LEEDS SCHOOL of BUSINESS

attempts to answer

What ifs

in oil-gas industry

BRIAN

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IS AN **EXPERT** IN THE **“WHAT IF?”** BUSINESS

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HE AND HIS COLLEAGUES IN THE BUSINESS RESEARCH DIVISION OF THE LEEDS SCHOOL OF BUSINESS AT THE UNIVERSITY OF COLORADO BOULDER, CONDUCT ECONOMIC IMPACT STUDIES AND CUSTOMIZED RESEARCH TO FIND THE ANSWERS TO ALL KINDS OF “WHAT IF?” QUESTIONS.

A number of CU-Leeds reports address questions directly related to the economic impact of production curtailments in the oil and gas industry. Recently addressed questions have included: “What would be the economic impact of a statewide fracking ban?”; “What would be the economic impact if Colorado passed regulations requiring 2,000-foot setbacks for oil and gas facilities?” and “What will the economic impact be if crude oil prices remain low?”

In January, the Business Research Division released a study specifically focusing on the topic of setbacks. The study was commissioned by a consortium that included the Metro Denver Economic Development Corporation, Denver South Economic Development Partnership, and the Common Sense Policy Round Table.

The study is the latest iteration of research that began in late 2013 to identify the potential economic impacts of Colorado’s evolving relationship with the oil and gas industry.

FRACKING BANS AND MORATORIUMS

“IN LATE 2013, we saw several communities pass moratoriums on fracking,” said Lewandowski. “The thought at the time was that we might see a statewide effort to ban fracking and the policy group thought we should model the implications of a statewide fracking ban on Colorado’s economy.”

That report, titled “Hydraulic Fracturing Ban: The Economic Impact of a Statewide Fracking Ban in Colorado,” was released in March 2014. At that time, the researchers estimated that a statewide fracking ban would result in a loss of 68,000 jobs and an $8 billion reduction in the state’s gross domestic product within the first five years.

But by the time CU-Leeds released the report, the context of the conversation had already begun to change. “In 2014, the initiatives that had begun to take shape were not about a fracking ban. Instead, they really took two paths, with one path being about local control, and the other path being about setbacks,” said Lewandowski. The researchers refocused their efforts to address the potential impacts of local control initiatives and new setback rules.

The local control issue is a difficult one to model. Because oil production is so unevenly distributed across Colorado’s cities and counties, community-wide fracking bans would have vastly different impacts depending upon where they occurred. For example, the economic impact of a moratorium in Rio Grande County, which had no oil production in 2013, would be vastly different than a moratorium in Weld County. In 2013, Weld County was first in oil production among Colorado’s 64 counties.

As the latest iteration of the report states, “Under a local control scenario, the impact on production, due to the speculation on which communities would pass moratoriums on fracking, is ... unclear.” Because of this, the researchers did not quantify the potential economic impact of local control measures.

CHANGES IN SETBACK RULES

THE RESEARCHERS DID, however, quantify the potential economic impact of new rules requiring a 2,000-foot setback for oil and gas operations. In a revised report, titled “Colorado Oil and Gas Industry: Updated Economic Assessment of Colorado Oil and Gas Ballot Initiatives in 2014,” the researchers estimated job losses of between 18,000 jobs and 36,000 within the first five years of the new rules. They also estimated a GDP decrease of between $2.2 billion and $4.4 billion.

The impacts were calculated using the Regional Economic Models Inc. Tax-PI model, which is built for Colorado and calibrated with Colorado revenues, expenditures, employment and population.

“It’s a dynamic, econometric model,” said Lewandowski. “What that means is we are able to put in some sort of change or some sort of shock to the economy and see how it impacts other components of the economy in a nonlinear way." The researchers used publicly available data on oil and gas industry employment and wages; historical data on oil and gas production; and industry estimates regarding the production impact of increased setbacks.

"The perfect way of creating this estimate would be if all of the existing wells in Colorado were geocoded, and there was production data and setback data associated with each of those geocoded wells," said Lewandowski. "On top of that, if we had some idea about the prospective locations of future wells or future drilling, we could geocode those general locations to their neighboring, existing wells, to understand production and to understand what those setbacks would do."

In the absence of publicly-available geocoded well information, the researchers relied on industry estimates and inferences from public reports including Securities and Exchange Commission filings, Lewandowski said.

The revised study was finished in early September 2014, but once again, the oil and gas conversation had changed rapidly. On Sept. 8, 2014, Gov. John Hickenlooper created an Oil and Gas Task Force to broker a cohesive, statewide approach to oil and gas industry regulations rather than a patchwork of unrelated, locally-developed initiatives.

So although the setbacks and local control study was revised and officially completed in September, it was not released until this January.

"The consortium was being mindful of what the governor was trying to broker at the time," said Lewandowski. "We want to be informative, but we didn't want to get in the way of the conversation that was happening with the governor and the two sides. Because the point of this consortium is really to provide information to the Colorado public and to be a source of economic information."

The Oil and Gas Task Force is charged with forwarding recommendations on state and local regulation of oil and gas operations to the governor no later than Feb. 27, 2015. At press time, the Task Force had begun its discussion of recommendations, but the final list of recommendations had not yet been developed.

In the Governor's letter to the Task Force, dated Jan. 30, 2015, he reminded members that per his initial Executive Order, he was encouraging the group to achieve support from two-thirds of the Task Force membership "on as many proposals as possible." He also stated that he expects to receive reports on each item which does not obtain a two-thirds vote as well.

The issue of changes to setback rules was still in limbo at press time.

What ifs

PRICE VOLATILITY

MEANWHILE, A NEW VARIABLE has been introduced into the conversation about the economic impact of a decrease in oil and gas production. The drastic drop in crude oil prices and continuing crude oil market volatility that has occurred over the past six months has introduced yet another change to the researchers' economic model.

Although it might be tempting to use the outcome of the setbacks study, which looked at the economic impacts of 25 percent and 50 percent decreases in production, as a model for a cost-driven curtailment in production, that is not really a valid approach, Lewandowski said.

"When we were modeling the impact of the setbacks rule, we were addressing a decrease in the quantity of production," Lewandowski explained. "But with a price decline, you have two factors going on. If the value of production is 'price times quantity', then with a price decline we are not only talking about a decrease in value due to price,

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The other factor that makes the economic impact of the setback rule changes different from the commodity price changes is that the setback rule changes were presumed to be permanent, whereas the commodity price continues to be variable.

"In the setback study we did, we were talking about a change in the law where operators would have permanent restrictions on drilling which were unrelated to price," said Lewandowski. "But producers may have different expectations about the duration of this price decline. If they know they can survive for six months at this price level, and they expect prices to come back up a little bit by, say, July, that may be enough for them to keep going. So the price expectations cause them to behave differently than what we were looking at under a fracking ban scenario."

In mid-January, CU-Leeds put out a short summary report titled "Oil and Gas Prices - the Upside and the Downside." In this report the researchers begin to quantify the potential impacts of a sustained drop in oil and gas prices.

The report notes a sustained drop in gasoline prices has an income effect on consumers. The researchers analyzed gasoline consumption data and price data and estimated that "if prices stay 18.4 percent lower for 12 months, this will result in at least a $1.4 billion transfer from the energy industry to consumers in Colorado."

However, the report also notes that "the downside risk of these lower prices is that Colorado's energy economy slows, dragging down some of the strong growth that the state has benefited from post-recession."

The energy industry employs nearly 34,000 upstream and midstream workers in Colorado, most of whom are earning above-average wages.

Price declines can lead to a slowdown in drilling activity, "which will immediately impact drilling and support activities jobs and have multiplier effects on the supply chain of goods and services purchased by the industry" according to the report. The report states, "A 15 percent reduction in upstream and midstream employment results in a $0.5 billion decrease in wages."

But it's not all doom and gloom. Lewandowski cautions that although it may be tempting to see the current price decline as a replay of 2009's "price event," the context is different.

"While demand might be soft right now, the global economy is nowhere near where it was in 2009 and the U.S. economy is much stronger than it was in 2009. We're showing stronger economic growth almost quarterly," Lewandowski said.

"The factors driving this price decline aren't exactly crystal clear, but it's not due to a global financial recession that we saw in 2009," he said. "That's why I think a comparison back to 2009 is good for illustrative purposes and insight, but I don't think it's an indication of exactly what we'll see this go around."