OPPORTUNITY Ohio

Utica Shale Production Data Reveals Fundamental Challenges

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Matt A. Mayer

Horizontally fractured wells have a rapid decline in production (the "decline curve") in year two, with a range from 50 percent to 79 percent.[1] Experts believe Utica Shale wells will yield similar decline curves.[2] To ascertain what the decline curve is in Ohio, we analyzed production data for wells with two and three years of production data.[3] Admittedly, production data for the first year of operation could represent less than a year's worth of production. As a result, the most useful data comes from wells that went online in 2012, with the 2014 data representing the third year of production.

For all 627 wells we analyzed, the average production per well in the first year was 27,066 barrels of oil. In the second year of production, 319 wells produced an average of 14,348 barrels of oil, a 47 percent decline in production. For the 67 wells that produced for a third year, the average production came in at 6,852 barrels of oil, a 52 percent decline from the second year. From year one to year three, the decline curve hit a 75 percent drop in production, which is consistent with industry expectations. Steep decline curves force energy companies to constantly drill more wells, but, with prices plummeting, drilling activity is slowing down.

With all of the focus on Utica Shale oil production, often overlooked is the even greater drop in natural gas prices over the last decade. The energy renaissance produced by the combination of hydraulic fracturing and horizontal drilling resulted in massive exploration activities across the United States. Those activities generated unprecedented levels of natural gas production. In a classic supply and demand problem shown in the chart below, as supplies skyrocketed without a concomitant demand increase, prices collapsed.

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[1] David Wethe, "Wells That Fizzle Are a 'Potential Show Stopper' for the Shale Boom," Bloomberg Business (February 24, 2014) available at http://www.bloomberg.com/news/2014-02-24/wells-that-fizzle-are-a-potential-show-stopper-for-the-shale-boom.html.

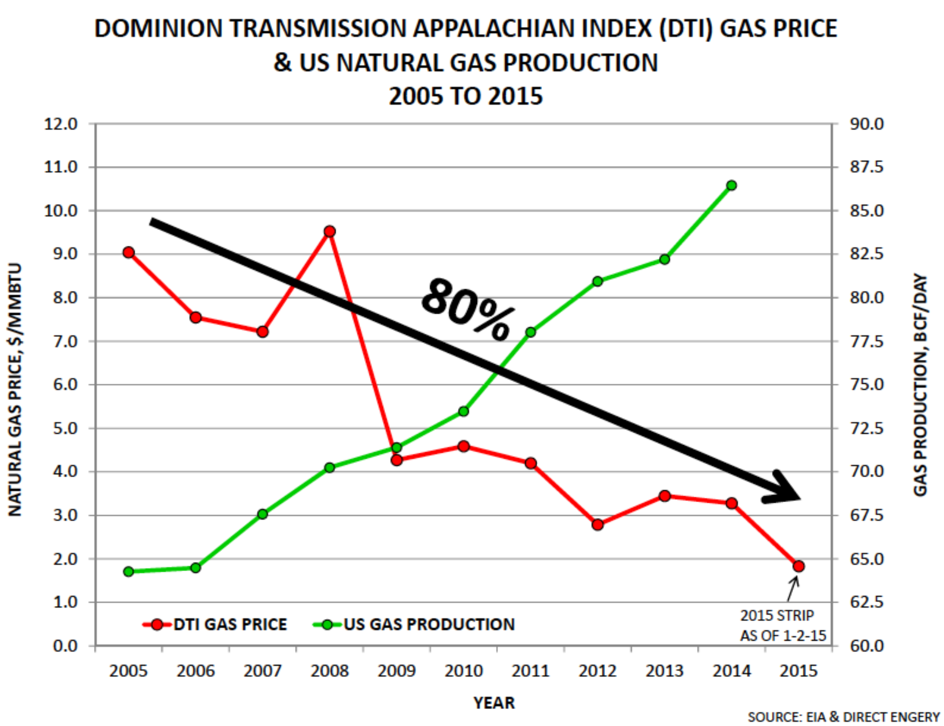
[2] Bob Downing and Doug Livingston, "Sharp Declines in Well Production Typical in Ohio's Utica Shale," Akron Beacon Journal (January 3, 2015, available at http://www.ohio.com/news/local/sharp-declines-in-well-production-typical-in-ohio-s-utica-shale-1.555015.

[3] All data comes from the Ohio Department of Natural Resources, Division of Oil & Gas Resources at http://oilandgas.ohiodnr.gov/production. There appears to be data missing for 32 wells, so those wells were excluded from this analysis.

It likely will take years for natural gas prices to rebound due to the sheer volume of natural gas wells already in production. As recently reported, “UBS AG cut its price forecast for natural gas this week, saying the market is oversupplied by about 2.5 billion cubic feet a day.”[4] As Harold Hamm, CEO of Continental Resources, Inc., stated, “We’re the problem.”[5] Even though Hamm directed his comments at U.S. oil producers, the same problem applies to U.S. natural gas producers. Thus, moving Governor John Kasich’s severance tax hike proposal from an oil-dominated tax to a natural gas-dominated tax won’t generate the tax revenues necessary to outweigh the negative impact higher taxes will have on future exploration and production in the Utica Shale formation.

When the significant price decline is married with the high decline curve, the odds that future exploration will match the level of activity over the last few years are low. An increase in the severance tax that would increase costs, thereby further shrinking the margins of energy companies, likely would dampen interest in the Utica Shale formation even more.

Facing such headwinds, legislators should reject Gov. Kasich’s severance tax hike.



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[4] Timothy Puko, “Glut Puts Chill Into Natural Gas,” Wall Street Journal, C4 (January 30, 2015).

[5] Erin Ailworth, “Harold Hamm Says U.S. Oil Firms Can Help Right the Market,” Wall Street Journal (January 28, 2015), available at http://www.wsj.com/articles/harold-hamm-says-u-s-oil-firms-can-help-right-the-market-1422489582.