

## CCNS: Evaluating CO<sub>2</sub>-storage potential offshore southern Norway

Torsten Hundebøl Hansen<sup>a</sup>, Simon Blondel<sup>a</sup>, Sian Evans<sup>a</sup>, Rikke Bruhn<sup>a,b</sup>, Alvar Braathen<sup>a</sup>

<sup>a</sup> Department of Geosciences, University of Oslo, Oslo, Norway; <sup>b</sup> Nautilus Carbon Services, Stavanger, Norway

Corresponding author's e-mail address: t.h.hansen@geo.uio.no

The recent focus on the development of sustainable and low-carbon energy infrastructure in the North Sea region has sparked renewed interest in the Norwegian-Danish Basin (NDB) and its potential for CO<sub>2</sub> storage. Stretching from the Southern Norwegian North Sea into the Danish sector and below onshore Denmark, the NDB is characterised by a thick sedimentary package of late Palaeozoic to Cenozoic age. Large volumes of Zechstein salt occur throughout the basin, and salt tectonism significantly influenced Mesozoic stratigraphic development. Earlier exploration for oil and gas has proven successful in only small parts of the area due to the absence of mature source rocks and hydrocarbon migration routes. However, the existence of several clastic storage units overlain by low-permeable lithologies indicate promising conditions for CO<sub>2</sub> storage. This has not gone unnoticed: as of October 2023, the Danish Greensand Project has completed test injections into depleted Paleocene oil reservoirs, while two CO<sub>2</sub>-storage licenses have been awarded in the Norwegian portion of the basin. Previous investigations of the western, offshore part of the NDB have sought to evaluate its overall storage potential (e.g. Halland et al., 2013). Still, the capacities of key units remain largely unquantified, and there is a significant lack of stratigraphic correlation across the NO-DK sector border.

Here, we present preliminary results from the new UiO:Energy & Environment project, *CCNS*. *CCNS* aims to evaluate the general potential for CO<sub>2</sub> storage in the western, offshore part of the NDB, and provide a baseline for further research in the area. This includes updated analyses of the basin's structural development and "CO<sub>2</sub>-storage plays" from seismic and well data, as well an updated cross-border stratigraphic scheme. Furthermore, the stratigraphy and structures of the NDB provide a great opportunity for investigating the general conditions for CO<sub>2</sub>-storage in basins affected by salt tectonism, e.g. regarding reservoir/seal distribution and seal integrity.

Halland, E. K., Riis, F., Magnus, C., Johansen, W. T., Tappel, I. M., Gjeldvik, I. T., Solbakk, T., & Pham, V. T. H. (2013). CO<sub>2</sub> Storage Atlas of the Norwegian Part of the North Sea. *Energy Procedia*, 37, 4919–4926.  
<https://doi.org/10.1016/j.egypro.2013.06.403>