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Emerging Trends in the Marcellus Shale*

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What is the Issue?

The Marcellus Shale is a geologic shale bed that extends across much of Pennsylvania (PA) and southern New York State (NYS), and is estimated to contain one of the world's largest deposits of natural gas. Despite reduced natural gas commodity prices in the fall of 2008 and the current economic recession, natural gas development continues in many areas of PA. In particular, Bradford and Susquehanna counties, just south of the NYS border, have experienced some of the most intense drilling in all of the Marcellus Shale. Energy companies plan to nearly double the number of drilling rigs by the end of the year, with more increases projected in the years to follow. Given the larger current economic considerations, this development illustrates the attractiveness of market proximity and the quality of Marcellus Shale gas, and portends what may lie ahead for NYS.

Development of the Marcellus Shale natural gas requires "unconventional" extraction methods. The increased depth, horizontal drilling techniques, and hydraulic-fracturing are much more industrial, labor-intensive, and time-intensive than the conventional, shallow-gas drilling historically used in the region. Well drilling activity typically requires about 5 acres of land, plus nearby locations for pipeline and compressor stations, with truck and machinery activity similar to that of a heavy industrial site. The active drilling process can last for 45 days or longer at each drilling rig location. Hydro-fracturing can require 3 million or more gallons of water per well, requiring extensive water withdrawal and disposal practices.

In addition to these environmental and land use issues, there are potential social and economic impacts. Significantly larger workforces than shallow gas drilling are required, and areas of intense development can require thousands of temporary workers. And, compared to shallow gas wells, the royalties from producing gas wells can provide land owners with much larger incomes. Given all of these issues and the pace and scale of

development occurring in PA, the Marcellus Shale has the potential to create significant environmental, land use, economic, and social changes in the communities of NYS's southern tier.

While development activity in PA is increasing rapidly, the NYS Department of Environmental Conservation (DEC) has put an effective "moratorium" on Marcellus Shale development within NYS as the agency completes a review of the state's regulatory policy towards these unconventional drilling methods. The DEC's policy document, called the Supplemental Generic Environmental Impact Statement (or SGEIS) is expected to be released in final form by the fall of 2009.

Emerging Trends

Despite the current moratorium on development, a number of important trends are emerging across NYS in response to Marcellus Shale development scenarios. These trends suggest additional research questions.

The Emergence of Landowner Coalitions and other Advocacy Groups

A number of citizen based groups are forming in response to Marcellus gas exploration. One particular type of group is landowner coalitions. Individual landowners have historically faced informational and

other disadvantages in their one-on-one negotiations with gas companies. More recently, large coalitions of rural landowners have formed across southern NYS for the purpose of bargaining collectively with energy companies over leasing contracts. These coalitions, many representing hundreds of landowners controlling tens of thousands of acres, represent a historically unprecedented level of collective action among rural residents in NYS. While the majority of coalitions have not yet signed leases with energy companies, they have been central to the education of local



An example of a Marcellus Shale well development site, (Upshur County, WV.)

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residents. With vast acreages under their influence, these coalitions may potentially exert greater control over the development of the Marcellus Shale than local, state, or federal governments. However, it is unclear what influence these coalitions might have on environmental impacts and land use during and after the energy development process, and what their role might be after leases are signed.

Impacts extend beyond property owners. Other local advocacy groups have formed to express their concerns over potential environmental impacts, as well as negative economic impacts, increased inequality, the pace and magnitude of gas exploration, and procedural justice. These groups have organized community forums, hosted experts, provided materials, and lobbied government officials on these issues. As with the landowner coalitions, the current moratorium provides time for these advocacy groups to clarify their positions, and organize their membership.

State and Local Regulation

Many questions will remain unanswered until the DEC releases their final SGEIS and accompanying rules governing this kind of gas development technology. On the environmental side, the DEC could either leave current regulations untouched or implement much stricter environmental standards. However, the full scope of their authority over many aspects, including socioeconomic concerns, is currently unknown. The DEC has indicated their intention to analyze potential socioeconomic impacts, including cumulative impacts, impacts to community character, and local government participation. Possible regulation in this area could alter development procedures and local government control. Some local governments have asked the DEC and the state legislature for local controls such as enhanced notification procedures, detailed information on the presence of hazardous materials, authority over storm water and erosion control, participation in the state environmental impact review process (SEQR), and a portion of the proceeds of a severance tax to offset local expenses. The ability of these potential controls to be engaged through the SGEIS process is unknown. Some may require additional legislative action, and state legislators are looking into these and other regulations.

State and local regulatory authority over gas development is most clearly articulated within the NYS Environmental Conservation Law (ECL), specifically, Section 23-0303, which states that the state regulations “shall supersede all local laws and ordinances relating to the regulation of the oil, gas and solution mining industries; but shall not supersede local government jurisdiction over local roads or the rights of local governments under the real property tax law”. This is a strong contrast to the ‘home rule’ tradition of NYS, where local jurisdictions typically have a great deal of control over local land use. As is often the case when new controversies arise, the interpretation of this law is being debated within New York legal circles. The precise boundary of local government authorities over “local roads” or “real property tax law” has not been concretely litigated. The Supreme Court of Pennsylvania, ruling on the bounds of a nearly identical Pennsylvania law, found that local governments have the ability to

reasonably regulate the location of natural gas development within a land-zoning regime, but are not able to regulate the methods of the extraction process. The decision is being watched closely by NYS officials, as it illustrates the breadth of interpretation available within a similar law.

Community Task Forces

A number of counties and municipalities in southern NYS have created community task forces to gather information and prepare local governments for impacts from natural gas development. Using the time afforded by the SGEIS review process, these task forces can determine the areas with the greatest potential for development, update ordinances, industrial permitting fees, and roadway inventories, differentiate local jurisdictions, educate residents on the development process and applicable laws, and monitor impacts to local government agencies from natural gas development. Sullivan County, NYS has recently published a report on potential impacts to their location¹, and Penn State University has published a primer on the organization of a natural gas community task force.²

Future Research

Continued pressure for the development of NYS’s energy resources and the uncertainty of its impacts highlights the need for new research on the social, economic, and environmental impacts of such developments, and effective mitigation measures. Two Cornell University-funded projects are underway that will emphasize the socio-economic impacts of energy development in the region. Each will examine how changes to such areas as land use, economic inequality, municipal preparedness, environmental quality, and citizen participation may affect human communities both positively and negatively. The results of these research projects will be linked to ongoing research on the environmental impacts of development. Especially because of the potential scale of change that may be experienced with aggressive energy development, it is critical to understand the full range of affected people and environments in these efforts. Cornell Cooperative Extension (CCE) and the Community and Rural Development Institute (CaRDI) are committed to working with partners to help ensure as high a level of information, discourse, and policy-making on this topic as possible. For more information and links to resources on this topic, please visit the Cornell Cooperative Extension Natural Gas Leasing website at <http://gasleasing.cce.cornell.edu>.

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¹ Sullivan County Task Force, 2009. *Preparing for Natural Gas Development: Understanding Impacts and Protecting Public Assets*. Available online: <http://www.co.sullivan.ny.us/documentView.asp?docid=768>

² Penn State Cooperative Extension, 2008. *Marcellus Shale Exploration and Development: Organizing a Community Task Force*. Available Online: <http://gasleasing.cce.cornell.edu/documents/ua451.pdf>

