

Carbon Sequestration Potential and Natural Gas Plays in Cambrian Strata of Western New York State

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The Cambrian sandstones of western New York present one of the better opportunities for carbon sequestration in the State and some have significant potential to produce natural gas. The lowermost unit is the Potsdam Sandstone which is a feldspathic sandstone that directly overlies the basement in western New York. The formation thickens to the southwest from 0 to as much as 180 feet. Porosity in the Potsdam is patchy – some wells have little or no porosity while others have intervals up to 35 feet thick of sandstone with > 5% porosity. The Potsdam is overlain by the Galway Formation which is composed of interbedded sandstone, dolomite-cemented sandstone, sandy dolomite and dolomite. The Galway is overlain by the Beekmantown carbonates (Upper Cambrian Little Falls and Lower Ordovician Tribes Hill Formations) and the Knox Unconformity which cuts down into progressively older units to the west with more than 1100 feet of relief. The Knox Unconformity overlies the Tribes Hill Formation in the east and cuts all the way down into the Potsdam Sandstone in the westernmost part of the State. The uppermost sandstone unit in the Galway is equivalent to the Rose Run Sandstone of Ohio and currently has several producing fields and new discoveries and significant remaining potential for natural gas. As in the Potsdam, porosity is patchy in the Rose Run - some wells have tens of feet of >5% porosity and some have little or no porosity. There is a second sand-rich interval in the middle of the Galway that is likely equivalent to the B-sand in Ohio that also has some porosity in very thin beds of dolomite-cemented sandstone. The Potsdam and Rose Run Sandstones present two of the better opportunities for carbon sequestration in New York but the patchiness of the porosity introduces a level of heterogeneity that may make planning for sequestration more problematic.