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Kent Hogseth¹, Anthony Spencer¹, Gareth Allinson², Erik Henriksen³, Brian MacTiernan² (1) Statoil, Stavanger, Norway (2) Statoil, London, United Kingdom (3) Statoil, Harstad, Norway

Status of Frontier Exploration in NW Europe: Ireland to Norway

Frontier exploration basins lie in a line along the Atlantic margin from Ireland to Norway. All underwent Mesozoic rifting and some suffered volcanism in Paleocene-Eocene. Atlantic Ocean opening started in the south (Cretaceous) and occurred everywhere from Eocene times onwards. Many basins have thick Cretaceous - Cenozoic sections but the more easterly Barents Sea region underwent major uplift in Cenozoic times. Some frontier basins are near areas with proven Jurassic (oil) and Carboniferous (gas) petroleum systems (PS) but their different histories have affected petroleum prospectivity.

Off Ireland the Porcupine Basin has a proven Jurassic PS but lacks commercial success. In the Slyne-Erris Basin the Corrib field is the most westerly example of the Carboniferous gas PS: further exploration prospects are seen. The huge Rockall Basin has one possible find in Ireland and one gas find in the UK: both have follow-up potential. A prolific Jurassic PS is proven west of Shetland, with recent exploration aimed at Paleogene targets; new discoveries extend the plays west to the Faroes, where huge closures are covered by thick basalt lavas.

Off mid Norway, the giant Ormen Lange gas discovery in Paleocene turbidites has focussed exploration on Paleocene and Cretaceous targets in similar, large mid-Tertiary closures. Jurassic targets may exist in the strongly uplifted Lofoten area. In the Barents Sea region, the Snøhvit cluster of gas fields is now being developed; they belong to a Jurassic PS. Frontier prospectivity there relates to older PS: the newly proven Triassic PS in the Nordkapp Basin and potential Palaeozoic PS elsewhere