

# Economies of Shale



*Drilling rig in Colorado.*

BY KRISTY HARTMAN

Hydraulic fracturing has unlocked huge amounts of oil and gas, helping boost state economies even as it generates environmental and public health concerns.

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**N**orth America's energy outlook has significantly changed over the last decade. With the widespread use of hydraulic fracturing and horizontal drilling, oil and natural gas resources—previously locked within thick, dense shale and tight sandstone formations—are no longer as expensive to develop.

These new technologies have helped boost the domestic supply of crude oil and natural gas, and they continue to reshape the U.S. energy economy. In fact, the United States is the world's largest natural gas producer and third largest oil producer—with oil production reaching a 30-year high.

The processes involved in hydraulic fracturing—injecting water, sand and chemical additives deep into the ground at high pressure to create and expand fissures in the rock, allowing oil and gas to flow to the surface—have led to a shale revolution.

But the rapid spread of fracturing, or “fracking,” has also generated concerns and drawn the attention of state legislators and their constituents. This year alone, lawmakers in 31 states have introduced more than 200 bills relating to hydraulic fracturing.

### Barrels of Benefits

Oil and natural gas development can offer tremendous benefits to state and local economies, but the recent drop in global oil prices isn't helping some states. After five years of stability, the price of a barrel of oil has fallen by almost 50 percent, dropping

from a high of more than \$100 in 2014 to a low of \$48 in January this year.

Oil and gas revenues and their associated economic activity have taken huge hits in the oil-producing states of Alaska, Louisiana, North Dakota, Oklahoma and Texas. In North Dakota, to boost production, lawmakers recently passed a bill to lower the extraction tax on oil and to eliminate the current practice of tying the tax to the price of crude oil. Opponents of the bill argued that the new tax structure could prevent the state from receiving future revenue. But supporters “thought it would be beneficial to have a stable tax system,” says House Majority Leader Al Carlson (R), which, he argued, would ultimately boost production.

### Targeting Severance Taxes

Many of the bills would change the severance taxes states place on oil and gas development. Thirty-four



Carlson

DiGirolamo



states levy a fee or tax on the extraction (severance), production or sale of oil or natural gas, which in 2013 generated more than \$16 billion nationwide. In Alaska, North Dakota and Wyoming, severance taxes generate more than 40 percent of total state tax revenue. Alaska tops the list with 78 percent of its total state tax revenue coming from severance taxes.

Only three natural gas-producing states have no severance tax, with Pennsylvania being the largest. The state hasn't totally missed out on benefiting from the boom, however. Since 2012, it has imposed an impact fee on every oil- and natural gas-producing well in the state. Supporters, such as Pennsylvania's Budget and Policy Center, estimate that a severance tax will bring in greater revenue than an impact fee, while severance tax opponents argue that the tax will deter natural gas production.

Pennsylvania's tax structure could change now that Governor Tom Wolf proposed the Pennsylvania Education Reinvestment Act, which includes a 5 percent severance tax on natural gas and charges 4.7 cents per 1,000

feet on the volume of natural gas extracted. Its future is uncertain, however, as the General Assembly has several similar severance tax proposals to consider this session.

"Most Pennsylvanians agree that we should enact a drilling tax as a matter of sound public policy, but the discussion at this point is what that tax will look like and what priorities it would fund," says Representative Gene DiGirolamo (R).

The use of revenue from oil and gas severance taxes varies among states, but includes conservation efforts, education and transportation projects. Colorado, Michigan and Oklahoma, for example, all use a portion of the funds for conservation or environmental remediation projects. In Arkansas, 95 percent of the state's revenue from the natural gas severance tax is dispersed according to its Highway Distribution Law.

Revenue is also often redistributed to assist local governments or set aside in a trust fund to help alleviate budgetary shortfalls when needed. Kentucky deposits half of its severance tax revenue into a Local Government and Assistance Fund. Local governments close to extraction sites can apply for assistance from the fund. In Utah, revenue in excess of \$77 million is deposited into the state's Endowment Fund.

### Playing It Safe

Vermont passed a ban on hydraulic fracturing in 2012, and New York followed with a similar announcement last year. But most state legislatures are considering a variety of measures to ensure that fracturing is well-reg-

ulated, transparent and protects public health and the environment. Recent concerns over earthquakes in states with oil and gas drilling have prompted studies examining whether there is a direct link between seismic activity and the wells used in hydraulic fracturing.

Oklahoma's Geological Survey recently released a statement identifying such wells as the likely cause of the majority of the state's earthquakes. In neighboring Texas, lawmakers are considering an almost \$2.5 million plan to fund a seismic monitoring program, designed to detect and locate earthquakes precisely. The Texas House has formed a subcommittee on seismic activity, and the state's Railroad Commission hired a seismologist and approved rules that require companies to submit more information before drilling disposal wells.

A few state legislatures have taken more dramatic action with efforts to delay hydraulic fracturing until more is known about its effects. Maryland is the latest. It may become the third state to prohibit fracking altogether, as lawmakers there sent a bill that would ban the method in the state for the next two years to the governor in April. But as of May 7, it was unclear whether the governor planned to sign the measure. And at least seven other state legislatures were still considering bills calling for additional studies or temporary moratoriums.





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## Who Regulates?

Another topic gaining the attention of state legislators is what level of authority should be granted to local governments to regulate hydraulic fracturing. Colorado, Oklahoma and Texas are considering legislation that would explicitly preempt local oil and gas regulation. At least eight bills in Oklahoma and 11 bills in Texas were filed this session to prevent cities and counties from banning drilling operations. Some of the proposed measures would allow for certain ordinances such as those related to road use, traffic, noise or odor, but would prevent outright bans.

While state legislators explore what other regulations are needed, the federal government continues to issue new rules. In March, the U.S. Bureau of Land Management published its final rules for hydraulic fracturing on federal and Indian lands. The rules set new standards for well construction and wastewater disposal and require the disclosure of chemicals used in the fracturing fluids.

Meanwhile, Colorado and North Dakota have joined Wyoming in a lawsuit questioning the Bureau of Land Management's authority to impose a regulatory framework on what has traditionally been under the jurisdiction of state officials.

Additionally, in 2015:

- Lawmakers in at least seven states are considering bills requiring additional disclosure rules for the fluid chemicals and additives used in fracturing.
- Legislators in 10 states have proposed restrictions on where wells can be located, how close they can be to each other, how much water can be withdrawn from them and how they are constructed.
- In at least nine states, lawmakers are considering measures to regulate the transport, treatment or disposal of wastewater associated with hydraulic fracturing.

When it comes to oil and gas development, two things are fairly certain. Hydraulic fracturing will continue to extract enormous amounts of oil and gas from underground shale formations, providing tremendous economic benefits to state and local economies. At the same time, as advanced technologies, like hydraulic fracturing, allow access to more of these resources, policymakers will continue their efforts to ensure that these new practices are safe for the public and the environment.