

# Hydraulic Fracturing and Real Estate Issues

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## Abstract

Fracking, or hydraulic fracturing, has literally changed the landscape of the nation. Indeed, thousands of wells have been installed from coast to coast. On the positive side, fracking has greatly reduced the nation's dependence upon foreign oil, created jobs, increased some land values, and stimulated the economy. On the negative side, there are concerns over the potential for contamination, the use of limited water supplies, and other issues. The objective of this article is to present the key issues related to this drilling technology within the context of real estate considerations.

## Introduction

Hydraulic fracturing, often called by its nickname "fracking," is an advanced drilling technique that originated in the 1940s. The technique uses a hydraulic process that creates fractures or cracks in shale formations to free up the natural resource being targeted for extraction. Fracking has become more common due to the innovation of horizontal drilling in the 1980s, which allows the ability to access more oil and gas than from a vertical drill shaft. By drilling horizontally and using hydraulic fracturing, natural resources that are otherwise inaccessible can be extracted from relatively thin layers of shale.

While fracking has been part of the real estate landscape for decades, focus on the topic can give rise to issues related to property values. Fracking has the potential for both positive and negative impacts. The positive impacts include the United States coming closer to oil independence, a spurring of economic growth, and lower energy prices. On the other hand, fracking has sparked controversy with some environmentalists. The concerns generally center upon the use of large quantities of fresh water, wastewater treatment, contamination, and geotechnical issues.

In terms of real estate values, fracking can have positive, negative, or neutral effects. To add to the issue, mineral rights may also have to be considered. Where fracking is feasible, land values have been known to remain stable or even escalate due to the added value of the mineral rights of the property. However, there may be a diminu-

tion in value in instances of contamination or other adverse conditions, such as noise, odor, or appearance. Ultimately, the established real estate damage valuation methodologies, using relevant market data, can determine if fracking has caused an impact on value.

## The Fracking Process

The fracking process is one that takes several months to install, but the investment can yield returns of twenty to forty years of oil or natural gas extraction. The process starts out similar to any conventional drilling project. A vertical wellbore is drilled using a drill pipe and drill bit. A wellbore is the hole that is drilled to collect the natural resources. The hole is excavated past the deepest underground freshwater supply to protect it from subsurface contamination. After the hole is drilled, the vertical wellbore is encased with materials such as steel and concrete to stabilize the well and create a protective barrier for any underground freshwater reservoirs or proximal groundwater channels and aquifers intersected by the wellbore.

Depending on the depth of the oil strata, the bore hole continues usually at least 1,000 feet to over a half a mile down to what is called the "kick-off" point or well heel. At this kick-off point, the wellbore begins curving until it becomes horizontal. Again, surface casing is inserted and reinforced by concrete. In some cases, a perforating gun, which contains explosive charges, is lowered through the horizontal portion of the wellbore. When it is fired, it cre-