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Policy Brief

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Market Implications of Colorado Natural Gas Policies

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In November, three Colorado cities approved hydraulic fracturing bans, and the state is now proposing new regulations governing methane emissions from oil and gas development. Continued expansion of hydraulic fracturing bans in neighboring counties could have significant impact on the state's natural gas market.

Key Takeaways:

- **Colorado natural gas deposits require the use of hydraulic fracturing to provide state-wide energy resources**
- **Current hydraulic fracturing bans affect a small percentage of the total value of natural gas produced and sold from the 35 gas producing counties in Colorado**
- **An expansion of hydraulic fracturing bans to additional counties could impact up to 50 percent of the Colorado natural gas market**
- **Proposed first-in-the-nation methane regulation would affect operations but have a limited monetary impact on the oil and gas industry**

Overview

In November 2013, the cities of Boulder, Broomfield, and Fort Collins each approved a five-year moratorium on the natural gas extraction method of hydraulic fracturing. At the same time, the city of Lafayette became the second Colorado city to pass legislation permanently banning the practice. The state of Colorado is also in the process of approving a regulation on methane emissions that will require oil and gas companies to better monitor the drilling, production, and maintenance of oil and gas wells. Hydraulic fracturing is necessary to access the low-permeability natural gas resources in Colorado, which provide considerable energy production for the state. While the current bans and moratoria are in effect in cities and counties that represent only a small fraction of the total value of natural gas produced and sold in Colorado, the growing number of city-specific bans exemplify the potential for legislation to be passed at a more overarching level. An expansion of bans to other areas of Colorado could affect as much as 50 percent of Colorado's natural gas market.

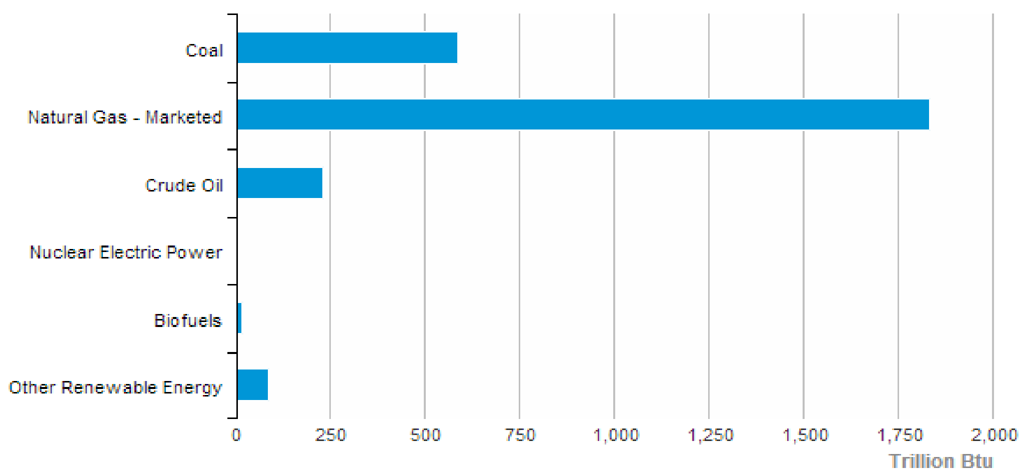
Overview

In November 2013, three Colorado cities announced a five-year moratorium on hydraulic fracturing. At the same time, the city of Lafayette passed legislation permanently banning the practice. The bans came a little over one year after a permanent ban was passed in Boulder County, and after Boulder County first enacted a temporary hydraulic fracturing moratorium, which was extended twice and is now in place until January 1, 2015. The bans represent public concern over oil and gas exploration in a state that ranks 5th in U.S. natural gas production. Colorado is also in the process of approving a regulation on methane emissions that will require oil and gas companies to better monitor the drilling, production, and maintenance of oil and gas wells to efficiently detect and fix methane leaks that affect air quality and contribute to climate change.

Hydraulic Fracturing Necessary to Access Low-Permeability Resources in Colorado

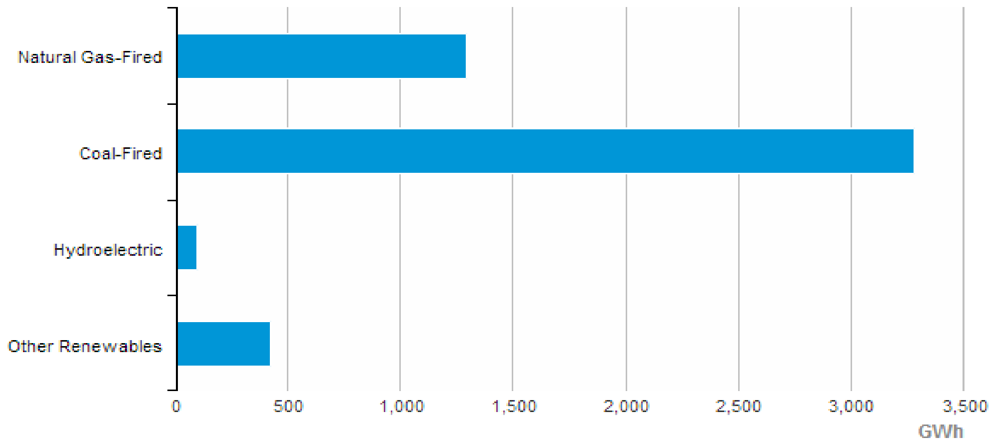
Nearly all of the more than 30,101 natural gas wells located throughout Colorado require the use of hydraulic fracturing to stimulate hydrocarbon flows to economically produce commercial gas volumes due to the low-permeability of the shale, chalk, sandstone, and coal formations that underlie these basins. These natural gas resources provide significant energy sources in Colorado, accounting for 1,831.2 Trillion Btus of total energy production and 1,288 GWh of electricity production in the state. Colorado's natural gas is produced primarily from reserves located in the Denver and Piceance Basins, which in 2009 accounted for seven of the nation's top 50 gas fields in proved reserves. Both basins are located in the gas-rich Niobrara Region, one of the six main natural gas producing regions in the United States.

Figure 1 - Colorado Energy Production Estimates, 2011



Source: ESF Analysis of EIA Data

Figure 2 - Colorado Net Electricity Generation by Source, Aug 2013



Source: ESF Analysis of EIA Data

Local Regulators Place Limits on Colorado Hydraulic Fracturing

A number of Colorado cities and counties have enacted bans on hydraulic fracturing. All cities affected by the hydraulic fracturing bans and moratoria are in Boulder, Broomfield and Larimer counties, located at the western edge of the Denver Basin. On February 2, 2012, residents of Longmont, CO voted to amend the city charter to prohibit hydraulic fracturing, making Longmont the first city in Colorado to enact an outright ban on the practice. In the same year, Boulder County approved a temporary moratorium on the processing of new oil and gas development applications and has since extended the moratorium twice, resulting in a ban on applications until January 1, 2015. More recently, bans have been placed in four Colorado municipalities. The City of Boulder's newly approved five-year hydraulic fracturing moratorium – an extension of a previously imposed one-year ban – halts new oil and gas exploration permit applications until June 3, 2018. Lafayette, a city also located in Boulder County, voted to amend its city charter to permanently ban oil and gas extraction through new wells within city limits. In the nearby City and County of Broomfield, a December recount upheld the November 2013 vote on a five-year ban on the use of hydraulic fracturing to extract oil, gas, or other hydrocarbons within the county and city limits. In eastern Larimer County, the City of Fort Collins also approved a five-year moratorium on hydraulic fracturing.

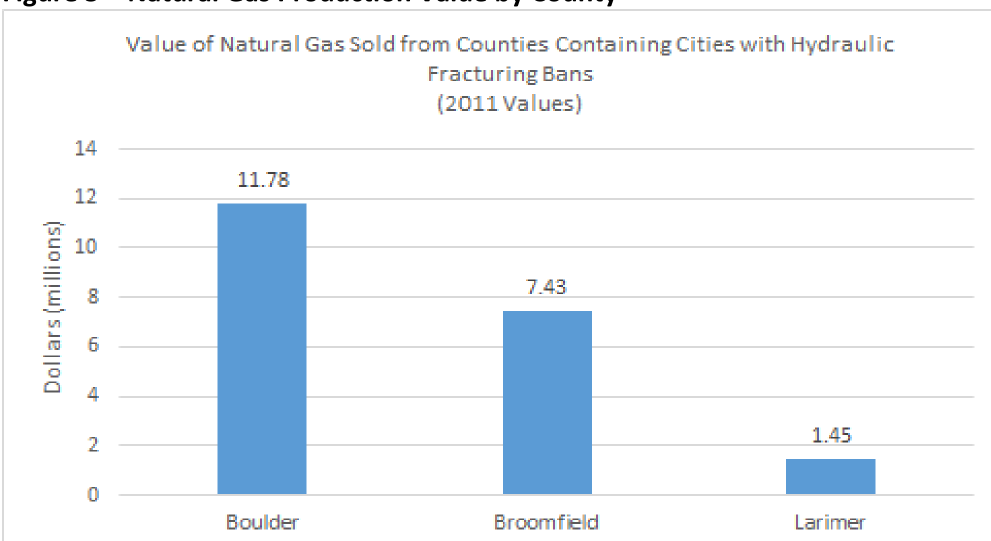
New Regulations Would Require Methane Detection and Reduction in Oil and Gas Drilling

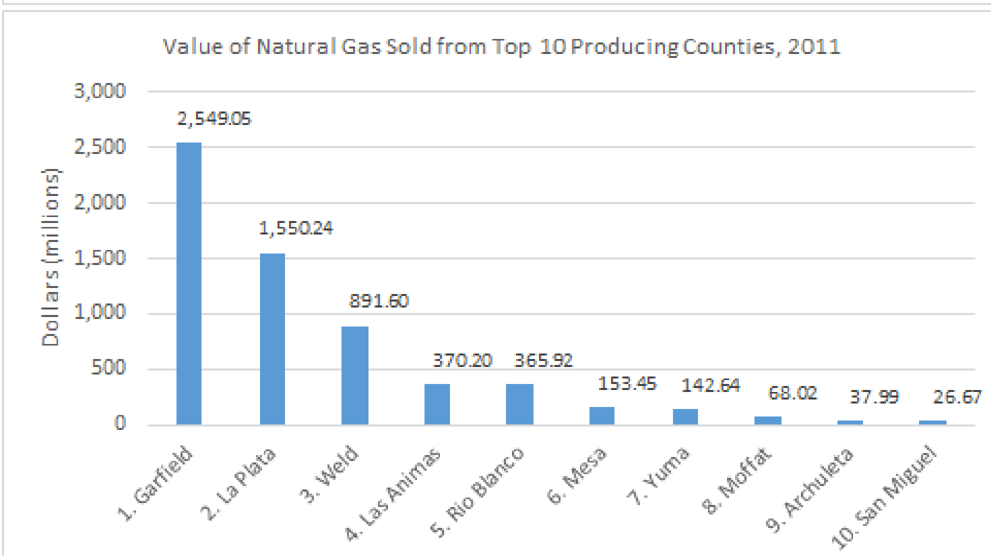
A week after passing the city hydraulic fracturing bans, Colorado regulators proposed new state rules to regulate methane emissions to improve air quality standards and slow climate change. Under the proposal, oil and gas companies operating in Colorado will be required to detect and remediate both methane and volatile organic compound (VOC) leaks. Companies would have to ensure the capture of emissions from storage tanks, conduct leak detection and repair programs for well production facilities, minimize emissions from well maintenance, and report on any large sources of methane emissions on a monthly basis. Colorado has the nation's largest reserves of coalbed methane, and Colorado's natural gas industry would be directly impacted by the rules affecting the entire lifecycle of gas production outlined in the proposal. The proposed regulations would call for a wide range of infrastructure retrofits and continued analysis and inspections that are projected to cost the oil and gas industry about $29 million per year, which would affect operations but not significantly impact revenues.

The proposal is the result of a collaborative effort by both state and industry players, including the Environmental Defense Fund and Noble Energy, Encana, Anadarko oil, and gas companies as part of the Colorado Air Quality Control Division's stakeholder process. Coalbed methane is found primarily in the Piceance Basin, an area that spans several counties, including four of the top 10 natural gas producing counties in the state (Garfield, Rio Blanco, Mesa, and Moffat).

According to the Air Pollution and Control Division, the entire proposal will reduce VOC emissions in Colorado by approximately 92,000 tons per year, with leak detection projected to reduce methane emissions by approximately 25,000 tons per year. If the proposal is approved in February 2014, Colorado will be the first state to set direct regulations on the detection and reduction of methane emissions from oil and gas drilling.

Figure 3 – Natural Gas Production Value by County





Source: ESF Analysis and Colorado Geological Survey Data

Colorado Regulations May Impact Natural Gas Production Value
Current bans and moratoria are in effect in cities and counties that represent only an extremely small fraction of the total value of natural gas produced and sold from the 35 gas producing counties in Colorado - about $20 million out of $6 billion. However, the growing number of city-specific bans and the 2012 Boulder County moratorium exemplify the potential for legislation to be passed at a more overarching level. While no legislation has been proposed to ban hydraulic fracturing in other areas of Colorado, expansion of hydraulic fracturing bans to counties in the Piceance Basin would affect another $3 billion, or 50% of Colorado's natural gas market.

Next Steps for Industry – Colorado Regulations Could Set a Precedent for other States
Shortly after the hydraulic fracturing moratoria were passed, several lawsuits were filed against the cities by the oil and gas industry. Colorado Oil and Gas Association (COGA), a Denver-based association that focuses on responsible development and production of natural gas and oil, filed a lawsuit against Fort Collins and Lafayette, claiming that only states have the right to ban drilling, not local governments. In another case, the Broomfield Balanced Energy Coalition is suing the City and County of Broomfield for its five-year hydraulic fracturing moratorium following the proposition's recount vote. The Colorado Supreme Court has previously struck down city attempts to ban drilling, most notably in the 1992 Greeley, CO case, citing the Colorado Oil and Gas Conversation Act's provision that state statute supersede any conflicting provisions of local ordinances. While the cities have the backing of town officials and CO State Representative Jared Polis, the current language outlined in the Oil and Gas Conservation Act will remain integral to the industry's case.

Considering the joint support from Governor John Hickenlooper, environmental groups, and the oil and gas industry for the proposed rule on regulating methane emissions, the draft rule is likely to be finalized. The proposal has gone before the Air Quality Control Commission and will now be presented at a public hearing in February, 2014. If the draft rule is finalized, it could set a precedent for other states.

Disclosures Section

RESEARCH RISKS

Regulatory and Legislative agendas are subject to change.

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