Unintended Consequences

Proposed Tax Breaks for Natural Gas Industry Are Bad Deal for Pennsylvanians

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Pennsylvania has a long history of supplying the nation with natural gas that provides energy for cooking, heating, and other important uses. Only Texas has more currently active wells.[1]

Until recently, most natural gas wells were shallow in depth and most produced modest amounts of natural gas. These "stripper wells" or "low-producing wells" produce fewer than 60 thousand cubic feet (MCF) per day. Despite the large number of producing wells, Pennsylvania currently ranks 15th in natural gas production.[2]

The economic viability of extracting natural gas from the Marcellus Shale, which lies underneath most of Pennsylvania, has created a boom in gas drilling. The new wells are much more productive and profitable, attracting attention from the major natural gas production companies operated out of Texas, Oklahoma, and Louisiana − and big oil companies including ExxonMobil and Shell.

The General Assembly is now considering several proposals to enact a tax on natural gas production (called a severance tax), as is done in 28 of the 32 gas-producing states. Pennsylvania is the only mineral-rich state that levies no type of severance tax and the largest natural gas-producing state without one.[3]

As the severance tax issue comes to a head, natural gas companies are trying to shape the proposal by securing exemptions to the tax. Long-time stripper well producers have gained traction for a tax exemption for low-producing wells. This exemption has been incorporated into every legislative and executive severance tax proposal since 2009. As currently defined, the exemption would include existing shallow wells and Marcellus Shale wells in their later years of production.

Now, the natural gas industry is seeking a tax exemption for the first three years of well production, citing tax policies in other shale gas-producing states, including Texas and Arkansas.

If the General Assembly adopts both proposed exemptions, only one-third of total gas production at a typical Marcellus Shale well would be subject to severance tax, and companies would pay tax for only nine years of the 40-year life of the well. This two-ended exemption is much more generous than either the Arkansas or Texas severance tax structures and should be rejected by the General Assembly.

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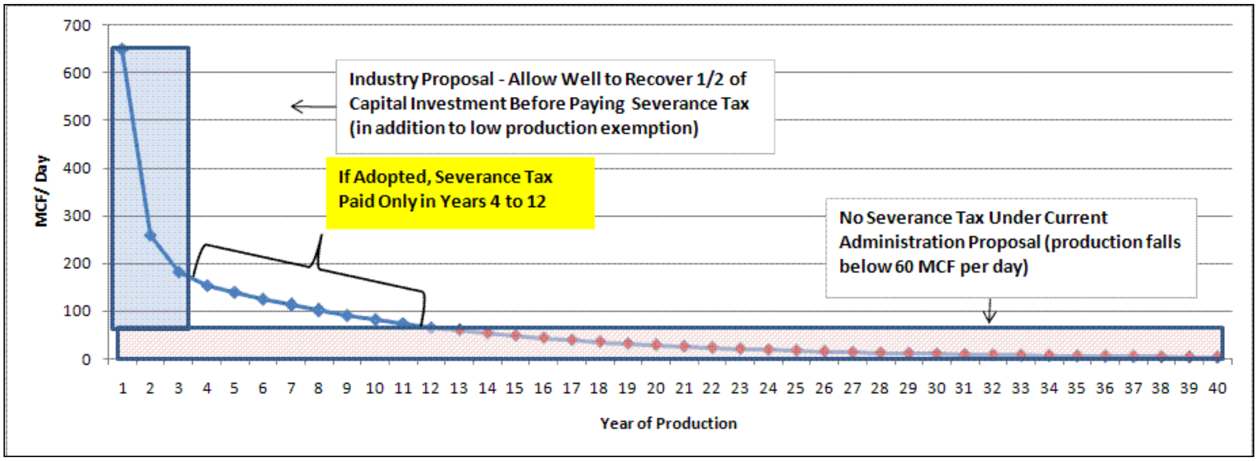
[1] U.S. Energy Information Administration, "Number of Producing Gas Wells (2003-2008)," http://tonto.eia.doe.gov/dnav/ng/ng_prod_wells_s1_a.htm.

[2] U.S. Energy Information Administration.

[3] California levies an environmental fee on oil and gas production, but has a timber yield tax.

Figure 1. Proposed Exemptions Would Remove Taxes for Most of Typical Marcellus Shale Well's Lifetime



Source. Author's calculations adapting Pickering Energy's production curve for the Barnett Shale.

One Exemption is Not Enough - Natural Gas Developers Want a Front-End Tax Exemption

As support for enacting a severance tax has grown, the large oil and gas interests have changed tactics and are lobbying for a more favorable severance tax deal. The industry is now pushing for a tax exemption for the first few years of Marcellus Shale well production, saying the upfront tax break is needed to help recover development costs. This new "front-end" exemption would be in addition to the "back-end" exemption for "low-producing" wells.

Combined with the exemption for "low-producing wells," tax collections on a typical Marcellus Shale well would apply to only one-third of total well production (see Figure 1).

Industry officials are selectively promoting aspects of the Arkansas or Texas tax structures to make their argument. It is important to note that neither state has an exemption for all gas wells at the beginning or at the end of production. In both states, oil and gas companies pay property taxes in addition to severance taxes and business taxes. Oil and gas companies are exempt from property taxes in the Commonwealth.

The Texas Plan

Texas, the leading gas-producing state, has a reduced tax rate on what it defines as "high-cost wells." It allows drillers to pay a reduced rate until half of development costs are recouped from the reduced rate. Until 1996, this was an exemption from tax, but is now a tax rate reduction calculated on a sliding scale based on actual development costs versus a state-wide average of well development costs.[4] Texas also has a tax provision for low-producing wells, but it only offers a tax rate reduction for those wells when natural gas prices fall below $3.50 per MCF. A sliding rate reduction of the type used in Texas would likely violate the Commonwealth's constitutional uniformity clause.

[4] Texas Comptroller of Public Accounts, Texas Taxes: Natural Gas Production Tax, http://www.window.state.tx.us/taxinfo/nat_gas/index.html.

The Arkansas Plan

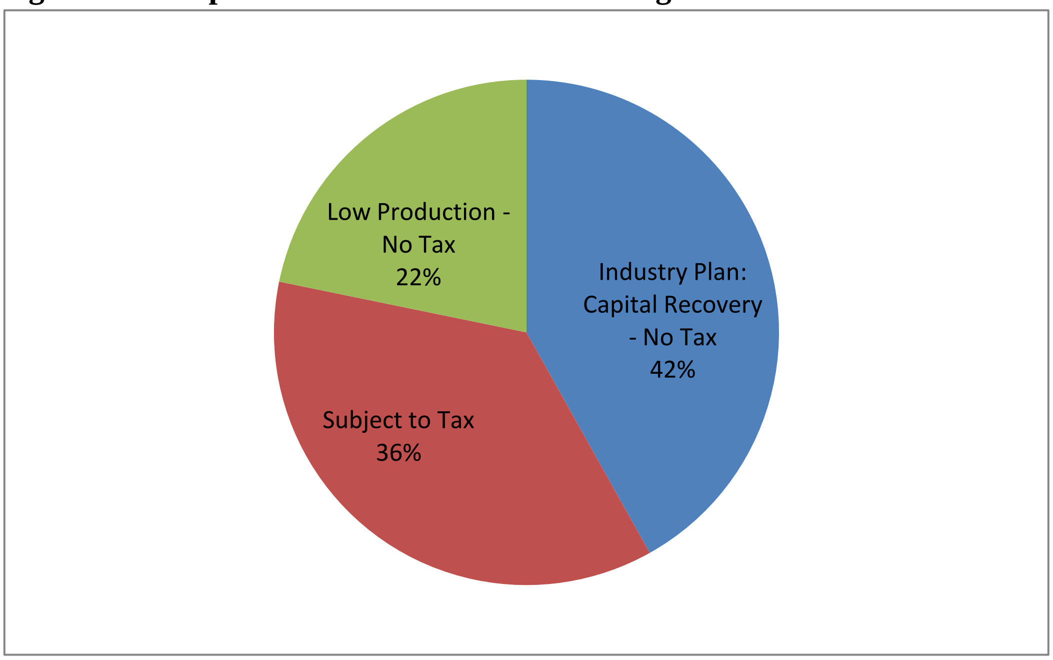
Arkansas taxes natural gas production throughout the life of a well. Shale gas wells receive a reduced tax rate for the first three years of production, and low-producing wells are also subject to a lower tax rate.[5] All real and personal property (including movable drilling equipment) is subject to property tax in Arkansas.

The Up-Front Tax Exemption is a Bad Idea

For the typical Marcellus Shale well, an exemption of the first three years of production to recover development costs would eliminate severance tax on **42%** of the natural gas produced over the life of the well.[6] This occurs because gas wells produce much of their gas in the first few years of operation.

Providing severance tax breaks in the early years of well production creates a mismatch with industry's demands on a host community's social and physical infrastructure. The drilling and hydraulic fracturing of wells requires hundreds of heavy truck trips on local roads. Chemical spills, gas fires, and worker injuries are most common in the early phases of production, requiring emergency, fire, and environmental remediation services.

Figure 2. Exemptions Would Make Most Drilling Tax Free



Note. This represents the impact of tax exemptions over the life of a typical Marcellus Shale well.

[5] Arkansas Oil and Gas Commission, *Final A-7 – Determination of Natural Gas Well Categories for Severance Tax Purposes*, http://www.aogc.state.ar.us/Severance%20Tax/A-7%20Final%2011-16-08.pdf.

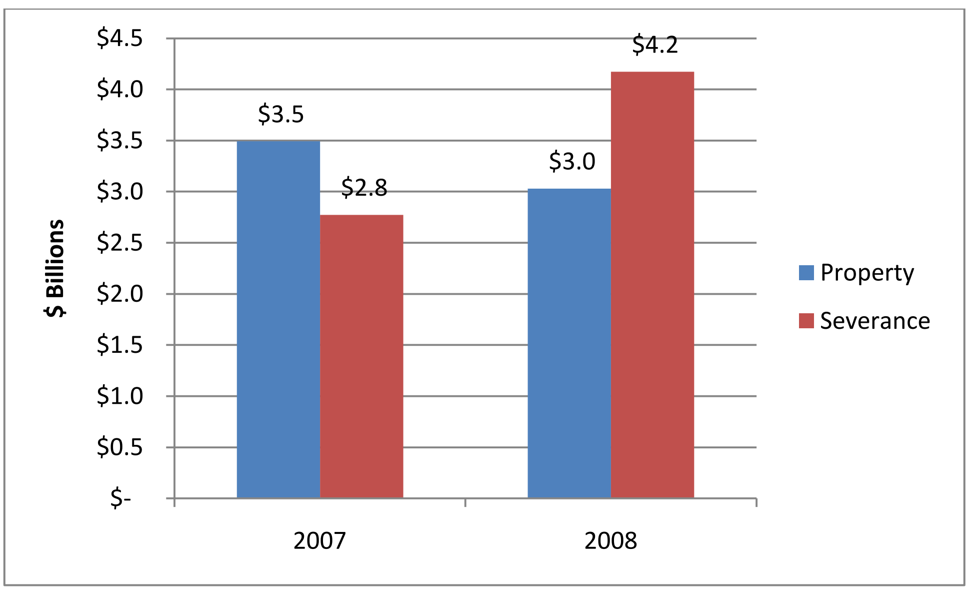
[6] Author's calculations based on Pickering Energy Associates, *The Barnett Shale, Visitors Guide to the Hottest Gas Play in the US*. More production data over time exist for Barnett Shale wells making the production curve less speculative than estimates currently available for the Marcellus Shale.

Pennsylvania Isn't Texas

While severance tax opponents attempt to make Pennsylvania's proposed tax more like the one in Texas by exempting production from tax, they ignore a few important facts:

- High-cost wells in Texas, including shale wells, receive tax rate reductions based on the actual cost to drill. Only in the most extreme cases (when well-drilling costs exceeded $4.5 million in 2009, for example) would the Texas tax rate be reduced to 0% and only until half of capital costs are recovered.
- Drillers in Texas do not receive a universal exemption from tax at the end of the life of the well (when production falls below 60 MCF per day) or for stripper wells as is proposed in Pennsylvania.[7]
- Texas drillers pay billions of dollars each year in property taxes to local schools and governments on their gas reserves, which is not permitted in Pennsylvania. For many wells in Texas, property tax bills are higher than the severance tax (see Figure 3).

Figure 3. Comparison of Property and Severance Taxes Paid on Oil & Gas Production in Texas



Source. Texas Oil & Gas Association

The Low-Production Exemption Ignores Legacy of Environmental Costs

Pennsylvania's long-operating stripper well producers waged an intense and successful campaign to exempt their wells from the severance tax. The Governor's February 2010 proposal and several bills in the House of Representatives exempt low-producing wells – those producing less than 60 MCF per day – from the severance tax.

[7] Railroad Commission of Texas, "Texas Severance Tax Incentives," November 2007, http://www.rrc.state.tx.us/programs/og/presenttax.php. When natural gas prices fall below $3.50 per MCF, Texas law provides a credit for low-producing wells to reduce their severance tax payments. Since this credit was created in September 2005, natural gas prices have never been low enough to trigger the credit.

Stripper well operators have argued that the exemption is necessary to keep them economically viable when gas prices are low. However, the blanket exemption would remain when gas prices are high, as they were during 2007-2009, providing an unneeded subsidy to a profitable enterprise.

Stripper wells pose significant environmental risks by carving up natural areas and at times allowing gas to leech into water supplies. Pennsylvania has more than 8,100 documented orphaned or abandoned oil and gas wells, with potentially as many as 185,000 more undocumented wells that need to be capped at public expense.[8] The owners of these wells walked away from their responsibility to maintain or safely cap the wells because it became unprofitable to continue operating them. A severance tax would provide better records to track down individual well owners and help pay for the cleanup; instead, Pennsylvania taxpayers have been left with the tab.

Marcellus Shale Wells Also Receive the Stripper Well Exemption

As currently drafted the low-producing exemption would apply to both stripper wells and to Marcellus Shale wells in the second half of their production life. Based on production curve estimates from the Barnett Shale (as more production data exist over the life of the Barnett Shale wells than those in the Marcellus Shale), the typical shale well would fall into this "low-producing" category after 13 years of production. Once falling to 60 MCF per day, the Marcellus Shale well would no longer be subject to severance tax. Such wells could continue to produce marketable gas for 25 or more years.

It is estimated that the low-producing well exemption would eliminate **22%** of a typical Marcellus Shale well's production from severance taxation (see Figure 2).[9] The typical shale well would reach low-production status after 12 years of production and would no longer be subject to severance tax.

A Pennsylvania Tax Break for New Wells Would be Expensive and Ineffective

The federal government already gives drillers an array of tax breaks that allow them to recoup their investments faster than most other industries. There is no economic reason for Pennsylvania to accelerate the payback period further, especially because it would mean giving up revenues at a time when tax collections are depleted by the national recession and public needs are growing. Pennsylvania doesn't allow owners of a factory to pay half their normal tax rate for building a new plant until they recoup their investment. There is no basis for giving gas drillers special treatment.

Opponents of a severance tax on natural gas drilling claim that Pennsylvania business income taxes are higher than in other gas-producing states, making a severance tax unnecessary. But that is misleading. At the federal level, production incentives permit oil and gas firms to generate a net subsidy from the federal government that increases producers' real incomes by 42%.[10] This means that the federal government is paying these firms – not taxing them – to drill. Pennsylvania's corporate income tax is based on the

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[8] Pennsylvania Department of Environmental Protection, Abandoned and Orphan Well Program, http://www.dep.state.pa.us/dep/deputate/minres/oilgas/abandonedOrphan.htm.

[9] Author's calculations using Pickering Energy production curve.

[10] Calvin H. Johnson, "Accurate and Honest Tax Accounting for Oil and Gas," *Tax Notes*, Vol. 125, No. 5, pp, 573-583, 2009.

federal return, so it is unlikely Pennsylvania will collect income taxes from companies that owe the federal government nothing.

Even if there is state income tax due, it would likely be paid at the low individual income tax rate of 3.07% instead of the 9.99% corporate rate, since many drillers operate limited liability corporations or S-corporations, which are taxed at the lower rate. As of June 2009, more than 70% of Marcellus Shale wells were being operated by companies paying the lower 3.07% income tax rate.

Pennsylvania Can Learn from Other Gas-Producing States

Wyoming, the country's second largest natural gas producer, evaluated state oil and gas subsidies (including tax rate reductions) in 2000 and found that over a 60-year period they cut state tax collections significantly but had a negligible impact on the number of wells drilled or gas production.[11] Based on the study results, Wyoming ended drilling subsidies.

A similar finding was reached by Headwaters Economics (an independent, nonprofit research group in Montana) that studied energy taxes and subsidies and concluded, "We also find no evidence to suggest that the dramatically different effective tax rates in the Intermountain West have led to more or less investment from state to state." Headwaters even discovered that, despite giving subsidies, "Montana has stimulated less, not more, energy development than Wyoming and left more than half a billion in revenue on the table." [12]

In a recent *Philadelphia Inquirer* story, a gas industry analyst noted: "The industry will probably hate me for saying this, but as far it goes in my world of spreadsheets, the severance tax is not a deal-breaker. I don't believe it will have a huge impact on drilling. It's not that large."[13]

If Pennsylvania's severance tax is not going to have a negative impact on drilling, there is no practical reason for providing exemptions to it.

Pennsylvania's public interest would not be served by adding what have been found in other states to be costly, yet ineffective subsidies.

Conclusion

Enacting the severance tax on natural gas extraction, as proposed by Governor Rendell, is the responsible thing to do for the citizens of Pennsylvania. Making exceptions, in the form of rate reductions for newly drilled wells, would increase profits for natural gas developers at the expense of Pennsylvania's taxpayers and the state's ability to meet their needs. Strong evidence from other states shows that awarding tax breaks to natural gas producers decreases state revenue without boosting production. When severance tax revenue is inadequate, more of the environmental and social costs of drilling will be shifted to the citizens of Pennsylvania.

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[11] Shelby Gerking, et al, *Mineral Tax Incentives, Mineral Production and the Wyoming Economy*, December 2000.

[12] Headwaters Economics, *Energy Revenue in the Intermountain West*, Bozeman, Montana, 2008.

[13] Andrew Maykuth, "Rendell signals flexibility on tax*," Philadelphia Inquirer*, May 2, 2010.

As lawmakers craft legislation to implement a severance tax in Pennsylvania, we offer the following policy recommendations:

- **Pennsylvania's tax should not include an exemption in the early years of Marcellus Shale well production**. A front-end exemption would eliminate severance tax on 42% of the natural gas produced over the life of a typical Marcellus Shale well. Not only does this represent a significant loss of revenue, but providing severance tax breaks in the early years of well production fails to take into account the initial demands that industry activity places on the social and physical infrastructure of host communities.
- **Pennsylvania should not exempt stripper wells or low-producing wells from severance tax unless natural gas prices drop below a certain level.** This is how Texas structures its tax exemption for low-producing wells. When gas prices are high, as they were between 2007 and 2009, a blanket exemption would provide an unneeded subsidy to a profitable enterprise.
- **Pennsylvania should enact a severance tax this year because the impact of increased drilling is already being felt in communities across the Commonwealth.** The tax will provide a stable source of funding for core public services like health care, education, and human services − as well as the environmental and social costs of drilling.