

Plate Tectonics Reconstruction of Nova Scotia's Offshore

Hamish Wilson¹ and Sandy MacMullin²

¹RPS Energy, London, United Kingdom.

²Nova Scotia Department of Energy, Halifax, NS, Canada.

The OETR (Offshore Energy Technical Research) Association has initiated an industry standard Play Fairway Analysis program. This program is intended to serve a pivotal role in stimulating industry interest in exploration of Nova Scotia's offshore petroleum resources by providing explorers with critical information about prospectivity and resource potential to aid in decision making.

The play fairway program was initiated in May with a workshop including leading academic thinkers from Canada, Morocco and Europe. The workshop concluded that one of the important issues that needed to be addressed as part of the overall play fairway program was Plate Tectonic Reconstruction.

Plate Tectonics Reconstruction project: The purpose of this project is to provide an integrated 3D model of the crustal structure and evolution of the Nova Scotia continental margin in space and time from rifting to spreading. This model will underpin an understanding of early rift and post rift depositional environments and provide a predictive model for salt deposition and the distribution of Triassic and Early Jurassic source and reservoir rocks. The project includes a number of elements (acquisition of new refraction data offshore Nova Scotia, reprocessing of refraction data offshore Morocco, reprocessing of long offset multi-channel seismic offshore Nova Scotia, merging and integrated reprocessing of potential fields data and integrated interpretation of all these data). The integrated interpretation of these data enable a revised plate reconstruction to be produced together with a model for the along strike variation of rifting styles for the Nova Scotia margin.

The tectonic analysis leads to an interpretation that allows for the possibility of an Early Jurassic source rock system offshore Nova Scotia and provides a model for the distribution of such a source rock system. This in turn greatly enhances the potential for hydrocarbon prospectivity.