

Technology Enablers for the Successful Development of the Brent Field (past-present-future)

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The Brent Field, discovered in 1971 in the northern part of the North Sea, is one of the largest hydrocarbon accumulations in the United Kingdom licence area. It is located along a westerly-dipping fault terrace that runs 64 km from the Alwyn field in the South to the Statfjord Field in the north. Production is from both the middle Jurassic Brent Group and the early Jurassic Statfjord Formations.

The Brent Field is developed from four fixed platforms (Alpha, Bravo, Charlie and Delta) installed between 1975 and 1978 in approximately 140 m of water. During the last 30 years, Brent has been the UK's largest oil and gas field, having produced 2 billion barrels of oil and 5.7 Tscf of gas through a total of 150+ wells.

Oil production started from the Brent Field in 1976 with all four platforms producing oil and gas, and injecting water by 1981. Shell/Esso has used a succession of state-of-the-art technologies, and extensive well and reservoir management (WRM) to achieve very high ultimate recovery factors of 54% for oil and 80% for gas. Peak oil production was in 1984 at a rate of 500,000 stb/d.

In the mid to late 90's, Shell and Esso invested £1.3 billion in depressurising the Brent Field, one of the largest engineering projects ever undertaken in the North Sea, which significantly extended Brent's productive field life. Brent wet gas production peaked in 2001 at a rate over 1,000 MMscf/d. In 2008 Brent is primarily a gas field producing an average of 200 MMscf/d of wet gas and 10,000 stb/d oil. Since production start up, investment in Brent and its associated infrastructure has enabled the Brent Field to supply approximately 10% of the UK's total gas.