

New York Shale Play Gets Major Downgrade

By **Peter Mantius**, on October 28th, 2013

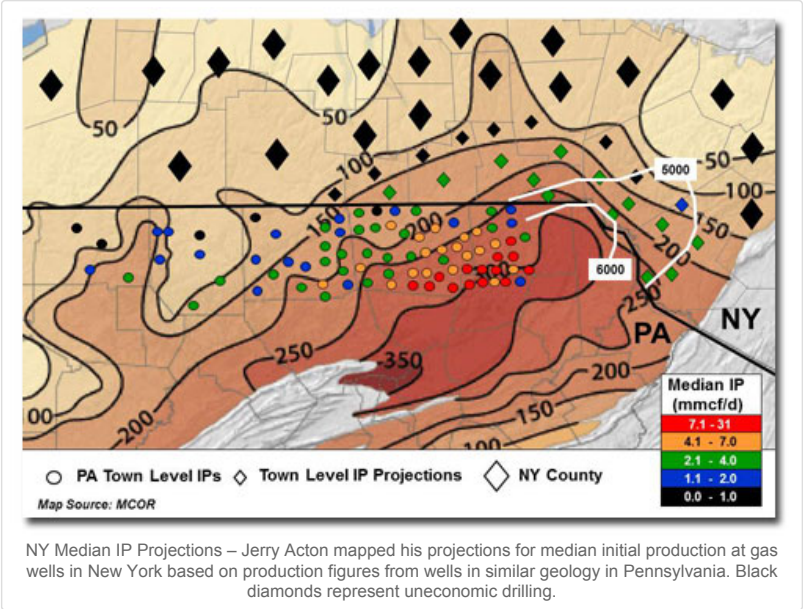
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BINGHAMTON, N.Y. — The real reason New York State has not allowed high-volume hydrofracking for natural gas in its Marcellus shale is that there is almost no gas that can be economically extracted, according to four retired professionals turned fracking analysts.

Their argument contradicts the gas industry’s narrative – widely accepted as fact by many landowners, investors, politicians and state regulators – that shale gas is a potential economic “game-changer” for poor, rural upstate New York.

For the past four years, two governors have repeatedly extended the state’s *de facto* moratorium on fracking while they tinkered with the rules. Since last fall, Gov. Andrew Cuomo has said he is waiting for the results of a vaguely defined health study, frustrating pro-gas groups with his apparent lack of urgency.

But the four analysts now argue that it’s geology – not health – that best explains Cuomo’s foot-dragging. In the governor’s cost-benefit analysis, they say, meager potential economic gains from drilling are not worth the environmental and political risk.

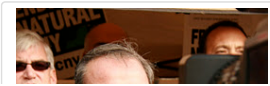
“The vast majority of the New York Marcellus shale is too thin (less than 150 feet thick) and too shallow (less than 4,500 feet) to yield economically recoverable natural gas,” said Jerry Acton, a retired systems engineer for IBM and Lockheed Martin who based his conclusions on drilling production results from neighboring Pennsylvania, where fracking is allowed.

Acton crunched four years of publicly available data supplied to regulators by Pennsylvania drillers. His analysis covered all 1,539 active natural gas wells drilled into the Marcellus shale in six counties that border New York. Acton found that median production results for specific towns and counties correlate closely with the depth and thickness of the shale layer drilled. The deeper and thicker, the better.

That finding points to trouble for drilling prospects in New York, Acton said, because its Marcellus layer is relatively shallow and thin. While a cluster of Pennsylvania gas wells only 40 miles southwest of Binghamton have been highly successful, they tap a Marcellus layer that is much thicker and deeper than any in New York. As Pennsylvania drillers moved west of that sweet spot into thinner, shallower sections with geology similar to New York’s, gas production levels plummeted.



Jerry Acton



Acton’s argument has not convinced Dan Fitzsimmons, president of the Joint Landowners Coalition of New York, a group of property owners who strive to profit by leasing land to drillers. Fitzsimmons said many factors influence the success of a gas well besides depth and thickness. And he noted that some Marcellus wells in southwestern Pennsylvania perform well in shale as thin as 75 feet thick.



Dan Fitzsimmons

depth and thickness. And he noted that some Marcellus wells in southwestern Pennsylvania perform well in shale only 75 feet thick. "He's an obvious anti," Fitzsimmons said of Acton, referring to those opposed to fracking. "I don't know who paid them."

Acton coordinated his work with former Mobil executive Lou Allstadt, former Texas energy company executive Chip Northrup and geologist Brian Brock. They said their analyses were self-funded.

Allstadt once supervised Mobil's oil and gas exploration and production in North America and Latin America, and in 1999 he coordinated Mobil's side of that company's \$81 billion merger with Exxon. He initially favored fracking in New York but became a critic after losing confidence in the ability of the state Department of Environmental Conservation (DEC) to monitor and regulate it adequately.

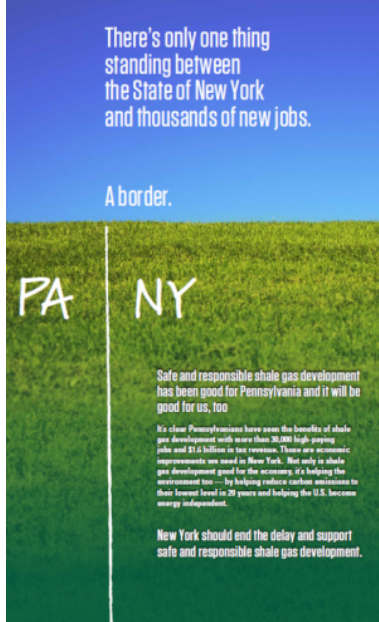
Allstadt said his review of New York test wells dating back a decade, supports Acton's theory that the state's gas resources are actually quite modest. He noted that major oil and gas companies had drilled hundreds of test wells through the Marcellus and Utica shale formations in New York by 2008. "Long before the *de facto* moratorium on hydrofracking came into effect, the (major) players had already determined it wasn't worth investing in New York shale plays, and they began investing elsewhere," Allstadt said.

While Exxon Mobil still holds gas leases in Broome County (which includes Binghamton), Chevron, Gulf and other big players have moved on. In their absence, other players that are either more speculative or smaller, including Chesapeake, Talisman and Norse, moved in, only to register discouraging results.

That has not stopped industry groups from blaming the governor for holding up New York fracking. The Independent Oil and Gas Association of New York (IOGANY), the Business Council of New York and several landowner coalitions still claim that it is Cuomo's refusal to grant fracking permits – not the state's geology – that has postponed New York's drilling boom and deprived the state of thousands of jobs.

IOGANY goes so far as to blame the recent bankruptcy filing of a unit of Norse Energy on the governor, overlooking the company's dry holes in New York. "The shuttering of Norse's New York operations is another deeply troubling result of New York's political indecision regarding the future of natural gas exploration," said

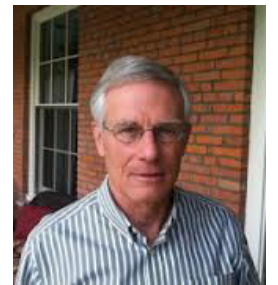
Brad Gill, the association's executive director.



2012 natural gas industry advertisement claimed New York's drilling moratorium was depriving the state of "thousands of new jobs."

buildings, as well as total bans in the New York City and Syracuse watersheds and dozens of municipalities.

Engelder noted in an Oct. 28 email that his estimate was a gross figure that should not be directly compared to Northrup's net figure, which included an 80 percent discount for restrictions on drilling. Engelder said that risk factor discount was inappropriately high because it presumes local farmers will



Lou Allstadt

The group declined to comment on Acton's analysis through its chief spokesman, Jim Smith.

The gas industry began ratcheting up its talk of boom times in 2008 and 2009, following influential studies by Penn State geologist Terry Engelder, perhaps the leading evangelist for gas drilling in the Marcellus shale formation. Engelder was the first to describe fracking the Marcellus as an economic "game-changer." Many others in industry, academia and politics have since borrowed the term to describe the benefits of fracking in general, including Ernest Moniz, President Obama's Secretary of Energy.

In 2009, Engelder declared that the Marcellus, which runs under parts of New York, Pennsylvania, Ohio, West Virginia and Maryland, could "meet the natural gas demands of our country for more than 20 years, if the gas could be produced fast enough."

The United States uses about 23 trillion cubic feet of natural gas per year. Engelder calculated that there is a 50 percent chance the Marcellus holds 489 trillion cubic feet of recoverable natural gas, including 71.9 Tcf in New York. The odds that New York holds at least 30 Tcf are 90 percent, he wrote in the same 2009 report.

But in 2011, the U.S. Geological Survey (USGS) estimated that the entire five-state Marcellus formation held 84 Tcf, about one-sixth of Engelder's widely publicized comparable number.

Now Northrup argues that Engelder's New York estimates are also too high. A retired planning manager for Atlantic Richfield, Northrup is a long-time oil and gas investor who holds an MBA from Wharton. He said he worked off the 2011 USGS Marcellus estimate to arrive at his own estimate of only 4.2 Tcf for recoverable Marcellus gas in New York. Northrup said he took into account existing state and local restrictions on drilling, including setbacks from rivers, lakes, aquifers and



Chip Northrup

support local bans after the moratorium is lifted.

“Applying Mr. Northrup’s risk factor of 80 percent to my calculations,” Engelder said, “my economically constrained estimates for New York” range from 2.7 Tcf to 6.3 Tcf. Northrup’s figure of 4.2 Tcf falls inside that range, he added.

Northrup also noted that New York’s natural gas drillers must contend with the relatively low market price for their product. The research firm Wood Mackenzie calculated that the average Marcellus gas well breaks even when the market price of gas hits \$4.50/MMcf. It is well below that today – ironically because shale gas drilling nationwide drove it down. The Energy Information Agency predicts it will not hit the \$4.50 threshold before the year 2020, under most scenarios.

In any case, New York drillers might need an even higher market price to break even because the state’s well production average would likely be dragged down by expensive dry holes. But rather than focusing on such limiting factors as geology and market forces, pro-drilling groups like the gas association, the Business Council and landowner coalitions have clung to Engelder’s view of the Marcellus shale’s potential and extrapolated their own jobs and wealth creation numbers. Their boosterism has been tinged with public bitterness that Cuomo’s rule-making process for fracking has stalled out, hamstringing state economic development.

In June 2011, the gas association touted a study from the Manhattan Institute that claimed that ending New York’s drilling moratorium “would spur over \$11.4 billion in economic output” and create 15,000-18,000 jobs in the Southern Tier and western New York. Authors of that study later emerged as central figures in fracking-related academic scandals at Penn State and the University of Buffalo, but IOGANY still features their work on its website without reference to the controversies.

Weeks after release of the Manhattan Institute study, a group tied to the Business Council used industry assumptions to extrapolate even more enthusiastically the number of jobs. It projected that every gas well drilled in New York could create, directly or indirectly, 125 jobs.

For some, the Engelder spell was broken in August 2011 when the U.S. Geological Survey issued its estimate of recoverable gas from the Marcellus, slicing Engelder’s figure by 83 percent. According to the DEC, the USGS had based its figure on geology without factoring in industry-reported well production and decline data that may have contributed to Engelder’s number.

But when New York officials released proposed new drilling rules only days after the USGS bombshell, several of their charts reflected Engelder optimism rather than USGS caution.



Terry Engelder

For example, one chart in the DEC’s Supplemental General Environmental Impact Statement for high-volume fracking showed two scenarios for the number of Marcellus wells to be drilled in New York. Both were optimistic. In their “low” estimate scenario, the state could expect to see some 10,000 new wells drilled within a decade after the lifting of the drilling moratorium. In the “average” scenario, there would be 40,000 new wells.

The DEC then extrapolated those robust well-count numbers into eye-popping job growth estimates. That was particularly good news for the three upstate counties where the DEC expected half the state’s wells to be drilled: Broome, Chemung and Tioga. Under the agency’s “average” scenario, the three could expect a total of 14,999 new jobs (or 9.3 percent of their workforce as of 2010).

But Acton’s analysis of Marcellus drilling potential in those and other New York border counties was starkly more conservative. In his study of the 1,539 wells in 81 towns in six Pennsylvania border counties, Acton found that the median initial production per well was 3.9 million cubic feet per day. Wells in Wyoming and Susquehanna counties performed the best, with median production of 6.8 mmcf/d and 6.5, respectively. Moving west into shallower, thinner shale, the county medians tended to drop. Bradford was 4.4 mmcf/d, Tioga 2.7, Potter 1.6 and McKean 1.9. Well production did vary significantly within each county and even each town, but the median figures for both towns and counties tended to reflect the depth and thickness of the shale drilled.

So while Wyoming, Susquehanna and Bradford counties were the best producers studied, the lower-performing Tioga, Potter and McKean were the most relevant geologically to an analysis that seeks to assess potential gas production in New York.

The Marcellus is less than 5,000 feet deep in most of New York’s border counties, making it even shallower than the layer in Pennsylvania’s three lowest performing border counties. Thickness is roughly the same. Acton attributed the performance of Pennsylvania wells at a given thickness and depth to New York areas with comparable characteristics. He found that wells in more than half of three New York counties – Broome, Tioga and Sullivan – can expect median production of between 2.1 and 4.0 million cubic feet per day. Smaller fractions of three other counties – Chemung, Chenango and Delaware – are also expected to produce at those levels. But the remaining sections of those six best-case counties fell in Acton’s lowest production category of less than 1.0 million cubic feet per day.

Five other counties that Engelder had listed as likely gas producers – Allegany, Steuben, Schuyler, Tompkins and Cortland – also fell in Acton’s lowest production category. (Engelder did not list Sullivan County as a likely producer, but Acton did.)

Engelder agreed in part with Acton’s premise. “Regarding the notion that New York State is on the shallow, thin fringe of the Marcellus, this is true,” he said. “However, I think it is foolish to walk away from a natural resource without complete



Marcellus shale exposure above Marcellus,
N.Y.

of 25



Peter Mantius

Peter Mantius is a reporter in New York. He covered business, law and politics at *The Atlanta Constitution* from 1983-2000. He has also served as the editor of business weeklies in Hartford, CT, and Long Island. He is the author of *Shell Game* (St. Martin's Press 1995), a nonfiction book on Saddam Hussein's secret use of a bank office in Atlanta to finance billions of dollars in arms purchases from Western countries before the 1991 Persian Gulf War.


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