Since the mid-1990s, technological advances in hydrologic fracturing and horizontal drilling have allowed access to natural gas from deep shale formations that were previously unreachable. This hydrologic “fracking” is yielding so much new gas that the Energy Information Administration (EIA) expects the United States to be a net exporter of natural gas by 2021. With these production predictions in mind, North Carolina recently passed a law permitting fracking after January 1, 2015, joining other nearby states with active fracking industries including Maryland, New York, Ohio, Pennsylvania, Virginia, and West Virginia.

Currently, the federal government has little role in the regulation of fracking, leaving it to states to decide how new natural gas resources should be safely developed. As North Carolina has debated the fracking issue during the past few months, news reports reflecting a wide range of opinion have flooded N.C.’s media outlets. Reports have claimed that fracking will contaminate residents’ water sources; other reports assert that the jobs and tax revenues from fracking will help local economies and county budgets. Some have raised questions about the extent of North Carolina’s shale reserves; the U.S. Geological Survey will issue a more precise estimate later this year that may be lower than was earlier anticipated.
So, what’s an observer to make of fracking in North Carolina?

*Economic Impact to Local Communities*

Looking at fracking in other states, several conclusions are relevant as North Carolina starts down this path.

- Counties with hydraulic fracking will likely have higher economic growth rates than those without it. A Pennsylvania study found that counties with fracking wells performed better across key economic indicators than those with no wells. The more wells a county contains, the better it performs economically.

- However, resource extraction may not be the most reliable route to sustainable prosperity. Fracking jobs are a very small percentage of statewide employment. West Virginia leads most states in share of employment from fracking, yet these jobs represent less than one percent of that state's total employment.

- While public infrastructure costs occur up front, production taxes do not begin until drilling is completed and natural gas production begins. Local governments typically wait two to five years before receiving related tax revenue.

*Air and Water Impacts*

Fracking near densely populated areas is generating concern regarding impacts on human health and the environment.

- Fracking uses highly-pressurized water and chemical additives to crack the shale. Natural gas trapped in the shale is then able to flow through these cracks into the gas well. This process requires three to seven million gallons of water per well. Although fracking usually represents a small portion of overall watershed use, fracking could impact commitments for water during periods of drought. This may be problematic for North Carolina, which has had its fair share of droughts.

- Recent research by the University of Texas did not find a direct link between fracturing and groundwater pollution. Fracking, which occurs a mile or more below the surface, is unlikely to
blast a path to drinking water sources typically located a few hundred feet down. Meanwhile, risks of above-ground spills are not significantly different with fracking as compared with other natural resource exploration.

- A Duke University study of water wells in New York and Pennsylvania released last year in the Proceedings of the National Academy of Sciences concluded that, although methane levels were significantly higher in wells closer to fracking operations, this methane likely resulted from abandoned wells or new wells that were inadequately mishandled.

- One of fracking’s biggest positives is that natural gas burns cleanly and produces less carbon dioxide than coal or oil. However, methane is a highly potent greenhouse gas, and opportunities for leakage exist at each step in the production process from drilling to transport.

With numerous wells operating without any known problems, the question isn’t can fracking in North Carolina be done safely, but will it be done safely? We will find out beginning January 2015. Stay tuned.

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What interests you about the natural and built environments in our state? Let us know, and it could be a topic for a future IEI Environments newsletter.