

**Late Paleozoic oil and gas potential of the Sverdrup Basin:
an unexplored Russia?**

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Much of Russia's oil and gas riches lie within Carboniferous and Permian strata all along the western shadow of the Ural Mountains. A large number of fields have been found, many of which have been labeled "giants" and "supergiants". This vast expanse of oil- and gas-rich strata owes its treasures to a unique and long-lasting paleogeographic setting whereby a deep oceanic trough (pre-Uralian trough) received and preserved organic matter from the Late Devonian to the Early Permian. In particular, the Late Devonian Domanik basinal shale facies matured into a prolific source rock that later supplied hydrocarbons to adjacent Devonian through Early Permian shelf and shelf-edge carbonate reservoirs.

The Sverdrup Basin, Barents Sea, Timan Pechora and Uralian foredeep were part of the same depositional system during the Late Paleozoic. As in Russia, a Late Paleozoic trough existed in the axial regions of the Sverdrup Basin. This trough resulted from Carboniferous rifting and was a stable paleogeographic feature throughout the Late Carboniferous and Permian. It preserved organic matter-rich sediments in anoxic to sub-oxic environments (Hare Fiord, Trappers Cove and van Hauen formations). In addition, large volumes of organic matters (up to 70% TOC) associated with a lacustrine oil shale (Emma Fiord Formation) accumulated within Early Carboniferous rift-related half-grabens. Shelf and shelf-edge carbonate buildup facies identical to Russia's main reservoir rocks formed a broad belt that surrounded the trough, and porous nearshore and shallow subtidal sandstones occur near the basin margin. Most shelf and shelf edge carbonates lie within the oil window. A multitude of structural and stratigraphic plays can be envisioned. Thirty unsuccessful exploration wells have been drilled in the basin, but they were primarily targeting Mesozoic plays. The next round of exploration in Arctic Canada's Sverdrup Basin could see a much greater level of activities in the Late Paleozoic succession as enticed by its Russian counterpart.