New Cohasset-Panuke-Penobscot-Type Oil Prospects of Offshore Nova Scotia, Canada. Analogous Plays Within in the Cretaceous and Jurassic Formation Deltaic Sands

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A new look at reprocessed 2D and 3D seismic data that covers the central portion of the Scotian Basin, offshore Nova Scotia, Canada reveals multiple targets for oil and gas exploration with future development potential. This exploration area extends approximately 2500 km2 and lies along the same trend as the Cohasset, Panuke and Deep Panuke discoveries and is adjacent to the producing fields of the Sable Offshore Energy Project. To date, these areas have produced 1.5 Tcf of gas and 44.5 million barrels of light oil with new development potential expected to produce another 1-2 Tcf from the Jurassic and Cretaceous sands.

Apart from legacy exploration efforts in the 1970's to early 1990's, this area is generally underexplored despite the adjacent development of oil and gas. The Cretaceous sands of the Mississauga and Logan Canyon are prolific and are known as hydrocarbon-prone reservoir formations. The Jurassic Mic Mac sands and Abenaki carbonate Formation are also proven and prospective but are deeper and more complex and will not be discussed in this paper.

The Penobscot field in the eastern part of the exploration area was tested in 1976 by the L-30 well and encountered significant oil and gas zones totaling 20 meters of net pay in the Mississauga Formation sands with current estimates of 26-80 million barrels of oil recoverable. This is analogous to the on trend (+/-100km) Panuke, Cohasset and Balmoral fields which produced 44.5 million barrels of 480 to 530 API light premium oil from the western portion of the exploration area. Recent seismic mapping of the Cretaceous aged sands indicate a variety of structural traps including low-relief anticlines, rollover, drape structures and fault closures. These recognized play types are proven reservoirs offshore Nova Scotia. Through well and seismic data interpretation, these new features are linked to the analogous reservoirs of Penobscot L-30, Cohasset, Panuke and Balmoral.

Within the study area, industry has recognized the potential and recently picked up the Penobscot L-30 area license (lic.# 2417). New structures mapped here using 2D and 3D seismic data currently remains undrilled, unrecognized or untested. Although the size of the prize is unproven, its proximity to analogue reservoirs and infrastructure of the current producing development fields and with new oil development technology these plays could well be economically feasible.