

## **The Horton Bluff Formation Gas Shale, Frontier Shale Play Fairway Analysis, Nova Scotia, Canada**

Adam W.A. MacDonald

Nova Scotia Department of Energy

The Horton Bluff Formation gas shale's are within the Carboniferous lacustrine and marginal marine Horton Group of the Maritimes Basin. Gas in place (GIP) estimates are > 69 TCF and leading indicators of a prospective shale gas play such as TOC at >5.5 % , Maturity (Ro) of 1.6, thickness of >500 meters and estimates of 100 Bcf per section across an area of > 2 million acres, have generated an increased interest in the Horton Bluff Formation within this frontier basin. Comparison of this shale play characteristics to many others (mineralogy, gas filled porosity, pressure gradient, adsorbed gas) across North America ranks the Horton Bluff shale as among some of the most prospective.

The Nova Scotia Department of Energy (NSDOE), working closely with industry, has recently undertaken the task of trying to understand the resource potential. GIP or "*size of the prize*" is determined by the shales' gas generating potential and the mineralogy, which may dictate the fracturing techniques and lead into the engineering solutions that need to be achieved through the drilling and piloting phase to reach commercial producibility. Good seismic coverage (2-D and 3-D data) and well control is available to help define the shale's reservoir quality or "*sweet-spots*". Seismic interpretation linked to well data, geochemical understanding of the formation and recent outcrop geology study has given new understanding of the depositional system and structural evolution of the basin. This can be linked to predicted production variability. To date five wells have been drilled and two successful wells have shown volumes of gas to surface post completion and stimulation. The analogous shale reservoirs to the north (in New Brunswick) are currently in the evaluation pilot phase for scalable production by Apache Corporation and attractive tight sands within the same formation are producing at approximately 25 mmcf/day through vertical wellbore at the McCully gas field. A frontier approach to play fairway analysis and ongoing research into outcrop geology linked to seismic data signatures and structural interpretation on the evolution of the basins are the key to a successful development of this resources asset in eastern Canada.