

The Case for a Ban on Gas Fracking

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Billionaire oil tycoon T. Boone Pickens has invested millions of dollars in natural gas, which he promotes as a promising “bridge fuel” that could help the United States transition from dirty fossil fuels to clean, renewable energy.¹ This idea has gained traction as new drilling methods using hydraulic fracturing, or “fracking,” appear able to extract gas from rock sources that were previously uneconomical to access — especially shale.² Shale gas has become one of the “hottest investments in the energy sector.”³

Unfortunately, the promise of natural gas has been a nightmare for the neighbors of fracking gas wells. Over the past 18 months, at least 10 studies by scientists, Congress, investigative journalists and public interest groups have documented environmental problems with fracking. These studies, as well as the experiences of numerous affected Americans, have made it increasingly clear that this type of drilling poses unacceptable risks to the American public and is ultimately a misguided energy policy for the United States.

The History and Next Wave of Fracking

Hydraulic fracturing is not new, but its recent application to hard rock formations and the tremendous scale of the current rush for gas is a radical departure from wells of the past. Fracking injects a mixture of water, chemicals and sand into wells to create pressure that cracks the rocks, allowing the gas to escape and flow out of the wells.⁴ Hal-liburton is credited with the first commercial application to produce gas in 1949,⁵ and the gas industry insists that fracking has been used safely in thousands of wells for decades.⁶ But this claim does not adequately consider the next generation of fracking, which is far more powerful — and more dangerous — than drilling methods used in the past.

Up until the past decade, most on-shore gas production came from porous conventional rocks, a method where

loosely held gas flows into vertical wells drilled straight into the ground.⁷ Other rocks such as shales, tight sands and coal beds contain gas, but it was packed too tightly to extract using economical methods until recently.⁸ Drillers have now developed a new generation of fracking that uses curved “horizontal” wells in the rock formation, adding a mix of chemicals known as “slickwater” and injecting the fluids at high pressure in stages.⁹ The pressure created by these techniques has been compared to exploding a massive pipe bomb underground.¹⁰

Fracking America: Coming to a Rock Formation Near You

These technological advances spurred a fracking gas rush across America that some energy analysts and industry insiders have called a “natural gas revolution” and a “game changer.”¹¹ Gas companies first developed the Barnett Shale reserves in Texas and gas production there skyrocketed more than 3,000 percent between 1998 and 2007.¹² Drillers then targeted other shales as well — the Fayetteville Shale in Arkansas, the Woodford Shale in Oklahoma, the Haynesville Shale in Louisiana and the Marcellus Shale, which underlies parts of Pennsylvania, New York, Ohio, West Virginia, Virginia, Maryland and Kentucky.¹³

The number of fracking wells increased six-fold in Pennsylvania just between 2008 and 2010, and the number of fracking wells nationally increased 41 percent between

2004 and 2010.¹⁴ Unconventional gas production more than doubled in the decade between 2000 and 2010,¹⁵ as shale gas increased from 1 to 20 percent of the U.S. supply.¹⁶

Asleep at the Switch

The mad rush to drill was facilitated by a lack of government oversight, as federal and state regulators largely turned a blind eye to the environmental degradation caused by next-generation fracking.

In 2004, the U.S. Environmental Protection Agency (EPA) under the George W. Bush administration released a study focused on coalbed methane reservoirs that concluded fracking posed “little or no threat” to underground drinking water sources.¹⁷ The study has been widely discredited for ignoring case studies of fracking contamination.¹⁸ Nevertheless, the flaws of the study were effectively enshrined into law when fracking was exempted from provisions of the Safe Drinking Water Act. The Energy Policy Act of 2005 exempted the oil and gas industry from a wide range of federal environmental and public health regulations.¹⁹ It explicitly excluded hydraulic fracturing from the Safe Drinking Water Act’s regulations of underground injection wells.²⁰

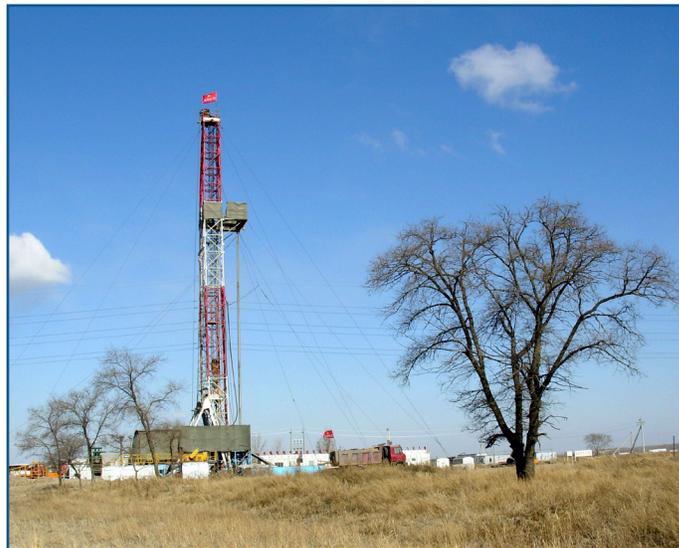
Since then, Congress has taken some steps to oversee the industry, such as commissioning a new study by the EPA and introducing legislation that would close loopholes in the Safe Drinking Water Act and Clean Air Act.²¹ However, the industry has battled even these limited steps forward.

The void in federal regulation has left oversight to the states,²² whose regulatory agencies have struggled to keep up,²³ as state agencies are often understaffed,²⁴ and states also are conflicted about coming down hard on fracking pollution — they receive revenues from drilling permits, taxes and royalties

Toxic Air and Polluted Water

As the industry has rushed forward without adequate oversight, local communities have suffered the consequences.

For example, natural gas fracking extraction emits greenhouse gases, smog-inducing compounds and potential carcinogens causing dangerous health and environmental effects. A 2011 Cornell University study found that shale gas has a greater greenhouse gas footprint than conventional gas or oil.²⁵ Methane is also highly flammable and a serious safety hazard.²⁶ Methanol, formaldehyde and carbon disulfide are known hazardous air pollutants found near fracking sites.²⁷ Texas regulators found that air samples contained high levels of neurotoxins and carcinogens such as airborne benzene near wells in the Barnett Shale.²⁸ Some of the airborne pollutants from fracked gas wells, like volatile organic compounds, can react with sunlight to



create smog.²⁹ Air pollution is already evident in areas near unconventional drilling sites in Colorado, Texas and Wyoming. Sublette County, a rural Wyoming community with a high concentration of gas wells, has recorded higher ozone levels than those in Houston and Los Angeles.³⁰

The rapid increase in fracking wells has also polluted drinking water supplies and waterways. The wells can experience a rupture or blowback under tremendous pressure, spilling chemical-laden water into surface water or groundwater. Natural gas and chemicals can migrate into aquifers and wells. In fact, the public interest nonprofit group ProPublica identified more than 1,000 cases of water contamination near drilling sites documented by courts, states and local governments around the country prior to 2009.³¹ Affected communities include Pavillion Wyoming; Dimock, Pennsylvania; Garfield County, Colorado; and Parker County, Texas.³²

This is potentially very dangerous to human health. Three recent studies have documented the human health risks from commonly used chemicals in fracking fluids, including diesel fuels and benzene, a known carcinogen.³³ The methane itself can also present a health hazard because when methane saturates drinking water wells, a home’s tap water can become explosive. A 2011 Duke University study demonstrated that groundwater near fracking operations has higher methane concentrations.³⁴ If methane can migrate, it is likely that other chemicals can as well.³⁵

Fracking also produces a liquid waste product. The waste can be so toxic and concentrated that it is very difficult to dispose of safely. One method to get rid of fracking waste is to inject it in disposal wells in rock formations underground.³⁶ This method is common for most shale plays except the Marcellus Shale because Appalachian geology is unsuitable for underground injection.³⁷ Only a few injection wells exist in Pennsylvania.³⁸ Drillers near population centers can send fracking waste to local wastewater treatment plants, which treat and dilute the wastewater and

release it into surface waters.³⁹ Standard wastewater treatment cannot handle the chlorides, total dissolved solids, organic chemicals, bromide and fracking fluid chemicals.⁴⁰ The water may also contain radioactive elements picked up during its journey underground.⁴¹ In Pennsylvania, discharges of inadequately treated waste have contributed to surface water pollution. Even after 2010 rules reduced fracking pollution, the Pennsylvania Department of Environmental Protection estimated that gas wastewater was causing 5 to 10 percent of the pollution in the river.⁴²

Economic Costs

The shale gas rush is not just a danger to public health, but also to local economies. While industry promotes job creation and local investment, they typically do not account for the long-term economic damage and the significant erosion of communities' quality of life that can outweigh those benefits.⁴³

For example, new wells require fleets of trucks, and locals bear the cost of repairing the roads. Cacophonous drilling rigs operate 24 hours a day, 7 days a week.⁴⁴ Scenic vistas are replaced with an industrial landscape of gas wells, which lowers property values and harms tourism and recreation industries. Most economic gains are short-lived — employment, construction, housing demand and even royalty payments are large at first, but diminish quickly after the initial investment.⁴⁵ Locals do not always fill drilling jobs.⁴⁶ Farmers are particularly vulnerable. Organic farmers could lose their premium prices if industrial fracking fluid pollutes their crops or livestock.⁴⁷ Farm sales could be destroyed if pollution threatens livestock, crops or farmland. Fracking also requires pipelines to transport the gas, which can pose safety hazards from explosions.⁴⁸

A Step in the Wrong Direction

Rather than taking a strategic pause in the face of the demonstrable problems with fracking, President Barack Obama's administration is pursuing fracked natural gas full speed ahead. In an April 2011 speech, President Obama said that "the potential for natural gas is enormous" and promoted proposed legislation to shift from oil to natural

gas — the same legislation endorsed by T. Boone Pickens to subsidize natural gas vehicles.⁴⁹ The public opposition to fracking prompted the administration to launch a committee to figure out how to make fracking safe.⁵⁰ This attempt is misguided — fracking is not safe.

Rather than investing in a new fossil fuel, the United States should be aggressively pursuing energy efficiency and clean, renewable energy options. Furthermore, unsound U.S. policy could set a bad example for the rest of the world, as America's fracking fad is poised to go global. China fracked its first horizontal shale gas well in April 2011 and some European countries are considering following suit.⁵¹ But South Africa and Quebec, Canada, have imposed fracking moratoriums, and popular opposition in France and the United Kingdom has slowed development.⁵²

Conclusion

Shale gas fracking poses unacceptable risks to the American public. Today, many municipalities around the country are banning fracking to protect their citizens from the negative consequences of this type of drilling. These local resolutions are a good idea, but they won't protect the entire country. Even if the laws on the books were strengthened, fracking poses too severe a risk to public health and the environment to entrust effective and rigorous regulatory oversight to overwhelmed regulators. Both state and federal regulators have a poor track record of protecting the public from the impacts of fracking. Congress, state legislators and local governmental bodies need to ban shale gas fracking. It is time to stop destroying public air and water in the interest of oil and gas company profits, and instead seek energy solutions that will provide a long-term, renewable energy future for the United States.

Recommendations

- Ban shale gas fracking in the United States
- Close loopholes that exempt fracking from key federal air and water environmental regulations
- Aggressively invest in energy efficiency and renewable energy sources that would result in a sustainable energy future for the country

TEN STUDIES AND INVESTIGATIONS January 2010 to May 2011

New York Times (February 2011)⁵³

House Energy and Commerce Committee (January 2011, April 2011)⁵⁴

Riverkeeper (September 2010)⁵⁵

Cornell University (March 2011)⁵⁶

Environmental Working Group (January 2010)⁵⁷

PennEnvironment Research and Policy Center (May 2010)⁵⁸

Duke University (April 2011)⁵⁹

Endocrine Disruption Exchange (September 2010)⁶⁰

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