

Effect of Organic Facies and Maturation in Determining Free and Adsorbed Methane for Shale Gas Potential: Overview of the Mississippian Lacustrine Horton Group Sediments from New Brunswick and Nova Scotia, Eastern Canada

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The proposed regional resource assessment of the Mississippian Horton Group sediments (sandstones and shale) within basins of New Brunswick and Nova Scotia was based on unconventional petroleum system analysis and in conjunction with the regional geology, organic facies, geochemical fingerprinting, and heat flow histories related to major faults. The regional maturity and organic facies in relation to the mineralogy and geochemistry of the Mississippian Lacustrine/Terrestrial Horton Group sediments illustrated that they have a close relationship with the formation of microfracture patterns, the amount of the extractable liquid hydrocarbons, and eventual transformation of adsorbed and free gases within the shale network forming a major unconventional (complex hybrid shale gas and tight sands) and conventional resource plays.

The preliminary petroleum system analysis of various physicochemical and geochemical parameters and the regional boundary between gas cell and oil cell zones of the Mississippian Horton Group lacustrine sediments (black and carbonates) from selected basins of New Brunswick and Nova Scotia, Eastern Canada have shown a close similarity with the Mississippian Barnett Shale of the Fort Worth Basin of Texas.