Utica and Marcellus Maps

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This map shows the surface outcrop pattern of the Utica (blue color) and Marcellus (red color) in central New York State. It is important to note that the potentially productive areas are found well to the south of the outcrop belts. In general, development using horizontal drilling and hydraulic fracturing will take place where the rocks are at least 2500' below the surface.
This is a map and schematic cross-section showing the geology of the central New York region. The rock layers dip to the south, like a tilted stack of plywood. Drilling for gas shale using current technology and SGEIS guidelines would require the target formation to be 2500’ or deeper. Thus development is more likely in areas well south of the outcrop belts of the Utica and Marcellus. The green line schematically represents a depth of 2500 feet.

The map shows the thickness of the part of the Utica Shale that is rich in organic material, which is required for natural gas to be generated in the rock. Note that the thickest potentially productive Utica is found east of the Route 81 corridor.
This map shows the depth to the base of the Utica, based on well log data. This map may not be accurate, as it shows the Utica lying at 3000' below the surface in the Mohawk Valley, near the actual outcrop belt where the Utica is at the surface.

This shows a rendering of the Utica Shale 'fairway', the region of potential production. This map was produced for the draft SGEIS, but is not accurate, as it shows the fairway extending to the actual outcrop belt, where the Utica is too shallow to develop.
Utica Shale Gas Potential

This is a rendering of the Utica fairway based on more realistic considerations of both depth, and thickness of the high-potential lower part of the Utica. Note also that the fairway does not extent as far to the east, based on the observation that the Utica becomes highly ‘overmature’ (was heated by burial to temperatures that destroyed the natural gas potential) to the east.

Map showing distribution of organic-rich, high gas potential Marcellus Shale. Note that the area of greatest thickness is generally east of the Finger Lakes region.
This map shows the depth to the top of the Marcellus Shale. Note a depth of 2500’ is found in south-central Chenango County.

Map showing the ‘fairway’ for Marcellus development. Like the earlier Utica Shale map, this shows the fairway extending to the outcrop belt. In actuality, drilling is highly unlikely in areas where the Marcellus is shallower than 2500’.
This is a rendering of the Marcellus fairway based on more realistic considerations of depth, and thickness of the high-potential Marcellus.

Another rendering of the Marcellus distribution in NY, PA and adjacent states.

Marcellus Shale Thickness EXCO Map 3-3-08

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