

U.S. Energy Independence – So Close, Yet So Far

By Michael McMahon

July 25, 2011

This is a guest column written by Michael McMahon, managing director of Pine Brook.

Will 2011 be the year our nation finally adopts an energy policy that can make a real impact on achieving energy independence? Not if the President and the Congress continue to use energy policy as a political piñata.

With the stakes increasing by the day, it's time for the oil and gas industry to step up and broker a reasonable solution. Only by abandoning slogans and entrenched political posturing will we be able to turn to solutions that are rooted in science and economics.

There is no question that oil and gas produced from shale holds the potential for a transformation of the energy landscape in the United States. According to the Federal Reserve Economic Database, the U.S. imported 61 percent of its oil, or 4.25 billion barrels in 2010, sending approximately \$337 billion overseas.

Indeed, President Obama recently placed natural gas front and center as a solution to our nation's oil dependency, stating, "recent innovations have given us the opportunity to tap large reserves – perhaps a century's worth – in the shale under our feet."

This supply of low-cost natural gas will allow the U.S. to transform its electricity production into a green energy source at scale. Of equal importance, because the gas and oil are produced in our country, it will result in hundreds of thousands of high paying jobs, and tax revenues at both the federal and state levels. Similarly, oil produced from shale will allow the U.S. to un-hook from the spigot of oil supplied from global hot spots.



But this bounty does not come without costs. In the case of gas and oil from shale there has been a great deal of attention devoted to the environmental down-side associated with the process of retrieving these energy resources, known as hydraulic fracture stimulation (“fracking”).

Industry supporters dismiss those opposed to fracking as “tree huggers” who want to stop all development, at any cost. Some even take the view that there is no problem and they should be left alone. Both of these are untenable positions.

The industry has only itself to blame for allowing the very real, but manageable, environmental issues associated with fracking to have captured the headlines. The industry did not address this issue on a timely basis. While a number of responsible companies are pursuing best practices, it would have been relatively easy to put environmental concerns to rest if the industry had acted in concert and taken a more proactive stance sooner.

The industry’s initial refusal to provide details on the chemicals used in the fracking process is the first example of this head in the sand approach. Companies claimed that the formulas they used were trade secrets and needed to be protected.

But the chemicals are not the big issue. Rather, as a consequence of injecting water and sand into the shale formation to crack the rocks so gas and oil will flow, massive amounts of waste water comes back to the surface with significant amounts of contaminants as a result of leaching out salt, heavy metals and trace amounts of radioactive materials from the rock formation itself.

The resulting environmental issues can be separated into below ground and above ground. Below ground issues concern contamination of drinking water aquifers with methane and/or drilling related fluids. Above ground issues deal with disposal of waste water.

The below ground issues are relatively easy to deal with. Shale gas reservoirs are located thousands of feet below the fresh water aquifers. What is required is to make sure that the drilling fluids and frack wastewater do not come in contact with the fresh water aquifers when the wells are being drilled, completed, or produced. Better operators are addressing these issues up front. They test nearby water wells to determine the level of naturally-occurring methane and other contamination before and after drilling in order to ensure that their drilling and completion activities have not caused any issues. These operators also place an emphasis on appropriate casing designs and cementing practices to maintain wellbore integrity and protect the freshwater aquifers.

Above ground, the issue relates to the proper handling and disposal of frack wastewater. Underground disposal is a safe approach that has been used for many years in areas where there are limited or no fresh water aquifers. In these locations disposal wells are drilled into existing underground salt-water aquifers and the waste water is pumped into these zones.

The industry has made great strides in addressing these concerns, and continues to work with suppliers to provide on-site treatment. These innovative solutions entail reusing most of the water to frack additional wells so that ultimately, contaminated materials are reduced to a tiny fraction by volume so that it can be safely delivered to hazardous waste disposal facilities. This treatment and reuse approach has the additional benefit of requiring much less water in those areas where water is a scarce resource.

Overall, the incremental cost of doing things the right way results in just a small increase in the cost of producing gas from shale, in the range of 20-30 cents per MCF—certainly not enough to derail the

development of this resource, or permanently disadvantage it against other sources of supply. Costs for producing oil from shale are even lower in relation to the total cost of such oil production.

Shifting our nation's dependence away from oil by tapping the abundant natural gas resources below our feet has become a presidential priority. Such a move also enjoys broad bipartisan congressional support. It is now time for the industry to take a leadership role in addressing any lingering safety concerns so that we may finally make energy independence a reality, not just a platitude.

Once the industry engages and constructively contributes to the ongoing energy debate, they will do what they have always done: tackle the problem using good science, good engineering, innovation and responsible business practices. Now is the time for industry leadership – our nation's energy policy hangs in the balance.

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