

SpotLight looks to lead the way on carbon storage monitoring

LONDON, UK, May 26, 2023 /EINPresswire.com/ -- British energy company INEOS and German operator Wintershall Dea invited over 300 guests to the Danish seaport town of Esbjerg at the beginning of March to witness the inauguration of Project Greensand's demonstration phase. Greensand is the world's first cross-border offshore CO₂ storage project, and it is hoped that the cutting-edge 'spot' technology being deployed could drive down costs in monitoring subsurface reservoirs storing CO₂. European Commission President Ursula von der Leyen addressed the attendees via video link, while Danish Crown Prince Frederik was present in person.

It is hoped that the pilot phase of the project will demonstrate the effectiveness of the seismic monitoring and other solutions in storing large amounts of carbon dioxide under the seabed both off Denmark's shore and globally in future.

Denmark's government is supporting the project via its Energy Technology Development and Demonstration Program (EUDP). The goal is to sequester up to 1.5 million tonnes of CO₂ annually by 2025–2026, using the depleted Nini field. This would then expand to other depleted oil reservoirs nearby, reaching 8 million tonnes stored each year by the next decade. This would amount to over 13% of the country's annual emissions, representing the footprint of 1 million people.

As part of the demonstration, around 15,000 tonnes of CO₂ was shipped from an oxide site in Zwijndrecht, Belgium belonging to INEOS to the depleted Nini West oilfield in Denmark's North Sea, before being injected into the reservoir's water leg. The next phase involved testing the technology for tracking subsurface CO₂, and its successful completion marked an important step in showing governments, regulators, stakeholders and the broader public that CCS can play a major role in decarbonization.

Habib Al Khatib, CEO of Paris-based SpotLight Earth, praised the company's 'spot' method for tracking gas, which is safe, fast, and many times cheaper than conventional 4D seismic surveys and has a minimal environmental footprint. 4D technology involves conducting regular 3D seismic surveys to investigate whole reservoirs with the help of towed streamers or seabed nodes. The imaging data produced can be used to identify changes in reservoirs such as bypassed oil, which can then be recovered with development wells. The logistics and costs can be justified by oil operators, but would make CCS processes nonviable.

With SpotLight's approach, frequent spot checks are all that is needed to verify that measurements match CO2 movement predictions. The predictions are based on data from seismic analysis conducted in the exploration phase, which provides structural geology based on wavefield propagation.

The project partners were joined by the Geological Survey of Denmark and Greenland (GEUS) at the European Association of Geoscientists and Engineers' 2022 Global Energy Transition Conference in The Hague, where they explained the 'single source' aspect of the spot monitoring method. It involves repeatedly stacking reflected seismic energy in a single seismic trace over a given time frame, and analysing the differences in the reflected seismic wave, which points to the presence or absence of CO2.

The survey was conducted using the Esvagt Innovator supply vessel, which is equipped with air guns, compressor equipment and personnel from seismic recording and data acquisition company TGS. Just 25 ocean-bottom nodes at seven locations were used to provide baseline and seismic surveys 1,800 metres below the reservoir's seabed.

SpotLight was founded in 2017 by Habib Al Khatib and Elodie Morgan, ex-employees of French oil and gas company CGG. Former CGG CEO Robert Brunck has joined the company as chairman. The company's other activities include steam-assisted gravity drainage activities in Canada and Oman as well as the North Sea.

German group BASF owns 72.7% of Wintershall Dea with remainder is held by Russian investors Mikhail Fridman, Petr Aven and German Khan.

<https://www.upstreamonline.com/focus/spotlight-shines-on-a-way-forward-for-carbon-storage-monitoring/2-1-1453109>

Shamir Atif

DI PR

+44 20 7454 5111

[email us here](#)

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