Responsible Growth: Protecting the Public Interest with a Natural Gas Severance Tax

Report Summary

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To access the report, go to www.pennbpc.org/severance-tax.

Within the next decade, Pennsylvania is poised to enjoy a natural gas development boom. Long-term projections of rising natural gas prices and the advent of advanced drilling techniques have made it economically feasible to extract natural gas from the Marcellus Shale, a deep geologic formation that underlies 54 of the 67 counties of Pennsylvania.

Natural gas development will likely bring jobs, investment, and money into Pennsylvania, but it will also impose additional costs on state and local governments and their taxpayers. These costs include environmental permitting, monitoring, and cleanup, as well as worker and public safety in and around wells, emergency response, road maintenance, and demand for specialized water treatment facilities.

Evidence also suggests that the civic response to natural gas and other mineral booms is to overestimate the benefits and underestimate the impacts — on the environment, rural communities, and the public coffers.

Every state with significant mineral wealth, with the exception of Pennsylvania, has adopted a severance tax on the resource extraction industry. A severance tax is a well-tested mechanism for "internalizing" the external costs of drilling that are not currently paid by natural gas producers. Without a severance tax, these costs will be shifted to other state and local taxpayers.

The Pennsylvania Budget and Policy Center report "Responsible Growth: Protecting the Public Interest with a Natural Gas Severance Tax," reviewed literature on natural gas production, the impact of drilling in communities, and state severance tax policies. The findings:

> "…we gladly pay a severance tax in every state where we're active, except New York and Pennsylvania."
>
> \- Matthew Sheppard
> Chesapeake Energy Corporation
>
> Report Recommendations:
>
> - Pennsylvania should adopt a severance tax on natural gas to protect taxpayers from gas production costs.
> - Local governments should receive a share of revenue to defray local costs.
> - A portion of the severance tax should be dedicated to environmental protection.
> - The oil and gas industry should not be exempt from property taxation.

Pennsylvania has a long tradition of natural gas production, but it remains a small industry.

- Pennsylvania ranks 15th out of 32 natural gas-producing states, generating just under 1% of total U.S. production, with most current production in traditional shallow wells.
- Oil and gas production is a small but growing industry in Pennsylvania. In 2007, 5,829 individuals were employed in oil and gas extraction, representing 0.14% of total state employment. That number increased to 7,148 by September 2008, as gas prices hit historic highs.

The industry will grow rapidly and for the long term with Marcellus Shale development.

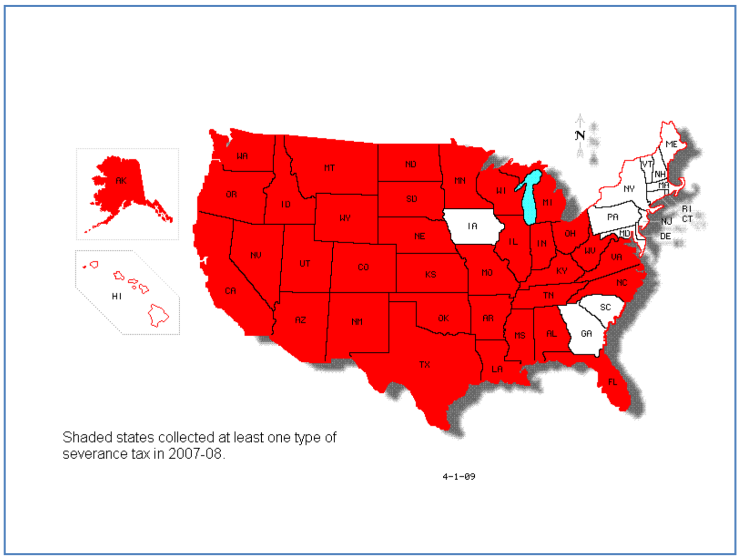
- The Marcellus Shale contains sufficient reserves to meet U.S. demand for 13 years.

- Pennsylvania gas will have a price advantage in the lucrative northeastern market over gas imported from western states due to significantly lower transportation costs. Distribution costs represent nearly half the total cost of natural gas.
- Arkansas and Texas, states with similar shale formations, have experienced exponential growth in gas drilling since 2000. The number of producing wells in the Texas Barnett Shale increased from 404 in 1997 to 8,960 in 2007. A 2005 analysis concluded that Arkansas' Fayetteville Shale wells were considered economical when natural gas prices were as low as $3 per thousand cubic feet.

Severance taxes in 35 states ensure taxpayers are protected from the costs of mineral production.

- Pennsylvania is the only mineral-rich state that does not have a severance tax. Thirty-five states, including Texas, Arkansas, Wyoming, Oklahoma, and West Virginia, tax one or more non-renewable resources (see Figure 1). State severance taxes raised $16.7 billion in revenue in 2007-08, representing, on average, 3% of total revenue for those 35 states.

Figure 1. *Thirty-five states collected severance taxes in 2007-08.*



- Most states with a severance tax base it on sales prices. Some combine a sales and production tax to account for the volatility in gas prices.
- 15 states share a portion of their severance tax revenue with local governments to help cover local costs incurred by mineral production.
- 10 states set aside a portion of the revenue in a "permanent fund," and use proceeds for environmental protection and economic development.

Source. U.S. Census, Quarterly Summary of State and Local Government Tax Revenue

Natural gas production has unavoidable environmental costs.

- **Surface Erosion:** The construction of wells, pipelines, and access roads will temporarily degrade surface water quality in streams due to increased surface erosion.
- **Water Contamination:** The drilling process, known as hydraulic fracturing, produces millions of gallons of water that has been mixed with sand and other chemicals and must be treated. The risk of wastewater leaking into the ground is significant. Pennsylvania only has five facilities capable of treating the wastewater produced by hydraulic fracturing. Well contamination has been reported in northeastern and southwestern Pennsylvania.
- **Soil Compaction:** The use of heavy construction equipment during the drilling process can compact soil so significantly that once sites are cleared and drilling operations are complete, soil compaction will limit forest re-growth. Philadelphia water officials have expressed concern that forest clearing and soil compaction could degrade water quality – a big worry for the city since it derives half of its water supply from Marcellus Shale regions of the state.
- **Abandoned Wells:** Costs aren't limited to deep natural gas well drilling. To date, $9.3 million of state Growing Greener funds have been spent to cap abandoned shallow wells.

- **Long-term impact:** Pennsylvania taxpayers have inherited a $15 billion tab to clean streams contaminated with acid mine drainage from coal production. Questions remain over the long-term environmental impact of the new Marcellus Shale drilling technology and the soundness of plans put forth by industry to store and dispose of the Marcellus water.

Costs will increase for local governments and local taxpayers.

As drilling activity increases, local governments will be faced with direct costs related to worker and public safety and road maintenance, as well as indirect costs tied to population growth, including housing infrastructure, schools, and health care. In other states, local governments generate revenue from property taxes and severance taxes to offset these costs, which can be substantial. The list of increased costs to local governments includes:

> … The Marcellus water is the worst water on the planet.
>
> -Mark Wilson, a marketing manager with GE Water & Processes Technologies

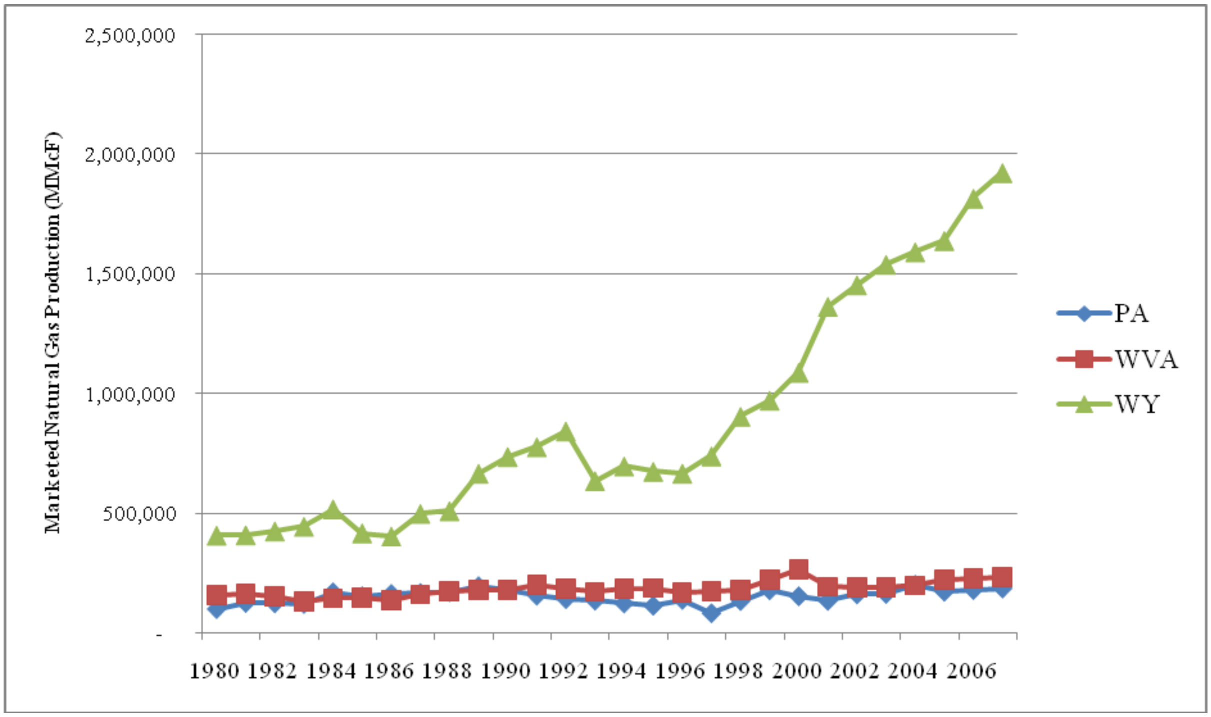
- **Public Safety:** Drilling increases the need for fire protection to help combat well fires, police protection to respond to traffic accidents and protect property and residents, and emergency responders to deal with drilling accidents or spills.
- **Roads and Bridges:** Some drilling equipment weighs more than 100 tons, far in excess of the weight limits of many rural roads and bridges. Local governments can require drillers to post bonds of up to $12,000 per road mile to help pay for road damage, but that falls short of the actual cost to replace a roadway (in excess of $100,000 per road mile).
- **Education:** Local educational institutions are called on to provide new training programs for adults and instruction to the children of new residents who move into town to find drilling jobs.
- **Mineral Rights:** County government, itself, plays a vital function in the exploration of natural gas, as it records the ownership of surface and subsurface rights. Increased production can strain local recorder of deeds offices, as companies go in search of properties to develop.
- **Social Impact:** The economic benefits of increased drilling are often overstated and not equitably shared, as some communities may incur costs but not derive additional revenue from the drilling. Sociologists have even coined a term, "the Gillette Syndrome," named after the town of Gillette, Wyoming, to describe the social dysfunction that can occur in oil- and gas-producing towns.

A severance tax will protect Pennsylvania taxpayers with little impact on natural gas production.

- Recent studies have shown that severance taxes in other states have had little negative impact on the development of energy resources, while greatly contributing to government revenues.
- The market price for natural gas – along with other business factors – will have a much bigger impact on the development of the Marcellus Shale than a severance tax.
- By mirroring the rate in West Virginia, the neighboring state with the most developed extraction industry, Pennsylvania would eliminate tax incentives or disincentives for well development between the two states.
- 23 of 27 states that have natural gas severance taxes also have corporate income or other corporate taxes.
- Many well operators in Pennsylvania, including the largest, are established as limited liability companies or partnerships and pay the 3.07% personal income tax, NOT the 9.9% corporate tax.

Natural gas production is based on the location and size of reserves, not state tax policy.

Figure 2. *Natural gas production in Pennsylvania, West Virginia, and Wyoming 1980-2006.*



Source. U.S. Energy Information Administration.

- Gas production has been higher in West Virginia than in Pennsylvania since 1980, even with a severance tax. Production in both states grew modestly between 1980 and 2006.
- Natural gas production is much greater in Wyoming, which has a severance tax, because of its vast gas reserves, and production grew quickly there as gas prices increased. Pennsylvania is likely to see output grow rapidly, even with the tax, as the reserves in the Shale are developed.
- Gas production in Wyoming grew faster than in four other Mountain states, despite Wyoming having the highest effective natural gas tax rates of the five gas-producing Mountain states.

Local governments need authority to assess property taxes on oil and gas interests restored.

- Local governments in Pennsylvania have no way to recoup the public costs of drilling due to a 2002 state court decision that excludes oil and gas interests from the property tax, even though coal, gravel, and other minerals remain part of the property tax calculation.
- For a century before that, local governments assessed property taxes on oil and gas interests. The 2002 court decision has cost school districts, municipalities, and counties millions of dollars.

For more information:

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