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# An Overview Of Unconventional Oil And Natural Gas: Resources And Federal Actions



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## **An Overview of Unconventional Oil and Natural Gas: Resources and Federal Actions**

**Michael Ratner**  
Specialist in Energy Policy

**Mary Tiemann**  
Specialist in Environmental Policy

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## Synopsis

The United States has seen a resurgence in petroleum production, mainly driven by technology improvements—hydraulic fracturing and directional drilling—developed for natural gas production from shale formations. Application of both of these technologies enabled natural gas to be economically produced from shale and other unconventional formations, and contributed to the United States becoming the world's largest natural gas producer in 2009. Use of these technologies has also contributed to the rise in U.S. oil production over the last few years. In 2009, annual oil production increased over 2008, the first annual rise since 1991, and has continued to increase each year since then. Between October 2007 and October 2013, U.S. monthly crude oil production rose by 2.7 million barrels per day, with about 92% of the increase coming from shale and related tight oil formations in Texas and North Dakota. Other tight oil plays are also being developed, and helped raise the prospect of energy independence, particularly for North America. The rapid expansion of oil and gas extraction using hydraulic fracturing—both in rural and more densely populated areas—has raised concerns about its potential environmental and health impacts. These concerns have focused primarily on potential impacts to groundwater and surface water quality, public and private water supplies, and air quality. States broadly regulate oil and gas exploration and production on non-federal lands. State laws and regulations governing unconventional oil and natural gas development have been evolving across the states in response to changes in production practices, largely in response to the use of high-volume hydraulic fracturing in combination with directional drilling. However, state regulations vary considerably, leading to calls for more federal regulation of unconventional oil and natural gas extraction activities. Although several federal environmental laws can apply to certain activities related to oil and gas production, proposals to expand federal regulation in this area have been highly controversial. Some advocates of a larger federal role point to a wide range of differences among state regulatory regimes, and argue that a national framework is needed to ensure a consistent minimum level of protection for surface and groundwater resources, and air quality. Others argue against more federal involvement, and point to the long-established state oil and natural gas regulatory programs, regional differences in geology and water resources, and concern over regulatory redundancy. The federal role in regulating oil and gas extraction activities—and hydraulic fracturing, in particular—has been the subject of considerable debate and legislative proposals for several years, but legislation has not been enacted. While congressional debate has continued, the Administration has pursued a number of regulatory initiatives related to unconventional oil and gas development under existing statutory authorities. This report focuses on the growth in U.S. oil and

natural gas production driven primarily by tight oil formations and shale gas formations. It also reviews selected federal environmental regulatory and research initiatives related to unconventional oil and gas extraction, including the Bureau of Land Management (BLM) proposed hydraulic fracturing rule and EPA actions.

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