

# Hydraulic Fracturing: Effects on Energy Supply, the Economy, and the Environment

## *What is Hydraulic Fracturing?*

A process developed in the 1940's, and used over 50 years now, hydraulic fracturing is a technique that allows natural gas and oil to move more freely from the rock pores, where they are trapped, to the producing well. A fluid (usually water with some specialty high viscosity fluid additives) is pumped at high pressure into a formation through a man-made fracture. The pressure of this fluid cracks the rock and opens more fractures in the rock. A sand-like substance is then injected to prop the cracks open and prevent the rock from collapsing back onto itself. With the propping agent (the sand) holding the rock apart, sometimes by less than a millimeter, the natural gas or oil is able to flow through the fractures, to the well and back up to the surface.

## *Why use Hydraulic Fracturing?*

Hydraulic fracturing allows improved recovery of valuable energy resources and production of greater volumes of hydrocarbons from each well. The size of the area drained by a hydraulically fractured well is larger than wells that are not stimulated by the process. Therefore, fewer oil and gas wells need to be drilled if hydraulic fracturing is utilized, which in turn minimizes waste volumes and surface disturbance associated with oil and gas drilling. Most significantly, hydraulic fracturing is a linchpin to production from natural gas shale formations – the fastest growing component of American natural gas production.

## Hydraulic Fracturing and Natural Gas

- Hydraulic fracturing has allowed for greater recovery of natural gas, *approximately 600 trillion cubic feet!*
- Natural gas is a critical component to all current proposals for climate change legislation
- Further regulation of the fracturing process could stall, or devastate, the production of American natural gas

## *Role of Hydraulic Fracturing in America's Energy Supply*

Ninety percent of oil and gas wells in the United States undergo fracturing to stimulate production. The use of hydraulic fracturing is estimated to account for 30% of U.S. recoverable oil and gas reserves, and is responsible for the addition of 7 billion barrels of oil and 600 trillion cubic feet of natural gas. Without hydraulic fracturing, we would be producing much less oil and gas in America, relying more on foreign imports to meet the energy demands of our nation.

## *Technology and the Economy*

Technological breakthroughs in the oil and natural gas industry, such as hydraulic fracturing, have allowed for greater recovery of our natural resources. These breakthroughs continue today, to make processes like hydraulic fracturing more cost efficient and safer for the environment.

Without the ability to recover resources with the use of hydraulic fracturing, our economy may have a significantly different look. Technology such as hydraulic fracturing has made it possible for many communities to see economic gains due to production of oil and gas. For example, the Barnett shale play in the Dallas/Fort Worth, TX, area has brought literally thousands of jobs into the area. Royalties and taxes paid to the counties and property owners have resulted in a positive economic boost. Soon there will be more communities that stand to gain similar economic benefits, such as the Fayetteville shale (Arkansas), the Marcellus shale (Pennsylvania), the Haynesville shale (Louisiana), and the Bakken Shale (North Dakota). Without the hydraulic fracturing process, we would not see this kind of growth in production and economy.

### ***Regulating Hydraulic Fracturing***

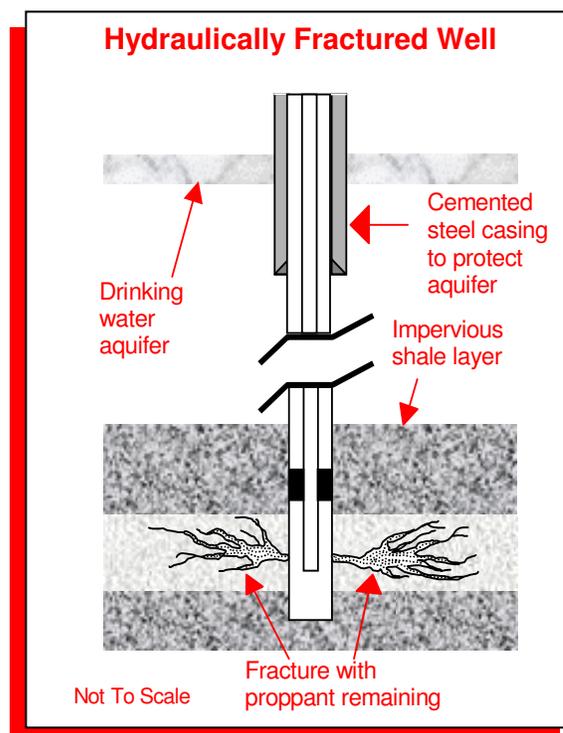
Each oil and gas producing state in the U.S. employs highly trained individuals in their oil and gas regulatory agencies. State regulations have been in place, and working, for over 50 years through these well permitting programs. Because of the effectiveness of these state regulations, hydraulic fracturing has never presented an environmental risk. Unfortunately, a court case created confusion over regulation by concluding that it should be regulated differently under the Safe Drinking Water Act (SDWA). Congress acted in 2005 to clarify the SDWA jurisdiction and assure that the effective state well permitting programs would continue to manage hydraulic fracturing. Some environmental groups call this decision a “loophole” in federal law. This characterization is entirely inaccurate; Congress’ action merely keeps in place a system that has worked for half a century.

Over the years, this process has been studied on separate occasions by both the Ground Water Protection Council (GWPC) and the Environmental Protection Agency (EPA) and shown to be effective. The EPA study, released in June 2004, found no significant environmental risks as a result of proper hydraulic fracturing.

### ***Hydraulic Fracturing and Groundwater***

The Interstate Oil and Gas Commission (IOGCC) is a multi-state government agency that champions the conservation and efficient recovery of American oil and natural gas resources while protecting health, safety and the environment. It reports that even though 90% of oil and gas wells in the United States (one million wells total) have undergone fracturing to stimulate production, there have been no confirmed cases of contamination of underground sources of drinking water. In fact, the industry goes to great lengths to protect sources of drinking water.

Well construction requirements include components intended to protect groundwater resources. Steel pipe, known as surface casing, is cemented into place at the uppermost portion of a well for the explicit purpose of protecting groundwater. This casing and cementing is a critical part of the well construction that protects not only any water zones, but also the integrity of the production zone(s). Current industry well design practices ensure multiple levels of protection between any sources of drinking water and the production zone of an oil and gas well.



*The Independent Petroleum Association of America  
represents the companies that drill 90 percent of America's onshore and offshore oil and natural gas wells.*