

Reviving Exploration in the Arctic Islands: Opportunities and Challenges from an Operator's Perspective

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Summary

The Arctic Islands region can be defined as Canada's perpetual "last petroleum exploration frontier". Great and costly efforts were made in the past to explore and produce hydrocarbons from the Arctic Islands. In spite of favorable geology and several world-class finds, the petroleum industry interest for the area has waned in the mid-eighties. Due to the region's remoteness and unfavorable economics, there are numerous operation logistics and regulatory challenges related to a possible revival of petroleum exploration in the Canadian Arctic Islands.

Introduction

It has been more than 25 years since the Panarctic Oils wound down their Arctic Islands exploration group, whose goal was to establish a resource base in the Queen Elizabeth Islands for commercial petroleum development. Panarctic, on behalf of its partners, operated more than 125 of the 175 exploration and delineation wells drilled from 1969 to 1986, in the Sverdrup and Franklinian basins. Limited production occurred in the Franklinian Basin from 1985 to 1996 when Panarctic, using the *MV Arctic*, transported 16,000 m³ (100,000 barrels) of 43° API oil, during the summer months from the 1974 Bent Horn oil discovery, to Montreal refineries. Subsequently, production ceased, due to the high cost of single season production. Panarctic Oils assets were rolled into Petro-Canada, now Suncor.

Discussion

The current discovered resource in the Sverdrup Basin, according to the Geological Survey of Canada, stands at 500x10⁹ m³ (17 trillion cubic feet) of natural gas and 294x10⁶ m³ of oil (2.5 billion barrels). The ultimate potential resources calculated by the GSC, is in the order of 1242-1343x10⁹ m³ (44-47 trillion cubic feet) of gas and 540-882x10⁶ m³ (3.3-5.4 billion barrels) of oil, not including the potential of a number of significant unconventional resources.

Both the Sverdrup and Franklinian basins have world-class structural traps, excellent reservoirs and several proven oil and gas source rocks. Possible drilling targets are located both on the islands and the intervening stretches of water. A high number of structural, combination and especially stratigraphic traps remain undrilled. No new seismic survey was recorded since early 1980s and 3D data has never been acquired.

Today, we have lost an enormous amount of operation and technological expertise through the withdrawal of exploration companies and the retirement of key professionals. Modern marine and land seismic technologies, current Arctic drilling and logistic expertise used in Alaska, Northern Europe and Siberia could be successfully modified to work in the Arctic Islands.

The cost to reinvigorate exploration will be substantial and a brave champion of new seismic and exploration drilling programs needs to emerge. The first steps toward reviving exploration in the High Arctic will be clear messages from both the Territorial and Federal governments, that the high arctic sedimentary basins are open for petroleum exploration and, with success, an environmentally safe and responsible development of the discovered resources and future discoveries.

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References

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