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Natural Gas Drilling: Questions Residents and Local Leaders Should Be Asking

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It is difficult to predict the specific long-term social, economic, environmental, and policy impacts of natural gas drilling and development associated with the various shale deposits found in Ohio. This is certainly true of Utica and Marcellus shale, both of which are referred to in this fact sheet as “Ohio shale.”

Experience in other regions of the United States suggests that the issues and impacts from natural gas and other energy-related developments can be far-reaching and profound; therefore, it is essential for citizens and local leaders to consider as many of the related issues, both negative and positive, as possible. While some impacts and consequences might be problematic, Marcellus shale development also affords opportunities for communities to positively shape their long-term development, sustainability, and quality of life.

This fact sheet highlights the issues, questions, and concerns that citizens and local leaders should consider in regards to natural gas and other energy-

related development. The information presented here is based on the impacts experienced by communities across the United States, particularly in Texas, Wyoming, Colorado, Pennsylvania, and West Virginia. How communities within the Ohio shale region will be affected is yet to be seen, but the lessons learned from other regions provide a valuable starting point for identifying areas in which citizens and local leaders can anticipate and begin planning for potential changes resulting from the development and extraction of Ohio shale gas.

The end of this fact sheet provides ideas that will help citizens and local leaders take action. This information can provide a foundation for assisting with assessing, monitoring, and planning for the various impacts of natural gas extraction.

Population Changes

Communities experiencing natural gas development and extraction are likely to experience population increases associated with both short- and long-

term labor migration. Most labor increases occur in the early phases of development (in the pre-drilling or exploration phase and in the drilling phase). The laborers associated with these initial phases are a combination of temporary and resident workers. The majority of workers are transient crews skilled in the specific stages of exploration or drilling (including drilling, hydraulic fracturing, and pipeline construction); these workers consist of engineers, landmen, and roughnecks on the drilling rigs. These crews travel around the country as assigned by the operator for whom they work and typically rotate on and off the jobsite weekly. These workers tend to be male, between the ages of twenty and forty, and represent a mix of ethnic backgrounds. The number of local workers hired (such as mechanics, construction workers, heavy equipment operators, etc.) depends on the presence of the needed skills within the local labor force.

The population is likely to fluctuate; initially, there is a large spike as transient, temporary, and permanent workers arrive to work in the industry. Over time, transient and temporary workers leave, but an overall increase in population related to permanent settlement and economic growth stemming from the energy industry should be expected. The implications of these population changes can affect the provision of services, labor force availability and skills, and local infrastructure. Listed below are some of the concerns that citizens and local officials need to consider.

Housing Considerations

Will the increase in the temporary and permanent population create a strain on the availability and affordability of housing? Are there sufficient temporary housing facilities such as hotels/motels, trailer parks, campgrounds and RV parks, and rental units? Are there sufficient permanent housing options for workers who want to settle into the community? How can the community prepare to meet the needs of those families and individuals who will not be able to find or afford a home? If additional housing is needed, how will the community absorb unoccupied units when temporary workers leave? Are there effective land use planning procedures in place to manage the potentially rapid addition of housing developments?

Physical Infrastructure Considerations

Will the increase in population and/or housing development increase demands on water, sewer, roads, telecommunication, and other physical infrastructure? What can be done to prepare for the increased demand? Are current facilities at a stage where such increases could push equipment and structures past their capacity, requiring investment in additional facilities? How can counties and townships prepare for the increase in traffic associated with the drilling and extraction activities (particularly heavy truck traffic) and short- and long-term economic growth?

Emergency and Community Service Considerations

How will local communities handle the increased demand for emergency services such as police, fire, medical, and hazardous materials teams? How can first responders prepare for a new set of potential injuries associated with drilling and pipeline construction? What additional training or information is needed by first responders to be prepared for the types of situations they might encounter related to natural gas drilling and extraction (including hazardous materials and injuries)? Do first responders have the communication operations necessary to find and get to well and pipeline sites in the event of an emergency? Do emergency services personnel have enough of the right equipment for gas-related situations? How can emergency preparedness committees and organizations plan for the potential increase in service runs and equipment needs? Can police services and the judicial system prepare for a potential increase in criminal activity? How can medical providers prepare for the increased demand for both emergency and preventative services? Could some of the costs associated with this increased demand for specialized emergency service be compensated with funding from the natural gas industry?

Considerations for Schools, Community Agencies, and Organizations

How will local schools respond to the potential population and enrollment increases with regard to both personnel and infrastructure? Does the school system have the capacity to address new children's

needs, especially the particular needs of children whose families are temporary residents? How can the school systems and other organizations prepare for the possibility of a more diverse ethnic and socioeconomic community? How can local service agencies plan for increases in the number of preschool-aged children (such as day care, preschools, early intervention, and special needs)? How can community leaders take advantage of the growth in the energy industry to create economic and social opportunities for young adults that will keep them in the community?

Considerations about Community Dynamics and Relationships

How can local leaders and community residents prepare for the increase in the number of people and the change in the composition of the local population? How can new residents be integrated effectively into the community? Can community organizations create opportunities for engaging new- and long-term residents? How will community organizations and local governments assess and address the needs of both long-term and new residents (transient, temporary, and permanent)? What planning should be done to address the needs of populations such as the elderly, poor, and youth, all of whom might be particularly at risk in times of financial change and uncertainty?

Economic and Fiscal Changes

With an estimated 141 trillion cubic feet in recoverable natural gas from just the Marcellus shale, the economic impacts of its development are expected to be extensive. The influx of income is expected to generate thousands of new jobs, spur population growth, and boost gross state product and real disposable personal income, particularly for those working within the industry and those with leased land.

Ohio tax law does provide for a severance tax for natural gas in the amount of 2.5 cents per 1,000 cubic feet of gas removed from the soils and waters of the state. Of the moneys received by the treasurer of state from this severance tax, 90% is credited to the oil and gas well fund; the remaining 10% is credited to the geological mapping fund. Local governments do not share in the severance tax; therefore, any direct increases in tax revenue are unlikely to be realized

by the local jurisdictions (municipalities, counties, townships, and schools) where the largest impact on local services is likely to be felt. In addition, local businesses whose employees have similar skills to those used in natural gas production and extraction (such as diesel repair and welding) are likely to face worker turnover, difficulty with finding employees, and increased payroll costs. Inflation, increased cost of living, and lack of services are problems confronting communities with natural gas development in other parts of the country.

Issues for Landowners

How can those who receive income from lease payments and royalties be prepared to manage this income? What systems can be put into place to encourage wealth management and succession planning? How will Ohioans who receive lease payments and royalties be encouraged to spend and invest locally, capturing more of the income for local growth and development? How will those who own forested or agricultural land be able to incorporate the natural gas development into their long-term plans for the land? Can those benefiting from this newfound wealth be encouraged to be philanthropic within their communities?

Considerations for Existing and New Businesses

How can local businesses compete for the new business opportunities arising from natural gas? How will local entrepreneurs meet the increased demand for goods and services? How will businesses in other economic sectors compete for key resources, such as land and skilled workers, that are in demand for natural gas development? How can these other businesses position themselves to be attractive for investment and growth stemming from new local wealth? How can the tourism industry—very important in some regions of Ohio shale—mitigate the impact of natural gas development on potential tourists' perception of the region as well as availability of key resources (such as hotel space and campgrounds)? How can economic development efforts both build on growth in the natural gas industry and foster other local businesses to create strong, diverse, local economies that will be sustained after the drilling is completed?

Considerations for Workers and Workforce Development Programs

How can Ohio's workforce position itself to be the first choice of employers to fill gas-related jobs? How can school districts, community colleges, technical schools, and workforce development agencies rapidly train the number of workers needed within the natural gas industry? How will workers in other industries, particularly in low-wage jobs in the retail and service sectors, adjust to the potential increased inflation and cost of living caused by worker demand within the natural gas industry? Will the relatively high wages paid by the gas industry make competing for high-quality labor harder for local businesses?

Considerations for Local Government Officials

How can local governments (municipalities, counties, townships) plan for the potential increase in demand for local services, particularly with little or no additional revenue? How can local governments manage the revenue in a way that will increase their fiscal health and protect the interests of their citizens, both now and in the future? Do local governments have the capacity and planning mechanisms in place to anticipate and respond to land use and subsequent municipal service costs?

The impacts of Ohio shale development will most likely be felt longer than the term of a specific government official. How can a particular agency, organization, or officeholder be designated to assume responsibility for the coordination of natural gas issues within the municipality or county?

Environmental Changes

The exploration, drilling, and extraction processes, as well as the infrastructure needed to transport the natural gas, all have potential impacts on the natural environment. Exploration and drilling require access roads, existing or new, as well as clearing and preparation for well pad sites. The natural gas extraction process uses high-pressure injections of water, sand, and other liquids to fracture the shale. This process is referred to as hydrofracturing, or "fracking." Once the wells are drilled, the well pads are reclaimed, meaning they are returned to their preceding use, with the exception of a smaller area required for well

maintenance. The details of reclamation (such as vegetation type and amount) can be detailed in the leasing contract. When a well has ceased producing, it is generally the responsibility of the gas company to cap the well and fully restore the site. The wastewaters (brine) that are generated from the process require treatment before they can be discharged to the environment. Increasingly, the brine is being recycled and reused as additional wells are drilled.

Much of the environmental aspect of the drilling process is regulated by the Ohio Department of Natural Resources (ODNR). During the permitting process, gas companies must account and plan for any expected environmental impacts they will have on Ohio's forests, wildlife, surface and groundwater, air, and soils.

Water Quality and Quantity

How can communities plan for water withdrawals by gas companies? How can water providers sell water to gas companies while balancing the needs of other residents and industrial users? How can landowners with private wells, springs, and septic systems be prepared for the potential impacts, rights, and responsibilities they have related to water quality and monitoring? How can communities encourage the development of local businesses, such as those related to safe brine disposal, that will offer environmental services? How can environmental and other community organizations access and gather data related to the monitoring of water quality and quantity?

Noise and Air Pollution

How can communities influence the location and construction specifications of compressors and other facilities to minimize noise? How can community leaders influence the location of roads to minimize noise and emissions from trucks and other vehicles? How can environmental and other community organizations access and gather data related to the monitoring of noise and air quality?

Forest and Wildlife Habitat

How can local citizens and leaders influence natural gas development, extraction, and processes to minimize the impact on wildlife habitat and for-

est fragmentation? Are there efforts to monitor the impact on forests and wildlife? If not, can such efforts be created (potentially through volunteer groups such as sportsmen's, conservation, or watershed organizations)?

Land Use

How will the development of access roads and well sites affect future forestry and agricultural, residential, commercial, and recreational land uses? How will the natural gas infrastructure particularly affect the development of land previously thought not suitable for development (such as land with large slopes)? Will new pipeline easements be aligned with current rights-of-way and not preclude the future development of property? Does local government have adequate, comprehensive plans and regulatory ordinances for potential developments?

Environmental Literacy

The school-aged population will evolve into the community's leaders and citizenry. Can schools incorporate more targeted educational programs to ensure that this population receives the training necessary to recognize environmental impacts and to improve the management of natural resources?

Policy

Legislative policy and regulations are important in determining the actual effects of the drilling process and its influence on the distribution of benefits and costs from Marcellus gas play. Important state policy decisions include the following.

Local Control over Drilling Activity

Passed in the fall of 2004, H.B. 278 took away from cities, villages, and townships the responsibility of issuing permits for gas and oil wells, and transferred that power to the Mineral Resources Division of the Ohio Department of Natural Resources.

With the recent increase in leasing and drilling activities, some members of the Ohio legislature are looking to return some measurement of oversight to local governments. Should local governments be given an increased oversight responsibility over gas drilling in Ohio?

The Cost of Local Infrastructure

Few would argue that drilling and natural gas production could have significant impacts on the services that local governments and school districts provide. Experience in other states suggests that development of Marcellus gas might affect the size of the local population, housing, emergency services, roads, other physical infrastructure, and the economy. Under current Ohio local tax structure, local governments and school districts receive few new resources to pay for any such increases in local services. Should tax rates be increased for everyone rather than just those directly benefiting from Marcellus gas play?

How can local government officials and citizens work together to influence state legislation and policies that affect the potential social, economic, and environmental impacts of natural gas production? How can local governments address the immediate need stemming from the increased demand for local services with state policies that minimize short-term revenue for local governments? How can local government officials access revenues collected at the state level for local needs?

Beginning to Answer Questions about the Impacts of Natural Gas Development

Because there are long-term consequences of natural gas development, it is crucial to identify related issues of concern and to explore options for managing its positive and negative impacts.

One part of this process is to become informed about the natural gas industry and the drilling process. It is important to seek information about the types of impacts the industry could have on your community. It is also important to learn about the regulatory structure—who regulates which components of the process, how that regulation occurs, and how concerns and complaints are handled.

A second part of the process is to look internally. Consider the role that municipal, county, and township officials, community groups, and individuals can play in monitoring and shaping community and environmental impacts. Examples of this role include land use regulations, municipal and local financial policy, capital improvement, open space

and recreation, business development, education and workforce training, emergency management, and human resources. All affected agencies should consider examining their existing plans and regulatory tools to determine how they might be affected by (or will themselves affect) natural gas development. These agencies should also consider examining their existing plans and regulatory tools to decide whether new plans and tools are needed.

Local governments might also want to consider creating a way to monitor natural gas issues. The development of natural gas resources will likely surpass the terms of elected officials and the employment of agency personnel. Identifying a position or entity with this responsibility will provide a means of keeping on top of all related issues, following up on issues that arise, tracking identified priorities, developing plans, and making decisions over time.

If individuals or organizations are going to be tasked with this issue, do they have skills related to facilitation, conflict management, negotiation, and communication? If not, developing those skills can increase the ability of local officials and community leaders to act proactively as well as respond to new issues.

Reaching out to community members is also important here. Who are the stakeholders that are likely to be affected by natural gas development? These stakeholders might have different and competing interests, which will need to be managed. It is important to establish effective means of communications among these stakeholders to encourage productive discussions and planning efforts.

It is essential to create dialogue within the community about community priorities. How can such high-priority issues be protected and/or enhanced by natural gas development? Some communities might develop task forces to protect and/or enhance high priorities. Task force membership should comprise all key stakeholders, including local elected officials; representatives of county and regional agencies; members of environmental and community organizations; and representatives of the natural gas industry. Each task force should have goals specific to local facts and issues, but generally, task forces monitor change,

plan for potential negative impacts, and develop and implement plans that take advantage of opportunities presented by the natural gas industry.

Natural Gas Drilling: Action Steps for Residents, Local Leaders, and Officials

Become more aware of . . .

- the natural gas development process and its time-frames:
 - leasing (4–6 months)
 - exploration/seismic testing (4 months)
 - site preparation and drilling (4–8 weeks)
 - site reclamation (2 weeks)
 - extraction and transport (5–40 years)
 - maintenance over the life of the well (5–40 years)
 - closure
- the potential impacts (positive and negative) of natural gas development:
 - environmental
 - economic
 - cultural
 - municipal services and infrastructure
 - land use
 - community
 - educational services
- natural gas development regulatory agencies and their areas of authority:
 - Ohio Department of Natural Resources
- natural gas industry representatives/contacts.

Look internally and assess the ability to take action:

- Know the local ability, if any, to regulate. See Ohio H.B. 278 (2004).
- Inventory existing plans/regulations to determine the need for updating or creating new . . .
 - land uses.
 - ♦ comprehensive plan and official maps
 - ♦ zoning, subdivision, and land development ordinances (especially roads and driveways)

- open space and recreation plans.
- capital improvement plans.
- road posting and bonding.
- business and economic development plans.
- workforce training and/or education forecasts.
- long-range plans for school districts and human-services agencies.
- municipal and organizational financial planning.
- Identify a position or an entity to monitor natural gas issues:
 - elected official (chair, vice chair, etc.)
 - municipal/county planning commission
 - environmental advisory committee
 - task force
- Assess (and improve, as necessary) facilitation and communication skills of key personnel.

Identify stakeholders.

- landowners
- local natural gas-related businesses and subcontractors
- educational institutions
- chambers of commerce

- governmental officials and agencies
- conservancies and land trusts
- natural gas industry
- regulatory agencies
- emergency management agencies

Establish good communications and relationships relative to natural gas issues.

- Identify community issues with high priority.
- Determine how priority issues might be affected.
- Identify specific actions steps to protect/enhance priority issues.
- Develop monitoring systems to assess change in these priority issues.
- Where needed, identify regulatory authority and actions available.

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