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An Overview of the Jeanne d'Arc and Scotian Basins Development and Exploration, Offshore Atlantic Canada

The Canadian Atlantic Coast has become an important petroleum province with production from world-class oil and gas fields: Hibernia, Terra Nova and Sable normal and geopressured gas; future developments at White Rose and Deep Panuke, and committed future exploration of more than \$1 Billion Canadian dollars.

A series of interconnected sedimentary basins including the Jeanne d'Arc basin, were formed on the Grand Banks of Newfoundland due to Early Mesozoic break-up of the Pangaea continental mass and the birth of the Atlantic. Jeanne d'Arc Basin is a fault-bounded Late Jurassic-Early Cretaceous reactivated sector of the larger Late Triassic-Early Jurassic rifted area on the Grand Banks. The basin was primarily shaped by repeated extension episodes and exhibits only minor inversion due to trans-tensional forces and salt diapirism. A proven rich petroleum system is present including a) Kimmeridgian source beds (Egret Member) and b) excellent reservoirs in Late Jurassic Jeanne d'Arc, Early Cretaceous Hibernia and Catalina, and Mid-Cretaceous Avalon and Ben Nevis formations. Potential for oil discoveries exists in deeper structural plays, stratigraphic traps in the southern part and combination traps in the eastern side of the basin, while gas plays are still to be tested.

In the Scotian Basin exploration is taking place on a number of distinct exploration trends. On the Jurassic carbonate bank, exploration drilling is following-up on the 1999 Deep Panuke discovery. In the Sable Subbasin, exploration is ongoing on the existing geopressure trend that is producing today. In addition to the existing trends, new exploration activity has begun, for Cretaceous and Tertiary reservoirs. New deepwater wells in the Scotian Salt Province, in water depths ranging from 700 to 2200 metres, are drilling for exploration targets associated with movement of Argo formation halite. Salt tectonism has produced numerous structures such as swells, walls, ridges and domes, and subsalt closures.