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Nordic Coastal Energy Storage Project

Overview

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The Trudvang Carbon Dioxide Capture and Storage (CCS) project is planned to be developed in the Norwegian North Sea in a bid to reduce emissions from energy production and help mitigate climate change. The CCS project will have the potential to store nine million tonnes per annum (mtpa) of carbon.

Paris, August 25, 2025 – TotalEnergies and its partners, Equinor and Shell, announce that the first CO 2 volumes were successfully transported by vessel from Heidelberg Materials' cement factory in Brevik, Norway to Northern Lights' facilities in Øygarden. They were then injected 2,600 meters below.

In a groundbreaking advance for renewable energy, researchers from Norway and Germany have developed a pioneering underwater energy storage system that turns ocean pressure into a powerful asset. This innovative solution promises a sustainable, scalable alternative to conventional batteries.

Northern Lights is the world's first cross-border CO 2 transport and storage facility. In August 2025, the first CO 2 volumes were injected and successfully stored in the reservoir. Carbon capture and storage will play a major role in the Norwegian climate solution. In August 2025, the first CO_2.

At Ørsted, from the beginning of 2026, we'll capture 430,000 tonnes of CO2 from two of our heat and power plants and store it in the North Sea. How do we capture carbon, transport it, and store it under the sea?

capture around 150,000 tonnes of CO 2 per year at our straw-fired Avedøre Power Station.

The Equinor, Shell and TotalEnergies Northern Lights joint venture project is aiming for an initial CO2 storage capacity of 1.5 million tonnes per year. CO2 storage tanks at the Northern Lights CCS project in Norway. The Northern Lights carbon capture and storage (CCS) project in Norway has stored. How much storage does the Northern Lights CCS project have?

The Northern Lights CCS project off the coast of Norway has enough storage for the equivalent of 750,000 car emissions every year in the first phase. Equinor’s Smeaheia storage site, located to the south of Northern Lights, has the potential to increase storage capacity many times over.

Can offshore wind be a cornerstone of the Nordic energy transition?

Offshore wind is positioned to become a cornerstone of the Nordic energy transition, offering vast potential in the North Sea, Baltic Sea, and along Norway’s deep coastal waters.

Why do we need hydro reservoirs in the Nordic region?

The Nordic region benefits from large hydro reservoirs that provide excellent and cost-effective energy storage options, which are already being efficiently utilised. Meeting growing future flexibility needs with a changing energy mix will require supplementing hydro reservoirs with batteries or hydrogen-based fuels.

What are the emerging technologies in the Nordics?

Here are some of the emerging technologies in this transformation: Battery energy storage solutions (BESS) are expanding across the Nordics, starting from a low base, supported by significant price reductions in recent years. (See news of the first larger BESS debt financing in the Nordics.).

What is the largest underground thermal energy storage in the world?

Vantaa Energy in Finland started the construction of the largest underground thermal energy storage in the world. It will have a volume of 1.1 million m3 and capacity of 90 GWh, approximately 5% of Vantaa's annual DH demand.

What are Nordic power producers doing with green hydrogen & PTX?

Nordic power producers are actively exploring and developing green hydrogen and PtX solutions to absorb excess renewable generation and supply future fuels. Projects range from onshore electrolysis pilots to large-scale initiatives

linked to offshore wind.

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