

## Mapping of CO<sub>2</sub> Storage Possibilities on the Norwegian Continental Shelf

J.M. Geologist<sup>1\*</sup>, M.B. Geologist<sup>1</sup>, E.H. Geologist<sup>1</sup> and F. R. Geologist<sup>1</sup>

<sup>1</sup>*Norwegian Petroleum Directorate (NPD), Stavanger, Norway  
Professor Olav Hanssens vei 10  
P.O.BOX 600, N-4003 Stavanger  
jasminka.mujezinovic@npd.no*

The Norwegian Petroleum Directorate (NPD) at the request of the Ministry of Petroleum and Energy has mapped and evaluated possible storage sites on the Norwegian Continental Shelf (NCS). The main objectives have been to identify safe and effective areas for long-term storage of CO<sub>2</sub>. Comprehensive work is published in four CO<sub>2</sub> Storage Atlases (*Halland et al.2011-214*).

The study is established on detailed work on all relevant geological formations and hydrocarbon fields on the NCS. Aquifers and structures have been characterized in terms of capacity, injectivity and safe CO<sub>2</sub> storage. Three case studies along the NCS will be presented at 32<sup>nd</sup> Nordic Geological Winter Meeting in Helsinki 2016.

The largest storage capacities are situated in the mature part of the North Sea. The Utsira - Skade aquifer is the biggest aquifer in the North Sea. The reservoir simulation study shows that approximately 170 Mt of CO<sub>2</sub> can be injected within the aquifer. In the Norwegian Sea, the CO<sub>2</sub> storage potential is located on the Trøndelag Platform, east of the petroleum province. The aquifers in the southeastern part of the Norwegian Sea have a consistent dip of 1-2° from the Norwegian coast to the basinal areas. In places, where permeable beds occurring along the dip slope there is a risk that CO<sub>2</sub> injected down dip can migrate upwards where the aquifer is truncated by the Quaternary glacial sediments. Based on simulation results about 400 mill tons CO<sub>2</sub> (8 mill tons/year over 50 years) can be stored in the Garn - Ile aquifer in the Froan Basin. The area in the Barents Sea for CO<sub>2</sub> storage is situated in the southwestern part of the Barents Sea. The main target for CO<sub>2</sub> storage in the Barents Sea is the Stø Formation, which has excellent reservoir properties, with a thickness of 130m in the well 7125/1-1 (Bjarmeland Platform). The storage capacity with respect to CO<sub>2</sub> in the southern Bjarmeland platform aquifer is calculated to 176 Mt.