreign service and embassies
- **Gassnova** – State owned company following up Longship on behalf of the Ministry of Petroleum and Energy
- **Northern Lights** – Transport and storage company receiving carbon from Norcem and potentially Fortum Oslo Varme, and aiming to receive carbon from multiple sources
- **Brevik CCS – Norcem, HeidelbergCement** – Capture site under construction at the cement plant in Brevik
- **Fortum Oslo Varme** – Capture project working to secure additional funding for a capture site at the waste-to-energy plant in Oslo

## Status Northern Lights

- Construction of the Northern Lights CO<sub>2</sub> transport and storage infrastructure is **on schedule** to start operations in 2024 as planned.
- At the receiving terminal construction of the project office and visitor centre will be completed Q3 2022. Fabrication and installation of the onshore plant has started in Q1 2022. The civil works of the jetty is finished.
- The first offshore CO<sub>2</sub> injection well was drilled already in 2020 and a second well is planned drilled in 2022. Fabrication of CO<sub>2</sub> pipeline is ongoing. The umbilical production is completed and will be installed in Q3 2022.
- In October 2021, Northern Lights awarded contracts for building of two ships dedicated for CO<sub>2</sub> transport. The ships are now 4% completed and will be delivered in the first half of 2024.
- Northern Lights is, together with partners in several European countries, recognized as Project of Common Interest (PCI) by the European Commission and has received CEF funding for a phase 2 study. The dialogue with EU(CINEA) has started.
- Four potential customers to Northern Lights have passed selection for Innovation Fund support and funds are allocated. Those customers that have not, remain eager to continue commercial negotiations to have access to storage while they seek alternative funding or apply in the next round Innovation Fund. Maturing commercial agreements between potential customers and Northern Lights is continuing in 2022. Second round submission of Innovation Fund is due in June. Northern Lights is also in dialogue with customers not relying on funding from the EU Innovation Fund.

- Bilateral agreements between Norway and the relevant countries need to be in place for cross border transport of CO<sub>2</sub> to take place. This activity is led by the Ministry of Petroleum and Energy. Informal consultations have started with several European countries. Memorandums of understanding on CCS collaboration have been signed with Belgium and the Netherlands.



*Northern Lights' CO<sub>2</sub> receiving terminal in Øygarden.*

## Status Norcem

- In general, Brevik CCS Project is progressing according to plan
- Overall accumulated actual progress is **31%**
- All demolition work is completed. Modifications to the existing flue gas treatment will be done in the yearly winter repair stops every year until 2024, and major equipment was replaced in Q1 2022. Civil construction works are ongoing at site and equipment packages is under construction at vendors sites.
- Norcem's updated cost estimates from October 2021 show that Norcem is now expected to exceed the maximum budget in the subsidy agreement between the state. In accordance with the state aid agreement, the parties are obliged to jointly seek an agreed solution for financing the cost overrun and the project.



*Norcem's plant will be transformed in 2024. Progress is good and according to schedule on all critical activities.*

## Status Fortum Oslo Varme

- In the revised national budget the government proposes a financing solution that facilitates the construction of the CO<sub>2</sub> capture project at the waste incineration plant at Klemetsrud in 2022. The project removes the emissions from the largest emission source in Oslo. This results in an annual CO<sub>2</sub> reduction of up to 400,000 tonnes from 2026.
- In March 2022 Fortum signed an agreement to sell its 50% ownership in Fortum Oslo Varme to an investor consortium comprising Hafslund Eco, Infranode and HitecVision. Following the



transaction, Hafslund Eco (owned by the Municipality of Oslo) will become the majority owner with 60 per cent ownership in Fortum Oslo Varme, while Infranode and HitecVision will have significant minority position of 20 per cent each. The partnership has a clear target of realizing the carbon capture project at Klemetsrud. The transaction is approved by the City Council of Oslo but must also be approved by the Norwegian Competition Authority, the Norwegian Water Resources and Energy Directorate and ESA.

## Relevant news

- In April three companies were offered exploration licenses to store CO<sub>2</sub> in two areas on the Norwegian Continental Shelf. The area in the North Sea was offered to Equinor ASA, and the area in Barents Sea was offered to a group including Equinor ASA, Horisont Energi AS and Vår Energi AS. This is the second time that acreage is awarded for CO<sub>2</sub> storage pursuant to the CO<sub>2</sub> Storage Regulations. Northern Lights was awarded for the storage part of Longship I 2019. A new area for CO<sub>2</sub> storage in the North Sea was also announced by the MPE in April due to interest from the industry.

## Resources

- [Langskip – Et prosjekt for CO<sub>2</sub>-håndtering som omfatter fangst, transport og lagring av CO<sub>2</sub> \(regjeringen.no\)](#)
- [Spørsmål og svar om Langskip-prosjektet - regjeringen.no](#)
- [Tidslinje for Langskip \(CCS\) - regjeringen.no](#)
- [Full-scale CCS project in Norway - Longship | Reaching the climate goals \(ccsnorway.com\)](#)
- [Northern Lights \(northernlightsccs.com\)](#)
- Time-lapse video: [Time-lapse construction of the Northern Lights CO<sub>2</sub> transport and storage infrastructure 2021 - YouTube](#)
- Brevik CCS, link to webcams:
  - [LINK](#) to webcam 1
  - [LINK](#) to webcam 2
  - [LINK](#) to webcam 3
- [Fortum Oslo Varme and our Carbon Capture Project | Fortum](#)

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