

Fracking -- The Great Shale Gas Rush

Natural gas derived from the process is lifting the economy, but it's environmentally risky

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The Pennsylvania homes of Karl Wasner and Arline LaTourette both sit atop the Marcellus Shale, a geologic formation that stretches from Tennessee to New York and holds vast deposits of natural gas. They also sit on opposite sides of a national debate over hydraulic fracturing, or fracking. That's the process that makes it economical for energy companies to tunnel 5,000 feet below ground and remove the gas—but also poses environmental risks.

Wasner settled 14 years ago in Milanville, in the state's northeast corner, and will leave if drilling companies set up derricks nearby. He already moved away for six weeks last year while an exploratory well was drilled nearby. The noise, muddy water pouring from his taps, and chemicals that turned up in a neighbor's well drove him off, he says. "I moved to a beautiful rural residential area," says Wasner, "not an industrial park."

LaTourette, whose roots in the area go back five generations, is banking on the drilling. Her family has leased almost 700 acres of farmland to Hess and other companies to tap into the Marcellus Shale. She won't say what she's getting, but signing bonuses can range from \$2,000 to \$5,000 an acre, and royalty payments are about 20 percent of the value of the gas produced.

President Barack Obama enthusiastically backs gas drilling, and these days 90 percent of it is done by fracking, which involves forcing below ground chemically treated water under high pressure to smash through layers of rock, thus freeing the gas to flow upward. Along with wind, solar, and nuclear power, natural gas is crucial to Obama's goal of producing 80 percent of electricity from clean energy sources by 2035. But the drilling is taking place with minimal oversight from the U.S. Environmental Protection Agency. State and regional authorities are trying to write their own rules—and having trouble keeping up.

Now, reports of contaminated water and alleged disposal of carcinogens in rivers have caught state and federal regulators, and even environmental watchdogs, off guard. Sometimes the fracking mix includes diesel fuel. Between 2005 and 2009, drillers injected 32 million gallons of fluids containing diesel into wells in 19 states, an investigation by Representative Henry A. Waxman (D-Calif.) concludes. Just as it recovers its footing from the 2010 Gulf of Mexico oil spill, the Administration faces a new threat, again involving a risky drilling technology and charges of lax regulation. Obama is "evaluating the need for new safeguards for drilling," says White House spokesman Clark W. Stevens. "It's likely that the science is going to say we need to regulate fracking," says Tyson Slocum, director of the energy program for Public Citizen, a liberal advocacy group. "But Obama's political team is going to say don't regulate, and I think the political team will win."

The Marcellus Shale may contain 490 trillion cubic feet of gas—enough to heat U.S. homes and power electric plants for two decades, says Terry Engelder, professor of geosciences at Pennsylvania State University. That makes it the world's second-largest gas field behind South Pars, shared by Iran and Qatar. The shale gas rush is creating thousands of jobs and reviving the economy in states such as Wyoming, Texas, and Louisiana. In Pennsylvania, where 2,516 wells have been drilled in the last three years, \$389 million in tax revenue and 44,000 jobs came from gas drilling in 2009, according to a Penn State report. Perhaps best of all, natural gas emits half the carbon emissions of oil.

While there have been no documented cases of fracking fluids flowing underground into drinking water, there have been spills above ground. Fracking produces millions of gallons of wastewater; some of it containing benzene has spilled from holding tanks. The wastewater can overwhelm treatment plants not equipped to handle high levels of contaminants. A Feb. 26 *New York Times* article, using documents from the EPA and state regulators, described how radioactive wastewater is being discharged into river basins. Sierra Club Deputy Executive Director Bruce Hamilton says Obama "has been sold a bill of goods." But even the Sierra Club has struggled with fracking. Last year it overruled New York and Pennsylvania chapters calling for a national fracking ban; now it's reconsidering that decision, Hamilton says.

The Delaware River Basin Commission, which manages the watershed that supplies drinking water to 15 million people in New York, Pennsylvania, New Jersey, and Delaware, has put gas development on hold while it drafts rules. Wasner and LaTourette were among scores of people to comment at a Feb. 22 hearing in Honesdale, Pa., on a commission proposal to regulate the drilling. New York also has fracking on hold while it develops a drilling playbook. The Marcellus Shale runs beneath the watershed that supplies just over 1 billion gallons of water a day to New York City, the U.S.'s largest unfiltered water system.

The White House has sent mixed signals. "It's not necessarily federal regulation that will be needed," EPA Administrator Lisa P. Jackson told a Feb. 3 Senate hearing, noting that many communities and states already monitor parts of the process. Energy Secretary Steven Chu seems to differ. In a 2010 speech, he said fracking can be "polluting" and that rules were inevitable. "We continue to believe that state regulatory agencies have the appropriate expertise" to oversee gas production, says Dan Whitten, a spokesman for America's Natural Gas Alliance.

Even if the EPA stepped in, its authority would be limited. A clause in a 2005 energy law—dubbed the "Halliburton loophole" for the company that helped pioneer fracking and is a supplier of fracking fluids—exempts fracking from parts of the Safe Drinking Water Act. Representative Maurice Hinchey (D-N.Y.) says Dick Cheney, once head of Halliburton, pushed for the exemption when he was Vice-President. Hinchey's evidence is circumstantial: Fracking was endorsed in Cheney's 2001 energy task force report, which led to the 2005 law and, according to Waxman, did not reflect the EPA's initial concerns about water pollution. Cheney declined to comment. Halliburton referred a request for comment to its website, which doesn't discuss fracking's risks.

So far, the EPA has begun a study of fracking's effect on drinking water. In February the agency said final results will come in 2014, two years after its initial target—and the 2012 elections. Its emphasis is "politics first and regulation second," says Kevin Book, managing director at ClearView Energy Partners, a Washington policy group. "It's impossible to miss the jobs power of fracking in the Marcellus."