Is Fracking a Good Fit for NC?

by Mike Timmons
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Gov. McCrory and NC's GOP-dominated Legislature have pushed a bill to accelerate the development of hydraulic fracturing, known commonly as fracking, to exploit natural gas reserves that may reside in our state's shale rock deposits. Is this wise for our leaders to push a potentially dangerous process until adequate safety regulations are in place, and more fundamentally, are there adequate safety measures?

There are at least three areas of concern that should have acceptable answers before drilling begins. They are:

1. Are risks to the environment, drinking-water supply, and air quality justified by the economic return potential and minimized by the oil and gas industry practices?

2. In the long term, is fracking even economically viable for NC?

3. Will the health of NC workers who do the fracking or citizens who live near drilling operations be compromised by the process?

There are already answers, some still debated, for many of the questions that arise in these three general categories, but none for others yet. Let's consider the issues individually.

1. Impact on the Environment

In 2012, the US Geological Survey (USGS) reported that NC shale deposits pose greater environmental risks than those of other states such as PA, TX, of OK because our shale deposits are closer to the surface and to groundwater. On the other side of the coin, oil and gas companies and their business and trade associations have claimed fracking is relatively free of environmental risk. Does this mean fracking is only done by oil and gas companies with adequate resources, corporate will, and corporate culture to abide by environmental regulations at the expense of profits and corner-cutting options? This would certainly be a best-case scenario. But if this best-case scenario is not the pragmatic reality, how else can we explain the more than 1400 environmental violations reported in Pennsylvania alone (and the $25.7 million in fines collected by PA since 2008); how else can we explain surface, ground, and drinking water contamination reported in at least 8 states due to fracking; or how can we explain other types of pollution—from truck traffic, chemical contamination at storage tanks, or habitat damage—all related to the fracking process? (These data come from: www.cleanwateraction.org.) In another example, the state of Ohio has found more than 4,600 environmental violations for oil and gas companies since 2001 (these data come from the Columbus (OH) Dispatch: http://www.dispatch.com/content/stories/local/2011/09/25/fracking-

future.html and were published in 2011). With these numbers of environmental violations by oil and gas companies, why should we in NC expect our experience to be different?

The fracking process uses a fluid cocktail that is injected under high pressure into the ground to fracture the shale and release trapped gas. This cocktail contains known carcinogens. Drilling companies are fighting to keep the composition of the fracking fluid secret. In NC, as a part of the bill to accelerate fracking in the state, GOP senators initially proposed to make it a felony for anyone to disclose the contents of fluids, an effort apparently to discourage whistle blowers who might warn the public of dangers and to accede to demands made by drilling companies; in the final version of the bill, the penalty for disclosure was reduced to a misdemeanor. It is easy to understand the importance of industrial trade secrets, but shouldn't issues of public safety and welfare trump those "secrets" when possible corporate malfeasance or negligence is suspected?

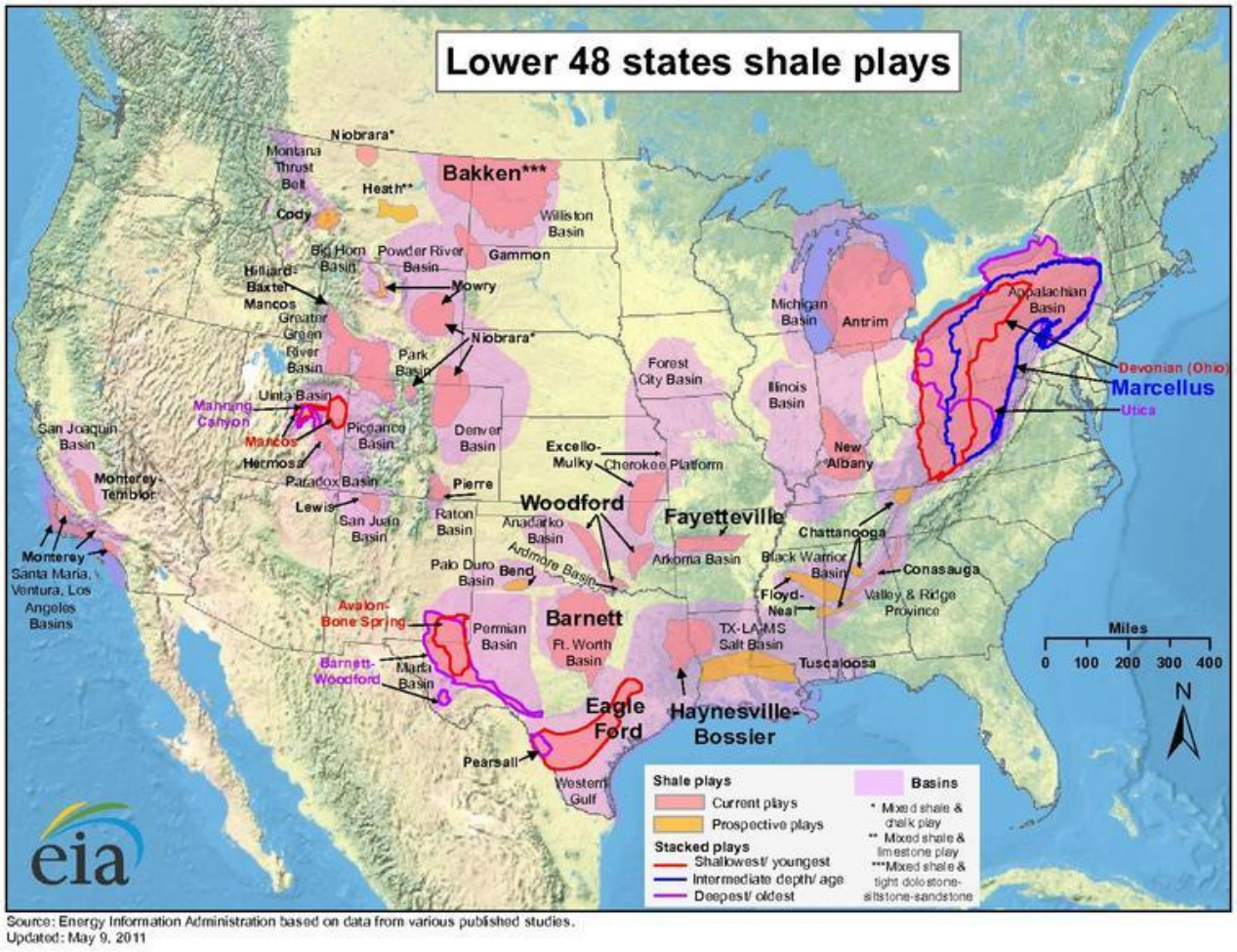
Each well that is drilled and developed by fracking requires more than a million gallons of fresh water. This water comes from local sources. Only about a half of this water and cocktail mixture, once injected, is collected and stored in tanks or ponds (a similar situation to coal ash ponds). The precise disposition of the fluid remaining in the ground is uncertain. Ideally, most of the liquid remains in the shale, separated from water supplies, but certainly there is a risk that some enters the water supply. There is evidence to support this. In NC, this is troubling because of the USGS report on the closer proximity of shale deposits to water supplies and the smaller size of shale deposits compared to other states. Final versions of fracking regulations will be settled after public hearings by the NC Mining and Energy Commission, headed by Dr. Vikram Rao. Well-credentialed with MS and PhD degrees from Stanford University, Dr. Rao was employed in the oil and gas industry, including a position as Chief Technical Officer with Halliburton, Inc., for many years. This background excludes Dr. Rao from neither industrial prejudice nor inordinate environmental concern, but questions about his inclinations to protect NC's environment seem legitimate to ask in view of these industrial affiliations, particularly his tenure at Halliburton (much like Gov. McCrory's tenure at Duke Energy invites questions).

In summary, there are many unanswered questions about the impact fracking will make on the environment of NC. Risks are elevated relative to other states where problems have been already been experienced. NC citizens were promised the most rigorous protective fracking regulations in the country, but that promise was broken with the passage of the bill to accelerate fracking and by the draft regulations offered by the NC Mining and Energy Commission.

2. Economic Reality for NC

As a part of the USGS survey, the amount of shale and possible gas reserves in NC were determined to be much smaller than other states such as PA, TX, OK, ND, and WV. To demon-

strate this, the following map, published by the Energy Information Administration (EIA), shows current and prospective natural gas plays. Conspicuous on the map is the absence of any prospective plays (orange color on the map) in NC.



Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Estimates of NC well productivity range from only 5 to 10 years. Even if we disregard environmental concerns, which is reckless, economic reality about fracking in NC needs to be questioned.

Dr. Robert Jackson is an earth sciences professor at Stanford University and, prior to that, was a member of Duke University's Nicholas School, one of the most highly regarded groups for environmental science studies in the country. On July 1 of this year, Raleigh's News &Observer published an article by Dr. Jackson that compared the economic potential of shale gas production in NC to that of energy powerhouse Argentina and that of relative newcomer Poland.

In Argentina, which has huge reserves (estimated to be larger than those of the entire US) located close to the oil/gas infrastructure and pipelines, fracking is just now showing profits after drilling more than 150 wells. But even with these advantages, the Argentine state-owned gas/oil company had to invest "big money", more than $1 billion, to develop their resources. Argentinean success is due to the proximity of resources to infrastructure, the size of the shale deposits, and the availability of capital from its oil/gas industry. NC has none of these.

Poland, with estimated gas reserves more than 100 times that of NC but with none of the advantages of Argentina, "looks like a bust" after drilling only 60 wells. How can NC's fracking be better than Poland's with less estimated gas reserves and, like Poland, none of the advantages of the Argentina?

According to Jackson, without the economy of scale, big oil/gas companies are not interested in NC. Big oil needs reserves that offer 10 to 50 years of production, not our 5 to 10 years. So, the drillers in NC are likely to be smaller firms, wildcatters and the "mom-and-pop" drillers who very likely don't have the financial resources to abide by environmental safeguards and regulations, even relaxed ones that we may see in our state. Says Jackson, "They come and go, and if they're out of business when liability arises or when things need to be cleaned up, that's too bad for the taxpayers, left holding the bill." Concludes Jackson, "If the major oil and gas companies are betting against North Carolina, we should be paying attention."

In short, the economic payoff, possibly much more limited than we have been told, for fracking in NC does not justify the increased risks to our environment and ground water and air quality. Is it possible that a small group of people will profit from fracking here, leaving a much larger number to pay for the environmental cleanup that may be required?

3. Risks to Workers and Those Living Near Drilling

In Dec. of 2013, NPR reported (http://www.npr.org/2013/12/27/250807226/on-the-job-deaths-spiking-as-oil-drilling-quickly-expands) that 138 oil and gas workers were killed on the job in 2012, which is 100 percent higher than the number killed in 2009 while the number of workers increased only 23 percent in the industry during that period.

The fatality rate among oil and gas workers is nearly 8 times higher than the all-industry rate of 3.2 deaths per 100,000. The death rate fell from 2006 until 2009 as less experienced workers were let go during the recession. But with the additional hiring since 2009, newer employees have received less training. Without question, this is a very dangerous industry for workers, particularly if job training is inadequate. Will the smaller oil companies likely to participate in NC's drilling give their hires the needed training?

There are few, if any, in-depth studies about the health effects of fracking on workers or residents who live near wells, but anecdotal evidence is mounting. One website

(http://pennsylvaniaallianceforcleanwaterandair.wordpress.com) documents and includes data sources for more than 800 reports of serious health effects to humans, pets, and livestock in PA, TX, and CO since the beginning of fracking in those states. Many of these reports are related to contamination of water and farm ponds.

The risks should also include consideration of air-born volatile organic components of the fracking cocktails and recovery water, which at present are regulated insufficiently or not at all by many states, including NC. Will the recovery fluids be stored in containers or open ponds? Will state environmental agencies produce reliable analyses of water contamination or will they, like the one in PA, be accused of failing to give accurate reports?

So while there are few studies to substantiate absolutely the dangers of fracking as currently practiced, there are sufficient anecdotal data to raise questions about the health risks to humans and animals. In NC, new regulations, promised to be the most rigid in the nation, now seem to be headed for much less restrictive ones. Why? With possible limited economic potential, why would our state risk water and air pollution for what may be short-term jobs and limited well productivity? Recent incidences in WV and OH, where hundreds of thousands of people faced compromised water supplies, should certainly sound the warning bells and make questions of fracking safety a paramount issue for NC's water and air quality.

In summary, there are strong reasons to question fracking in NC. There are unmeasured risks to NC's environment, to its drinking water supply and air quality. It is not clear yet if adequate regulations will be promulgated by the NC Energy and Mining Commission. Economically, fracking in NC does not make a case for extending risks to its environment, proven reserves being much smaller than in many other states. The industry is a dangerous one, with death rates about 8 times greater than the rate when all industries are combined. Anecdotal evidence for health risks for humans, pets, and livestock is increasing as the duration of fracking continues in states like, PA, OH, TX, CO, and ND. So, to some of us, fracking does not seem to fit NC.

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