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Evolving Regulation in the New Energy Boom States

By Hannah Wiseman*

America cannot function without adequate energy supplies, and the complications posed by this fact have been unusually apparent this year. From the Gulf oil spill to a deadly coal mining accident, the fuels that drive America's economy and quality of life offer no simple answers. Each step of the energy cycle requires complex regulatory attention, which aims to strike a balance between public goals such as affordable energy, healthy individuals, and a clean environment and the need for economical production of fuels and electricity. Recently, this challenge has been highlighted in the Appalachian states, where geologists have discovered that trillions of cubic feet of natural gas reside in the Marcellus Shale underlying New York, Pennsylvania, Ohio, West Virginia, and small portions of other neighboring states. Companies from around the United States, and even from abroad, have rushed into Pennsylvania and New York in search of profits from this shale gas, which is extracted using a technique called hydraulic fracturing or fracing (pronounced "fracking"). West Virginia and Ohio also have started to see more requests for drilling permits in the Marcellus.

Shale gas is not unique to the Appalachian region, but its production has rapidly expanded there following activity in other parts of the United States. In Texas in the 1990s, gas operators perfected a technique called slick water hydraulic fracturing to extract natural gas from shale. To fracture a well using the slick water technique, an operator excavates a well pad and access road and drills a vertical and then often a horizontal wellbore through the shale. The operator cases the well to separate gas

flowing through the well from water and other underground substances and then perforates the casing. After cleaning the area around the perforated casing with an acid treatment, the operator pumps millions of gallons of water and small quantities of chemicals down the wellbore at high pressure. The water—forced out into the surrounding shale—helps to induce or expand fractures in the shale, and the chemicals reduce the friction as the water moves through the wellbore and improve other aspects of the operation. The operator also injects a material called a "proppant," which is typically sand, to help to prop the fractures open and allow natural gas to flow back through them. Following the "frac job," a portion of the water injected into the well flows back up to the surface; this "flowback water" is typically stored in a pit on site and then disposed of or reused in another fracing operation.

The Barnett Shale in Texas continues to produce astounding quantities of natural gas as a result of slick water fracing, and operators from that region—as well as others who have mastered the slick water technique—have begun moving to other shale formations in hopes of similar bonanzas. Areas that have not previously seen this type or pace of drilling activity can thus be caught off guard. In places like Pennsylvania, where the Marcellus Shale underlies much of the state, the gas rush has created a "boomstate," not just boomtowns. The first fraced Marcellus gas well in Pennsylvania began producing in 2005. In 2008, 195 Marcellus gas wells had been drilled, and this number nearly quadrupled to 768 wells in 2009. By 2010, about 5,200 permit applications were filed. Requests for slick water fracing also began pouring into New York around this time, and Pennsylvania's and New York's contrasting approaches to these booms provide

interesting case studies in adaptive regulatory response.

In the Marcellus region, disputes have emerged over every aspect of the fracing process. Lease profits are high, and many residents and officials welcome the substantial infusion of wealth promised by the gas boom. Some residents and administrators, however, are concerned about proposed fracing on public lands. Others point to potential environmental effects from substantial water withdrawals, transportation of chemicals to the site, storage of wastewater on the surface, disposal of the flowback water through wastewater treatment plants or other methods, and air emissions from on-site equipment. Some communities worry about potential conflicts with surface uses such as agriculture and tourism, as well as local economic impacts. Municipalities expand road maintenance as heavy truck and tanker use increases.

Many existing regulations at the federal, state, and municipal level were not designed with high levels of slick water fracing in mind, and several responses have emerged to address the new issues posed by the fracing boom. Existing federal regulations apply to the disposal of the wastewater (companies cannot discharge pollutants into waters of the United States without a Clean Water Act permit, for example) and to other steps of the process, but the practice of fracing itself is exempt from the Safe Drinking Water Act (SDWA). Waste from the fracing process is also exempt from hazardous waste disposal regulations within the Resource Conservation and Recovery Act—as is waste from other oil and gas operations. Bills were introduced in the House and Senate to repeal the SDWA exemption and to require operators to disclose to states or state administrators the chemical

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constituents used in fracking, but each bill remains in committee. In the meantime, the Environmental Protection Agency has embarked upon a national “comprehensive research study” of fracking.

While there has been moderate activity at the federal level, agencies and legislators in “boomstates” like Pennsylvania and New York have been very busy. Under New York’s State Environmental Quality Review Act, agencies must conduct environmental impact studies before permitting certain activities. New York’s Department of Environmental Conservation (DEC) issued a generic environmental impact statement (GEIS) addressing oil and gas production in New York in the 1990s. But when it began receiving applications for slick water fracking in the last few years, the agency discovered that its existing analysis does not adequately address some aspects of this practice. The agency therefore has embarked upon a detailed supplemental study and has delayed the slick water permitting in the meantime. The resulting draft report—which has received thousands of public comments now being reviewed by the DEC—analyzes the potential environmental effects of every step of the fracking process, from the construction of well pads and access roads to air emissions, potential surface water pollution, potential seismic effects from the fracturing of the shale, and local economic and social impacts. Early indications are that the final supplemental GEIS will recommend that the agency place conditions on slick water fracking, including increasing some of the required setbacks of the well pad from surface waters and other resources, requiring the disclosure of chemicals used in fracking, enhancing the safety of surface pits for flowback water, adding protective measures for fracking location and impoundment procedures within the watershed of New York City’s drinking water supply, and increasing protection against chemical spills on site, among other provisions. Meanwhile, the New York Senate passed a moratorium on drilling through May 2011, which must also be approved by the Assembly and governor.

Pennsylvania has taken a very different approach to the natural gas boom.

When the state received a flurry of applications to drill and frac wells, it did not put them on hold. Instead, it issued hundreds of permits and commenced new regulatory and legislative activity to address the potential effects. The governor hired additional staff members for the Department of Environmental Protection, and the Department has since issued fines for incidents such as chemicals spilled on site and methane gas in residents’ wells. The DEP has also proposed strengthened requirements for water replacement if residents’ wells near a frac site are contaminated and has enhanced the regulations for the casing of wells in order to protect groundwater. Further, it has developed new total dissolved solids standards for “salty” wastewater, meaning that the water produced by fracking will now face more stringent treatment standards. The Department of Conservation and Natural Resources, in the meantime, has been busy reviewing lease proposals for Marcellus gas development on public land. There has also been activity in the political halls of the state, with one representative introducing a bill that proposes a one-year moratorium on new fracking permits.

As state agencies and the legislature have addressed the rush of fracking activities in Pennsylvania, municipalities have also attempted to place their own limits on the practice. State law supersedes “local ordinances and enactments purporting to regulate all oil and gas well operations” that are regulated by Pennsylvania’s Oil and Gas Act. But towns have still managed to influence permits issued by the DEP. In *Huntley & Huntley, Inc. v. Borough Council of Oakmont*, 600 Pa. 207 (2009), the DEP had issued a permit to drill to a natural gas producer, but the town council had refused to grant a conditional use permit for the drilling, which was proposed in a residential zone. The Pennsylvania Supreme Court held that the conditional use portion of the town’s zoning ordinance was not preempted by the Oil and Gas Act, although it determined that the Council too narrowly interpreted the use in question. In *Range Resources v.*

Salem Township, 600 Pa. 231 (2009), on the other hand, the court held that “a general ordinance directed at regulating surface and land development associated with oil and gas drilling operations” was preempted.

With all of the regulatory activity in Pennsylvania, an on-the-ground laboratory of regulatory responses to an energy boom has emerged. One of the most interesting aspects of Pennsylvania’s administrative evolution in response to the boom has been its effort to inform operators—particularly those coming from outside of the state—of its regulations. States have the bulk of regulatory authority over oil and gas development, and regulations differ substantially among the states. Texas, for example, does not require minimum distances between oil and gas wells and nearby natural resources such as surface waters, nor does it require pit liners for flowback water impoundments; New York and Pennsylvania do. The operators moving from the Barnett Shale up to the Marcellus had to familiarize themselves with many new regulations, and the Department of Environmental Protection held industry training seminars to introduce operators to state environmental and oil and gas regulations. The Department did not hesitate to issue fines when violations occurred.

Another regulatory regime that was likely unfamiliar to out-of-state operators was Pennsylvania’s system for water governance. The Susquehanna River Basin Commission and Delaware River Basin Commission, which are regional agencies formed by a Compact among the Basin states and Congress, regulate water withdrawals within the basin. When fracking companies withdrew water without first obtaining a permit or exceeded the withdrawal allowances within their permit, the Susquehanna River Basin Commission issued hefty fines—partly, it appears, to send a message to other operators who might have made similar mistakes. The Delaware River Basin Commission also took steps to inform operators of its regulatory presence. Its executive director issued a determination in 2009, that notified all natural gas operators in certain areas of the Basin that extraction

could not occur without prior commission approval.

As slick water fracing becomes more commonplace and continues to expand in shale plays around the country, other state agencies could learn from New York's and Pennsylvania's experiences. Informing operators of regulations is essential, as is hiring additional staff to address the sudden increase in drilling activities. Agencies will likely continue to contend with legislative proposals for

moratoria, as well as complaints from citizens regarding potentially contaminated wells or surface water, and they must have adequate staffing to handle these changes. Most of all, agencies should look to other states' regulations to see whether their own could be improved; where geography is similar, widely divergent regulations on the necessary impoundments for flowback water, for example, may not be sensible. Where one state has engaged in careful

science-based analysis of the ideal regulations, others could benefit from this work and borrow its results. Regulating the potential effects of the gas boom will not be easy, but states are providing useful precedent for the agencies that are just beginning to experience heightened levels of fracing activity within their states. With attention to the path already taken, administration in the energy boom states can effectively evolve. ○