

Hydrocarbon Prospectivity of the Inshore Basins Along Scotland's West Coast

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ABSTRACT

The inshore sedimentary basins along Scotland's West Coast, from the North Minch Basin to the North Channel Basin, represent a still largely unknown area of offshore geology and petroleum geology within the UKCS. Although the area has been subjected to some exploration efforts with three wells drilled in the late 80's and early 90's, a lack of integrated studies means that a full understanding of the geological evolution and petroleum prospectivity of the area is not established. The four wells drilled West of Scotland showed many elements needed for a petroleum system to operate including good source and reservoir rock intervals, with Upper Glen 1 also encountering gas concentrations in the Lower Jurassic. However there are still major unknowns, which include: 1) Source Rock – maturity, quality and distribution which is regionally poorly constrained, 2) Reservoir Rock – limited understanding of thickness, quality and heterogeneity, 3) Stratigraphy & Structure – Poor linkage between onshore and offshore stratigraphy and structure, 4) Effects of igneous Episodes – the potential effect on maturity of the source rocks is unknown. These uncertainties along with an assessment of the petroleum system West of Scotland will be fully assessed through:- 1. Analysis of Seismic data 2. Analysis of high resolution bathymetric data 3. Assessment of high resolution Gravity & Magnetic data 4. Fieldwork assessing Source/Reservoir/Seal quality along with an assessment of the depositional environment and controls on thickness distribution 5. A Geochemical evaluation of Source rocks within the area 6. Integration of offshore wells and onshore field observations to understand basin evolution and formulate regional stratigraphy