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Assessing the Impact of a Severance Tax for PA

In February 2012 the Pennsylvania Legislature enacted Act 13 which established an impact fee on companies drilling for natural gas using the hydraulic fracture treatment, primarily in the Marcellus Shale formation beneath the Commonwealth. At the time there was a clamoring for a severance tax, but the impact fee prevailed. The idea of imposing a severance tax was rekindled as it became a focal point of the recently concluded gubernatorial race. The governor-elect has indicated that a five percent severance tax on drillers will raise more than $1 billion per year that could be used on education spending and in other areas. Is this assertion on target?

Act 13 specified the level of the impact fee, based on the market price of natural gas and age of wells, and the allocation of funds collected (see *Policy Brief Volume 12, Number 11*). Over the first three years, the impact fee has brought in a total of approximately $632.4 million. After eight state agencies take their share off the top, sixty percent of the remaining funds have been returned to the counties and municipalities most directly impacted by the burgeoning industry ($129.4 million to date) —Washington County has received $15.2 million while Bradford County far and away leads the pack with $22.8 million. Even those counties and municipalities that do not have an unconventional well within their borders have benefited ($20.65 million). For example Philadelphia and Montgomery Counties have received $4.06 million and $2.13 million respectively despite being well outside the Shale formation. The balance, forty percent, is deposited into the Marcellus Legacy Fund. About one-third of the Legacy Fund is directed to the Commonwealth Financing Authority to pay for environmental projects.

Many of the counties and municipalities that have been the beneficiaries of these funds have relied on them to round out their budgets.

So what happens if a severance tax is implemented? According to Act 13, section 2318, if a severance tax is implemented, the impact fee would be terminated, ending the money being bestowed on state agencies, counties, municipalities, and the Legacy Fund.

The severance tax proposed by the governor-elect is a five percent levy on the market value of natural gas removed from the Shale formation. Using production reports from the PA Department of Environmental Protection[1] we can estimate how much revenue a severance tax would have brought the Commonwealth each year since 2011 (the first year of the impact fee collections). For calculation purposes we will use the average annual price of natural gas based on last trading day of each month of the calendar year from the Henry Hub spot price as reported by the New York Mercantile Exchange as outlined by Act 13.

In 2011 unconventional gas wells produced 1.066 billion thousand cubic feet (Mcf) of gas. Using a price of $4.01 gives a market value of just less than $4.3 billion. The following table provides a summary of estimates for 2011 to 2014.

Year	**Output (Mcf in millions)**	**Avg. Price**	**Estimated Market Value (millions)**	**Estimated Severance Tax Revenue (5%) (millions)**	**Impact Fee Collected (millions)**	**Net Change (millions)**
2011	1,066	$4.01	$4,279	$213.96	$204.2	$9.76
2012	2,041	$2.79	$5,703	$285.16	$202.5	$82.66
2013	3,103	$3.75	$11,632	$581.63	$225.75	$355.87
2014[2]	3,881	$4.21	$16,357	$817.88	NA	NA

We can see from the table that over the first two years, the estimated severance tax is not that far off from the impact fee. In the third year the severance tax would have brought in more than double the impact fee.

It is important to look at the net change because there are many state agencies, counties, municipalities, and the Marcellus Shale Legacy Fund that are currently being funded by the impact fee. If it goes away, as specified in Act 13, these entities will still want to be compensated, so the severance tax will have to satisfy them as well as any new initiatives, such as education, the new administration wishes to fund. Obviously the higher price of natural gas thus far in 2014 suggests that $1 billion in severance taxes might possibly be reached, but to reach $1.2 billion, enough to satisfy campaign promises and backfill the impact fee, the price would have to top $6.00 per Mcf and production would have to surpass four billion Mcf. Or at current prices, production would have to rise by more than fifty percent.

Price is obviously subject to the supply and demand conditions, and they can be volatile because of such factors as cold winters, domestic production, export markets, etc. The cold winter of early 2014 (February-March) pushed the price up over $8.00 per Mcf briefly for a couple of days, but it has been falling steadily since. Prior to that stretch, the price hadn't been over $5.00 since 2010. As more wells are spud, the supply will keep

[1] https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx

[2] The 2014 output value is an estimation based on the first six months when more than 1.94 billion Mcf of gas was extracted. The average price for 2014 is the average through November and of course the impact fee for 2014 still has to be determined based on the final price of gas as well as how many wells were spud in 2014.

increasing, holding prices down. Falling prices will slow production and the drilling of new wells.

During the campaign much was made about Pennsylvania being the only state without a severance tax, so how do other states handle severance taxes? There are thirty six states with a severance tax (although none with an impact fee). Neighboring Ohio charges a simple $0.025 per Mcf, while West Virginia levies a five percent gross value tax plus a charge of $0.047 per Mcf. West Virginia also allows deductions for annual industry operating expenses. Other states such as Kentucky (4.5 percent of market value), Texas (7.5 percent of market value), Louisiana ($0.163 per Mcf), and Arkansas (5 percent of market value) allow for exemptions and deductions based on issues like high cost production, transportation expenses, low or marginal producing wells, and use of high efficiency equipment in an effort to encourage production. If Pennsylvania contemplates a severance tax will it allow deductions and exemptions as well? Also these states tax all natural gas and not just those from shale sources. Will Pennsylvania impose the severance tax on more traditional wells? The output of conventional wells is just a fraction of the output of unconventional wells but taxing natural gas should include them as well.

The natural gas industry has boomed with the advent of hydraulic fracturing in the Marcellus Shale formation and had given the state's economy a boost during the most recent economic downturn. We have documented in past *Briefs* (*Volume 11, Number 38 and Volume 13, Numbers 27*) the benefits of this industry to state coffers through income taxes, sales taxes, and now impact fees. A severance tax, if too high, could have adverse consequences for Pennsylvania. Instead of trying to push through a severance tax that will consume a great deal of the Legislature's time and political capital, the new administration should focus on tackling the issue of pension reform which is the principal cause of the Commonwealth's budget problem.

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