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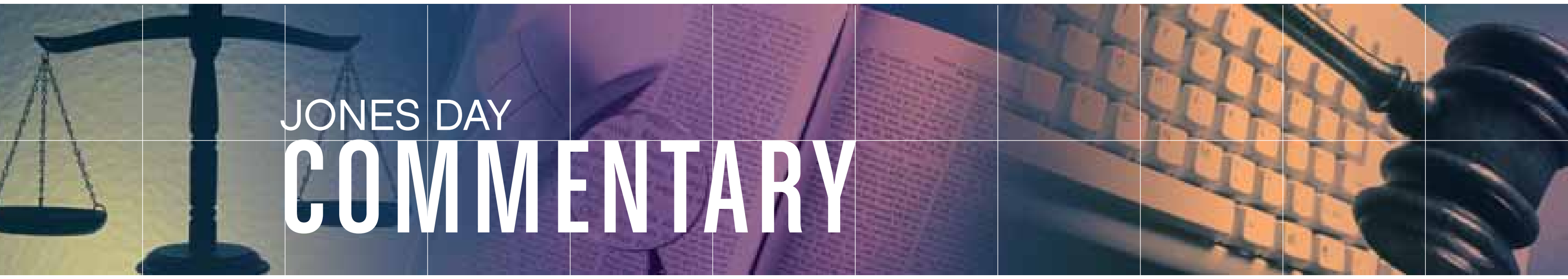

THE MARCELLUS SHALE FORMATION: PENNSYLVANIA'S NATURAL GAS SEVERANCE TAX CONTROVERSY

Pennsylvania has a long history of producing natural gas from a large number of conventional shallow low-production wells, principally for domestic household use. Only Texas has more currently active wells.[1] Pennsylvania ranks 15th in natural gas production among U.S. states, and it is the largest producer without a severance tax.

The advancement of drilling technology and water treatment has strengthened the economic viability and long-term return on investment of extracting natural gas from the Marcellus Shale formation. Marcellus Shale is a unit of marine sedimentary rock found in eastern North America. It extends throughout much of the Appalachian Basin extending across West Virginia; western Ohio; western, central, and northeastern Pennsylvania; southwestern New York; and small portions of Virginia and Maryland.[2] The shale contains largely untapped natural gas reserves that, according to several studies, could conservatively supply U.S. consumption for nearly two decades.[3] The Marcellus Shale formation is estimated to be 10 times larger than the Barnett Shale formation in Texas and is attracting attention from major Texas-based natural gas production companies and big oil companies.

The Pennsylvania General Assembly, divided by party lines in a gubernatorial election year, has been embroiled in a fierce debate over whether or not the Commonwealth should enact an extraction tax on natural gas that parallels the tax imposed by other shale-gas-producing states, including West Virginia, Texas, and Arkansas. On July 6, 2010, Pennsylvania

1 U.S. Energy Information Administration, Number of Producing Gas Wells, http://www.eia.doe.gov/dnav/ng/ng_prod_wells_s1_a.htm (last visited July 14, 2010).

2 *Marcellus Shale—Appalachian Basin Natural Gas Play*, Geology.com, *available at* http://geology.com/articles/marcellus-shale.shtml.

3 Esch, Mary (2008-11-04), "Estimated gas yield from Marcellus shale goes up," U.S. Department of Energy (April 2009): Modern shale gas development in the United States: a primer, p. 17

Governor Edward G. Rendell signed Pennsylvania Act 46 into law, representing the Commonwealth's fiscal code for the year ending June 30, 2011. Under Act 46, the Pennsylvania's General Assembly committed itself to passing a severance tax on the extraction of natural gas by October 1, 2010, to be effective no later than January 1, 2011. Although 39 states currently have some type of severance tax, including taxes on both coal and natural gas, Pennsylvania, which has long been a major coal producer, has never imposed a severance tax on coal, natural gas, or any other natural resource. The Pennsylvania General Assembly has now missed the October 1 deadline and seems to be at an impasse. Governor Rendell remains hopeful that a compromise will be reached on the shale gas tax rate and on a plan to distribute the new revenue before the legislative session ends on November 30. However, Pennsylvania will elect a new governor on November 2, leaving Rendell a lame duck.

On November 14, the Pennsylvania Senate wrapped up its final scheduled work day of the 2009–2010 legislative session. The chamber took no action, however, on the proposed imposition of a tax on natural gas extracted from the Marcellus Shale. Neither legislative body is currently scheduled to return until the next legislative session after the November 2 elections, although they could be recalled.

THE ISSUE IN CONTEXT

A severance tax is a tax imposed on the extraction of a state's natural resources. In various states, severance taxes are charged for removal of natural resources including natural gas, coal, timber, and salt. In the case of a severance tax on natural gas, the tax is generally payable by both the gas well operator, who extracts the natural gas, as well as anyone else with a working or royalty interest in the natural gas.

The fact that significant amounts of natural gas exist underneath most of Pennsylvania has been known for some time. In 2002, the United States Geological Survey estimated that as much as 1.9 trillion cubic feet of gas existed in the Marcellus Shale. However, that gas was spread over a large area, and, until recently, the technology did not exist to profitably extract the gas. Recent advances in technology, along with anticipated future increases in natural gas prices, have significantly brought down the real and perceived costs of extracting natural gas from the Marcellus Shale, leading to a speculative investment and production boom during the last few years.

Shale formations, such as the Marcellus Shale, are not unique to the northeast United States. Early advances in natural gas extraction from shale formations occurred in the Barnett Shale located in Northern Texas. Techniques developed to extract natural gas from the Barnett Shale have since been successfully employed in the Fayetteville Shale in Arkansas and the Haynesville Shale in Louisiana along with the Marcellus Shale. Drilling companies hope to expand this technology to extract natural gas from previously ignored natural gas plays around the world.

Along with the possibility of significant natural gas production in Pennsylvania comes the possibility of additional revenue for the Commonwealth. In February 2009, Governor Rendell announced that he would seek the imposition of a severance tax on natural gas produced in Pennsylvania. Since that announcement, the tax has been the source of vigorous debate.

During the current 2009–2010 legislative session, there have been numerous separate bills introduced in the Pennsylvania House and Senate proposing various forms of a severance tax. The debate has been divided along traditional lines, with environmentalists and Democrats largely supporting a higher severance tax, while industry and Republicans seek lesser or no taxation.

Pennsylvania, like many states, is facing a substantial budget deficit as a result of shrinking stimulus funds, rising pension costs, and declining tax revenues. The Commonwealth needs to generate new sources of revenue or drastically cut spending to balance its budget. Both gubernatorial candidates, Corbett and Onorato, have cited wasteful spending as a principal basis for reform under new leadership. An extraction tax is one of the few options available that will not constitute an across-the-board tax increase on all Pennsylvanians. The Rendell admistration has argued that a severance tax is necessary partly to compensate local residents for the disruption and environmental degradation caused by gas drilling. A major policy question at this juncture, apart from the environmental risks, is whether or not a severance tax will negatively affect the growth of Pennsylvania's natural gas industry and the incentives for the creation of jobs, and enhance the Commonwealth's general fund. The Penn State Institute for Research in Training & Development released a study on September 13 entitled *Benchmarks For Assessing The Potential Impact Of a Natural Gas Severance Tax on the Pennsylvania Economy*. The authors conclude that a severance tax on natural gas in Pennsylvania would increase costs for gas drilling companies, but the resulting increase in spending of state revenue could yield positive, but small, impacts on the Commonwealth's economy and population. Other groups have claimed that few local jobs are created by all of the new natural gas drilling. These groups claim that the drilling companies are largely based out of Texas or other major fossil fuel regions and that the companies bring the specialized workforce with them rather than hiring locally.

Environmental groups have further polarized the debate, citing poor drilling practices and substandard well construction causing massive leakages of natural gas and contamination of natural water supplies. Hydraulic fracturing, or what is commonly called fracking, is used to extract natural gas from shale formations. The process makes drilling economically viable in areas that historically would not have been profitable for gas exploration companies. Fracking involves injecting water, sand, and various chemicals such as benzene, a known carcinogen, and ethanol at high pressure into rock formations. The high pressure injection is used to open existing fractures in shale formations, allowing the buildup of natural gas to rise through wells. Environmentalists have challenged the "Halliburton Loophole," which exempts fracturing fluid from regulation under the Clean Water Act, and have prodded the industry into revealing the contents of the fluid.

A 2010 report issued by the Pennsylvania Land Trust Association found that 43 Marcellus Shale drilling companies accounted for 1,435 environmental violations since January 2008. A recent study by Theo Colborn, President of the Endocrine Disruption Exchange, cites hazardous chemicals used in hydraulic fracking. The Colborn study recommends full disclosure of the contents of all products, extensive air and water monitoring, and regulation of hydraulic fracking under the Safe Drinking Water Act.

On October 6, the Pennsylvania Department of Environmental Protection ("DEP") ordered one of the Commonwealth's biggest Marcellus Shale gas drillers to build an $11.8 million pipeline to deliver water to 18 rural residences in Susquehanna County north of Scranton, Pennsylvania, whose household wells are contaminated by natural gas. The DEP intends to seek reimbursement from a Texas-based drilling company for the cost of the pipeline.

In response to these and other concerns, the Pennsylvania Marcellus Shale Coalition (the "Coalition") hired former Pennsylvania Governor and first Director of Homeland Security Tom Ridge to convince the public and elected officials across Pennsylvania of the benefits of developing the natural gas industry in the Marcellus Shale formation. As an initial action, the Coalition announced seven guiding principles that it pledges to follow, ranging from workplace safety, environmental protection, and "transparency" to cooperation with communities where drilling occurs to increase the local workforce. The Coalition seeks to conduct business in a responsible manner that will provide sustainable and broad-based economic and energy-security benefits for all Pennsylvania residents.[4]

TAX STRUCTURE AND RATE

Severance taxes are traditionally assessed based on the volume or value of gas extracted, or a combination of the two. There are advantages and disadvantages to each method.

The simplest structure is to assess a tax based on the volume of gas extracted from the ground. In this type of tax, flat rates are charge in cents per MCF (thousand cubic feet). The gas is metered through the well as it is extracted, and the well-driller pays a tax based on the amount of gas piped out of the well. The problem with this type of tax is that it does not account for the fluctuating price of natural gas. When the price of gas is relatively high, gas producers gain a windfall, while the Commonwealth is left without benefit from the higher prices. On the other hand, when prices are low, a volume-based tax can become prohibitively expensive for producers.

4 The Marcellus Coalition, October 1, 2010

An alternative tax structure is a tax on the value of the gas extracted. These value-based severance taxes are applied to the value of the gas "at the wellhead." (This term means the value of the gas itself at the point of production, before accounting for transportation and distribution costs). This value-based severance tax fixes the problems associated with a volume-based tax, but it creates some new issues of its own. While the volume of gas extracted can be accurately predicted, revenues from a value-based tax are much more difficult for state budget-makers to forecast since the revenues collected fluctuate with the energy futures market. Value-based severance taxes are also more costly to enforce. Rather than just monitoring the well meter, as is done with a volume-based tax, regulators must monitor sales.

In an effort to balance these issues, many severance taxes represent a hybrid of the two different forms of taxation. In these hybrid tax schemes, the taxing authority charges a flat-volume tax at a relatively low rate and then charges an additional tax on the value of the extracted gas. This hybrid structure has the advantage of both allowing the legislators to make more accurate forecasts of revenues that will be collected from the tax and, at the same time, taking advantage of higher sales prices, while not overburdening producers when prices are low. The major disadvantage of a hybrid tax structure is that it is the most expensive to enforce because a taxing authority must incur all of the costs associated with both value-based and volume-based severance taxes.

The severance taxes that have been proposed in Pennsylvania are either volume-based taxes or a hybrid tax structure. The earliest proposed taxes, including Governor Rendell's proposal, were hybrid taxes. These include House Bills 325, 2435, and 2438 along with Senate Bills 905, 997, and 1254. With the exception of House Bill 325, all of these bills propose a tax of 5 percent on the wellhead value plus 4.7 cents/MCF extracted. Not coincidentally, this is the same tax rate that is imposed by the West Virginia hybrid severance tax.[5] Pennsylvania House Bill 325 has proposed a higher rate of 8 percent on the wellhead value and 8 cents/MCF extracted.

More recently, several tax bills have been introduced that would apply a volume-based tax. House Bill 1489 was originally a hybrid structured tax when it was introduced, but it has since been amended to be a volume-based tax. Along with this bill, House Bills 2443 and 2579 have proposed a volume-based tax. The biggest variation among these bills is the base rate of tax charged. On the low end, House Bill 2443 would charge an initial base rate of 25 cents/MCF extracted while House Bills 2579 and 1489 would charge a base rate of 30 cents and 35 cents/MCF respectively.

In order to allow the Commonwealth to benefit when fuel prices are high, all of these volume-based severance taxes are adjusted based on an "Index." This Index is determined each year based on the New York Mercantile Exchange Henry Hub settled price on March 31 for the previous 12-month period, as reported by *The Wall Street Journal*. If 5 percent of the Index is greater than the base rate, then 50 percent of the difference between 5 percent of the Index and the base rate will be added to the base rate for the coming year. In no case will the tax rate fall below the base rate.

EXEMPTIONS FROM TAXATION

Most of the Pennsylvania severance tax proposals also contain exemptions. In general, these exemptions are categorized as front-end or back-end exemptions. Front-end exemptions reduce or eliminate the tax in the initial years when the well begins production to account for the upfront costs of establishing the site and drilling the gas. Back-end exemptions reflect the fact that gas wells have a very productive period at the beginning of the life cycle and then will continue to operate for many years with much lower production rates. The back-end exemptions incentivize drillers to continue operating these older, low-producing wells rather than drilling more wells.

A common back-end exemption is known as a "Stripper Well Exemption." The Stripper Well Exemption generally eliminates severance taxes on wells producing less than 60,000 cubic feet of gas per day. All of the severance tax bills introduced in the Pennsylvania House and two of the four bills introduced in the Senate (Senate Bills 905 and 2579) contain a Stripper Well Exemption.

5 W. Va. Code §§ 11-13A-3a, 11-13V-4 (2010).

In another common exemption, Pennsylvania legislators generally agree that new taxes should exempt shallow wells in order to exclude many existing, small well owners from the new tax, which is aimed primarily at Marcellus Shale extraction. This type of exemption has led to debate in West Virginia, which currently has a severance tax with an exemption for shallow wells. Several bills currently pending in West Virginia have proposed modifying the definition of a "shallow well" in order to expand the exemption.[6] Another way Pennsylvania could exempt existing gas wells would be to base the tax rate on the year that the well was drilled, such as is done in Montana, although in Montana older wells are taxed at a higher rate.

House Bill 1489 contains an exemption designed to promote employment of Pennsylvania employees. This exemption creates a tax credit for the gas producer of $2,500 for every Pennsylvania job created, up to a maximum of $25 million annually per company. Legislators hope creative exemptions such as this will maximize the local economic growth due to the Marcellus Shale.

Industry groups have been lobbying for Pennsylvania to enact front-end exemptions such as those in Texas or Arkansas. Both Texas and Arkansas impose a value-based severance tax on natural gas, with a base rate of 7.5 percent of the wellhead value in Texas[7] and 5 percent in Arkansas.[8] In Texas, natural gas production is taxed at a reduced rate when produced at new wells with higher than average development costs. This exemption is in place until the well has recouped half of the development costs from the reduced rate. The Texas severance tax also includes a reduced rate for low-producing wells, but only when natural gas prices fall below $3.50/MCF. In Arkansas, the severance tax is reduced for shale-type wells, or "high-cost gas" as defined in the Arkansas code, during the first three years of production to help offset development costs. The Arkansas rate is again reduced when production falls below 100,000 cubic feet of gas per day. Despite the industry lobby's call for help in defraying the initial costs of drilling, no Pennsylvania proposed bill to date contains any front-end exemptions. Governor Rendell has indicated that he will veto any severance tax that is not substantially similar to the West Virginia model.

DISTRIBUTION OF TAX PROCEEDS

Another area of debate within the Pennsylvania legislature is the distribution of severance tax proceeds. Governor Rendell's initial proposal was to put 90 percent of the revenues into the Commonwealth's general fund. Many Democrats and Republicans alike disagree with that plan. These legislators argue that more money should go to specific environmental programs to offset the damage caused by the increased drilling and to local municipalities to cover additional expenses such as road damage and emergency response that will accompany the new industry. This distribution debate will continue to be a key point of negotiation in the coming months.

MULTI-STATE COMPETITION

Pennsylvania Act 46 has guaranteed one thing—the debate will continue on Pennsylvania's natural gas severance tax for at least a few more months. While the Act seems to dispose of the debate over whether to apply a tax at all, plenty of arguments remain over the structure, rate, and exemptions of the new tax.

Of the other Marcellus Shale states, New York, like Pennsylvania, currently does not have a severance tax on natural gas. New York does, however, have a "production tax," which is a property-type tax assessed each year based on the amount of natural gas produced on the property.[9] Virginia also does not have a state severance tax on natural gas, but it allows counties and cities to levy a value-based tax of up to 1 percent of the fair market value of the gas.[10] As stated above, West Virginia imposes a hybrid severance tax similar to many of the Pennsylvania proposals of 5 percent of the wellhead value and 4.7 cents/MCF extracted. Originally, West

6 *See* W. Va. Senate Bill 369 (Mar. 3, 2010); W. Va. House Bills 4218 (Jan. 28, 2010); W. Va. House Bill 2982 (Jan. 13, 2010).

7 Tex. Tax Code Ann. § 201.052 (2010).

8 Ark. Code Ann. § 26-58-111 (2010).

9 N.Y. Tax Law § 9-A-210 (2010). In 2002, the Supreme Court of Pennsylvania concluded that there was no authority for imposing a real estate, or ad valorem, tax on oil and gas interests in Pennsylvania. *Indep. Oil & Gas Ass'n of Pa. v. Bd. of Assessment Appeals*, 814 A.2d 180 (Pa. 2002).

10 Va. Code Ann. § 58.1-3712 (2010).

Virginia had only a value-based tax, but in 2005, it added the 4.7 cent volume-based tax in order to help correct a deficit in the state's workers' compensation fund.[11]

In other major natural-gas-producing states, Texas and Arkansas, as discussed above, have a value-based tax. Louisiana, on the other hand, applies a volume-based tax rate that is indexed in a similar fashion to the current Pennsylvania volume-based proposals.[12] Historically, this indexed rate in Louisiana has varied from as low as 7 cents/MCF in 1992–93 to as high as 37.3 cents/MCF in 2006–07, following the surge in fuel prices.[13]

THE GENERAL ASSEMBLY DEBATE AND CONSTITUTIONALITY OF THE LEGISLATIVE PROCESS

On September 20, 2010, the Pennsylvania House of Representatives began a long-awaited day of floor debate over the natural gas extraction tax. A key point of debate within the Democrat-controlled House was the amount of the severance tax revenue to be earmarked for the Commonwealth's general fund. The deadlock on this issue was broken by an amendment proposed by Representative Kate Harper (R-Blue Bell). Rep. Harper's amendment purported to shift the balance of the revenue to local and environmental funds rather than the Pennsylvania general fund. With this amendment, the Democrat-controlled House was able to secure enough Republican support to pass the bill on the evening of September 29.

The House-approved severance tax is a volume-based tax of 39 cents/MCF of gas extracted. The bill contains a Stripper Well exemption but no front-end or "shallow well" exemptions. The bill is an amendment to Senate Bill 1155, which had already passed the Senate on May 5, 2010. At that time, however, the bill was not related to severance tax at all. The substantial amendments to the bill in the House require the bill to go back to the Republican-controlled Senate, where it is facing strong criticism. Based on current discussion, the bill is unlikely to pass the Senate and may not even receive a vote.

One major criticism of the bill is the high tax rate. At 39 cents/MCF, the tax exceeds any of the earlier General Assembly proposals, which ranged from 25 to 35 cents/MCF. Industry groups assert that the tax will be higher than the hybrid tax in other states, and it is clearly higher than the tax rate in any other state with a volume-based severance tax. For example, Louisiana has a volume-based severance tax rate that has ranged as high as 37.3 cents/MCF and is currently 16.4 cents/MCF. The newly passed Pennsylvania severance tax will also fluctuate with the price of natural gas each year based on an Index calculated using the New York Mercantile Exchange Henry Hub settled price on March 31. This Index was used in many of the earlier Pennsylvania proposals, but the tax rate in the House-passed bill will be based on 7 percent of the Index rather than 5 percent of the Index as it was in every prior proposed bill. This will again result in a higher tax rate than had been previously proposed.

Another criticism of the House Bill is that it potentially violates the Pennsylvania Constitution. The bill contains at least two potential state constitutional issues. First, the Pennsylvania Constitution requires all taxes to originate in the House.[14] Since the tax was passed as part of a Senate bill, this requirement may not be met. Second, the Pennsylvania Constitution prohibits any bill from being altered so as to change its original purpose.[15] Since the original Senate Bill 1155 was not related to severance tax, this requirement has likely been violated. Senate Republicans have pointed to these problems as one reason why the bill will not pass the Senate. However, due to strong opposition to the tax in the Senate, it is unlikely that this bill will make it far enough to be constitutionally challenged in the courts. On October 12, the Legislative Reference Bureau, the General Assembly's legal specialists, issued an opinion stating that Senate Bill 1155 did in fact violate the Pennsylvania Constitution's single subject provision. However, the Legislative Reference Bureau indicated that there were two other bills currently in the Senate that could be amended to include the severance tax.

11 W. Va. Code § 11-13V-4.

12 La. Rev. Stat. Ann. § 47:633 (2010).

13 La. Dep't. Natural Resources, Louisiana Severance Tax, *available at* http://dnr.louisiana.gov/sec/execdiv/techasmt/facts_figures/la_severance_tax_rates.pdf.

14 PA Const. art. III, § 10.

15 PA Const. art. III, § 1.

A final criticism of the bill is the way that the revenue raised will be allocated. This problem was addressed in part by Rep. Harper's amendment. Original proposals by Governor Rendell and other Democrats called for as much as 90 percent of the revenue to go to the state's general fund. With the Harper amendment, this amount is reduced to 40 percent, with the remaining 60 percent allocated to local government and environmental interests affected by the Marcellus Shale drilling. However, this allocation is somewhat deceptive. During the first three years of the tax, the first $75 million is allocated to the state's general fund. Of that $75 million, $5 million is earmarked to go to the Department of Labor for natural gas job training programs. The remaining $70 million of the first $75 million is completely unallocated in the Commonwealth's general fund. Only after this $75 million is taken off the top will the allocations offered by Rep. Harper kick in. The House has projected that the bill will raise approximately $110 million in the current year. If this estimate is correct, $89 million, or nearly 81 percent of the revenue in the first year, will go to the general fund, leaving only $21 million to go to local and environmental issues related to the development of the natural gas wells. The severance tax revenue is projected to increase significantly over the next several years as drilling increases, thereby decreasing the percent share going to the general fund. Nonetheless, substantially more than 40 percent of the revenue will go to the general fund in the first three years of the House tax.

State Senate Republican leaders have not voted on the House revisions to Senate Bill 1155, but they have begun drafting their own legislation. These Senate proposals offer a sweeping overhaul of Pennsylvania's oil and gas laws and limitations on municipal zoning authority to limit drilling. Republicans have sought input from environmentalists groups, industry officials, and local government advocates. The Republican proposals also include new rules for "pooling," which could be used to force landowners under certain conditions to lease their subsurface gas rights to existing drillers in the area if it is in the broader public interest. However, many Senators have voiced opposition to forced pooling, calling it tantamount to government taking property rights to benefit private industry.

But the proposal getting the most press during the final week of the Senate term has been an entirely new tax plan. In a much-discussed but yet to be publicly released proposal, the Senate Republicans have reportedly followed the Arkansas model. This tax would be much more industry friendly, charging only 1.5 percent during the first two years that a well produces natural gas and increasing to 5 percent for the remainder of the well's lifecycle. This type of tax allows the drilling companies to recoup the early costs through lower taxes in the early production years. Democrats in the House as well as Governor Rendell have rejected this proposal as far too industry friendly and not protecting local communities and environments from the impacts of the drilling. However, in the waning days of this legislative term, this may be the only proposal that has any chance of being enacted.

With the November 2, 2010 Pennsylvania Gubernatorial election heading into its final campaign weeks, the political environment among the candidates is drawing sharp debate. The Republican candidate for governor, State Attorney General Tom Corbett, has repeatedly said he would not raise any taxes if elected. Democratic candidate Dan Onorato, Allegheny County's elected chief executive, supports a severance tax but has not released any plan. Onorato supports a tax to raise money for environmental enforcement, maintenance of infrastructure in communities affected by the drilling, and the preservation of open space. The current polls show Corbett leading Onorato in the race for the governor's mansion.

OUTLOOK

While it may be inevitable that Pennsylvania will enact some form of natural gas severance tax as a compromise between industry, led by the Marcellus Shale Coalition, and proponents of the severance tax, Senate Republicans are poised to run out the clock and leave the issue to Pennsylvania's next governor and the newly elected General Assembly.

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