

All Good Things Come to an End – And so will Cheap Shale Gas from Marcellus

By Dr. W. Dennis Eklof ©

The current “Gold Rush” mentality to jump on the Marcellus gas bandwagon may well lead our energy policy and decision makers to colossal disappointments in the future and ultimately result in unexpectedly higher costs to energy consumers.

There is no question that the developments in supplies of natural gas from several shale gas fields, particularly Marcellus and Utica in the Northeast, have exceeded most expectations. Over 4,300 horizontal wells have been drilled in the Marcellus fields alone, and production capacity is rising more rapidly than the pipeline infrastructure to get the gas to suitable markets.

The availability of this cheap resource is fundamentally changing many aspects of our energy policy. At the low natural gas prices that prevail for all but the coldest days of the year in New England, alternate energy sources cannot compete. Even existing power generation facilities like the Vermont Yankee nuclear plant are closing after their owners have evaluated their lack of competitiveness with new gas-fired generation fueled by low-cost gas.¹

Similarly, gas exploration offshore in Canada has virtually ceased because any new production will not be able to compete with the current price of gas supplies from Marcellus, maybe not even in the local market in the Canadian Maritimes.² LNG import terminals in the Northeast are either idle or reduced to minimal volumes to meet peak-load shortages for a few days in winter.³ There are also discussions underway for several LNG export facilities designed to supply Marcellus gas to markets in Europe.

And finally, there are proposals for major increases in pipeline capacity to bring more shale gas to New England, most notably the Kinder Morgan Northeast Energy Direct project to bring more than 2 billion cubic feet per day (bcfd) into New England via a new pipeline across rural areas of northern Massachusetts.⁴

What’s wrong with this picture? Why not take advantage of the natural gas windfall that Marcellus represents? The answer is that many of the proposed projects assume decades-long supplies of very cheap natural gas – an assumption that is quite likely erroneous. And the consequences of this error could be costly for all of us and detrimental to long-term energy sustainability goals.

Many of the proposed gas developments involve huge capital investments and massive infrastructure that will be with us for two or three decades or longer. In the case of some of these investments, for example, LNG export facilities or major new gas-fired industrial developments, the risk of higher natural gas prices will be borne by the company shareholders, but in the case of new pipeline infrastructure and gas-fired power plants, you and I as gas and electricity consumers will be forced to pay for the error. Kinder Morgan, or any other pipeline developer, is guaranteed a rate of return on its investment under Federal Energy Regulatory Commission (FERC) regulations. Should the volume on Kinder Morgan’s 2 bcfd pipeline drop to 1 bcfd, the capital

¹ Entergy Press Release, August 27, 2013, http://www.entergy.com/News_Room/newsrelease.aspx?NR_ID=2769

² The Future Supply of Natural Gas in our Region: Impacts, Challenges and Opportunities, Atlantica Center for Energy, October, 2012, http://www.atlanticaenergy.org/uploads/file/ACfENaturalgasupply_oct2012.pdf, Section 5.3.

³ 2 Costly LNG Terminals Sit Idle, Jay Fitzgerald, *Boston Globe*, January 23, 2013, <http://www.bostonglobe.com/business/2013/01/23/offshore-gas-terminals-mass-bust-far/Qu8dyZzF6yBNAsDNAT1ZJ/story.html>

⁴ Tennessee Gas Pipeline Northeast Energy Direct Project, http://www.kindermorgan.com/business/gas_pipelines/east/neenergydirect/

recovery component of the FERC-regulated tariff (estimated at \$.01 to \$.04 per kwh at full capacity) would double.

So, why will the price of Marcellus (and other shale gas) increase?

First, production costs will increase. Environmental and safety regulations of gas fracking are in their infancy, but are almost certain to become more stringent and costly in the future⁵ with some areas likely to be declared inappropriate for development. These changes will both add to the costs of developing shale gas and reduce the volume of the in-ground resource available for development.⁶ At the same time, as lower-cost easier to access resources are fully developed, producers will need to turn to less economical resources, and that will also increase their costs.

Second, the estimates of ultimately producible gas from shale gas fields may be overly optimistic, often based on a misunderstanding of technical estimates. One recent estimate of “Technically Recoverable Resources” was 92 years at current consumption levels, but that figure dramatically overstates potential production.⁷ First, the estimate of Technically Recoverable Resources takes no account of the cost of recovering those resources. The same study estimates only about 26 years of supply when current gas prices (about \$4 per mmbtu) are taken into consideration. Also, the 26-year estimate is based on gas consumption at 2013 levels. As new markets are developed for the gas (including exports and rapid growth in gas use in power generation), the years of supply will likely decline even as prices (and thus economically recoverable reserves) increase. Right now, there is more gas being developed in the Northeast than can be moved to a market, but as that supply surplus is eroded prices are likely to increase.

Of course, any estimates of future natural gas supplies (and price) are highly speculative. New resources are discovered, new technologies evolve, and regulations change. One has only to examine the history of LNG imports into the US, where four import terminals were built at great cost between 1971 and 1980 based on the premise that US gas production was inevitably declining. For most of the next two decades these terminals were either mothballed or underutilized, and despite a brief resurgence of interest in the mid 2000s these four terminals and all those built post-1980 are no longer competitive with domestically produced gas.⁸

In the face of such uncertainties, approving the Kinder Morgan project that will deface some of the most pristine areas of rural Massachusetts, threaten achievement of long-term energy sustainability goals such as the Federal Renewable Portfolio Standard, and expose New England rate payers to the risk of consistently higher energy prices seems a very questionable decision, particularly when more modular and measured solutions are available.⁹

⁵ *Modern Shale Gas Development on the United States: An Update*, National Energy Technology Laboratory, September 2013, <http://www.netl.doe.gov/File%20Library/Research/Oil-Gas/shale-gas-primer-update-2013.pdf>, page 55.

⁶ *Hydraulic Fracturing in the Marcellus Shale Region of the U.S.*, Kristen Coletti, Northeastern University, current, <http://www.northeastern.edu/nuwriting/hydraulic-fracturing-in-the-marcellus-shale-region-of-the-u-s/>

⁷ *Resource Assessment of Potentially Producible Natural Gas Volumes from the Marcellus Shale, State of New York*, Prepared for the League of Women Voters of New York State by Labyrinth Consulting Services, Inc., April 10, 2014. http://www.psehealthyenergy.org/data/Marcellus_Resource_Assessment_for_New_York_April_10_2014.pdf

⁸ See chart on US LNG imports from the US Department of Energy at <http://www.eia.gov/dnav/ng/hist/n9103us2m.htm>

⁹ See, for example, Spectra Energy proposals for gradual increases in pipeline capacity as market needs warrant. [Spectra Energy announces additional expansions.](#)

About the Author

Dr. W. Dennis Eklof is a resident of Groton, Massachusetts, and is a member of two committees opposed to the Kinder Morgan pipeline as currently proposed.

Now retired, his professional career spanned 45 years in a wide variety of sectors of energy industries. During most of his career he was actively involved consulting with governments, oil and gas producers, oil refiners, power generators, and energy transportation companies with a primary focus on market analysis, infrastructure development, and project economics. During his career he has held senior positions with Data Resources, Inc., McGraw Hill, Inc., Cambridge Energy Research Associates, and Global Insight, Inc. as well as acting as an independent consultant.

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