Department of Legislative Services

Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

Senate Bill 768 (Senator Edwards)
Budget and Taxation

Natural Gas Severance Tax and Impact Fund

This bill establishes a 2.5% severance tax imposed on the wholesale market value of natural gas taken from a natural gas well. The bill provides for the collection and administration of the tax by the Comptroller and establishes recordkeeping and payment requirements for well owners, as well as specified misdemeanor penalties for violations. Severance tax revenues are deposited into a new Natural Gas Impact Fund, administered by the Maryland Department of the Environment (MDE) in consultation with the Department of Natural Resources (DNR). The stated purpose of the fund is to address the impact of gas exploration and production on the environment and natural resources of the State. The bill provides for the specified uses of the fund. MDE and DNR must report to the Governor and the General Assembly by January 1 of each year on natural gas remediation projects that receive funding under the bill.

The bill takes effect July 1, 2012.

Fiscal Summary

State Effect: Special fund revenues increase negligibly beginning in FY 2013 from the collection of severance tax revenues on gas currently produced in Maryland. However, special fund revenues may increase significantly, though not likely before FY 2016, from future production in the Marcellus Shale. Special fund expenditures from the new fund increase each year to address the impact of gas exploration and production, as authorized by the bill. General fund revenues from interest earnings of the new fund increase negligibly beginning in FY 2013, but more significantly to the extent that significant Marcellus Shale production occurs. General fund expenditures for the Comptroller's Office increase by $187,200 in FY 2013 for one-time computer programming modifications to administer the new tax. The bill's penalty provisions are not anticipated to materially affect State finances.

Local Effect: Local expenditures may decrease, particularly in Allegany and Garrett counties, as the bill's specified uses of State severance tax revenues include addressing the impacts of gas exploration and production. The bill's penalty provisions are not anticipated to materially affect local finances.

Small Business Effect: Potential meaningful impact on any small business engaged in natural gas well drilling and related services to the extent that the bill results in any change in the demand for their services. Small business property owners in affected areas could benefit to the extent the bill reduces remediation costs.

Analysis

Bill Summary: The Natural Gas Impact Fund is to be used primarily to address the impact of gas exploration and production that cannot be attributed to a specific operator and for which there is no solvent responsible entity. However, if during any fiscal year the balance of the fund is at least $25 million, any funds in excess of this amount may be used to address regional impacts of gas exploration and production in the locations of the State where natural gas is produced that are not attributable to a specific company at a specific site; of this excess funding, half must be used to address impacts identified by MDE and half must be used to address impacts identified by DNR. Interest earnings from the fund are credited to the general fund, and the bill states the intent of the General Assembly that the balance of the fund not be transferred by an Act of the General Assembly.

Current Law/Background:

The Marcellus Shale

The Marcellus Shale formation is a geologic feature in the Appalachian Range which has recently attracted significant attention from the energy industry for its rich natural gas deposits contained within 117 counties in seven states. Geologists have long known about the natural gas resources contained within the formation but had considered the gas to be not economically recoverable until the recent development of new drilling technologies including horizontal drilling and high-volume hydraulic fracturing, which have led to a boom in domestic energy production in the United States.

The Marcellus Shale primarily underlies New York, Ohio, Pennsylvania, Virginia, West Virginia, and Western Maryland, with a negligible share also found in Kentucky. Production wells have been drilled in New York, Ohio, Pennsylvania, and West Virginia, and several companies have expressed interest in drilling into the formation in Maryland. In Maryland, the formation is located in Allegany, Garrett, and Washington counties;

however, the only anticipated areas of gas production are in Garrett and western Allegany counties. Applications for permits to produce gas from the Marcellus Shale in Maryland using horizontal drilling and high-volume hydraulic fracturing were first filed in 2010. According to MDE, there is currently only one pending permit application.

Concerns Regarding High-volume Hydraulic Fracturing

As the use of hydraulic fracturing has increased, so has concern about its potential impacts. MDE advises that, although accidents are relatively rare, exploration for and production of natural gas in nearby states have resulted in injuries, well blowouts, releases of fracturing fluids, releases of methane, spills, fires, forest fragmentation, road damage, and evidence of water contamination.

In 2010, the U.S. Environmental Protection Agency (EPA) raised several concerns regarding the impact of hydraulic fracturing on water supplies, water quality, and air quality, among other issues, and is currently examining the practice more closely. Other states, academic organizations, environmentalists, and the industry are also conducting research into the impacts of hydraulic fracturing on the public health, safety, and the environment.

General Regulation of Oil and Gas Development

In Maryland, MDE is authorized to issue permits for oil and gas exploration and production and is required to coordinate with DNR in its evaluation of the environmental assessment of any proposed oil or gas well. Specifically, a person must obtain a permit from MDE before drilling a well for the exploration, production, or underground storage of gas or oil in Maryland. A permit is also required for the disposal of any product of a gas or oil well. An applicant who wants to extract gas from the Marcellus Shale may also be required to apply for a number of other State permits, such as a water appropriation permit or a National Pollutant Discharge Elimination System permit.

Among other things, current oil and gas regulations outline application requirements and procedures, criteria for permit approval, drilling and operating requirements and permit conditions, and requirements for the plugging of an oil or gas well upon abandonment or ending of operation. Current regulations apply to all gas wells in Maryland and are not specific to the practice of hydraulic fracturing. However, under current law, MDE has broad authority to impose conditions on permits to protect the State’s natural resources and to provide for public safety. Further, MDE may deny a permit based on a substantial threat to public safety or a risk of significant adverse environmental impact.

Although MDE regulates gas exploration and production, the regulations were written prior to the use of hydraulic fracturing and have not been revised since 1993. Further, MDE advises that a complete understanding of the risks of hydraulic fracturing and consensus about how to protect against those risks is lacking. Due to these concerns, a number of bills were introduced during the 2011 session that would have required further study and the development of regulations prior to the issuance of a permit for gas exploration and production from the Marcellus Shale. None of the bills was enacted, however.

The Oil and Gas Fund

Chapter 383 of 2010 established an Oil and Gas Fund to support MDE's administration of a regulatory program that oversees the drilling, development, production, and storage of oil and gas wells in the State. Under Chapter 383, MDE is required to set and collect permit and production fees related to oil and gas well drilling. Fees must be set at a rate necessary to (1) review, inspect, and evaluate monitoring data, applications, licenses, permits, and other reports; (2) perform and oversee assessments, investigations, and research; (3) conduct permitting, inspection, and compliance activities; and (4) develop and implement regulations to address the risks to public safety, human health, and the environment from oil and gas well drilling and development. MDE advises that the regulations to establish such fees have been drafted but are being held pending the work of the Marcellus Shale Safe Drilling Initiative and related studies.

Marcellus Shale Safe Drilling Initiative

In response to the failure of legislation in the 2011 session, Governor Martin O'Malley established the Marcellus Shale Safe Drilling Initiative by Executive Order 01.01.2011.11 in June 2011 to ensure that, if drilling for natural gas from the Marcellus Shale proceeds in Maryland, it is done in a way that protects public health, safety, natural resources, and the environment. The executive order directs MDE and DNR to assemble and consult with an advisory commission in the study of specific topics related to horizontal drilling and hydraulic fracturing in the Marcellus Shale.

Specifically, the executive order tasks MDE and DNR, in consultation with the advisory commission, with conducting a three-part study and reporting findings and recommendations. The completed study will include (1) findings and related recommendations regarding sources of revenue and standards of liability for damages caused by gas exploration and production; (2) recommendations for best practices for all aspects of natural gas exploration and production in the Marcellus Shale in Maryland; and (3) findings and recommendations regarding the potential impact of Marcellus Shale drilling in Maryland. Part I of the study, a report on findings and recommendations regarding sources of revenue and standards of liability, was released in December 2011.

Parts II and III of the study are expected to be completed by August 1, 2012, and August 1, 2014, respectively.

Severance Taxes

According to the National Conference of State Legislatures, 31 states levy a severance tax on the extraction of oil or gas. The term "severance tax" generally refers to taxes imposed on the extraction of a natural resource from the earth or water, though an individual tax may have a different name in statute, such as a privilege or production tax. Natural gas severance taxes are generally based on the value of the gas produced, the volume or weight of the gas, or a combination of both, but the specifics of the calculation of a tax and the tax rates vary considerably across states. In addition, there can be exemptions, reductions, or other incentives for certain types of production which can lower the amount of tax paid.

Among the states that contain the Marcellus Shale, Ohio and West Virginia currently impose severance taxes at the state level, and Virginia authorizes localities to tax natural gas production. In Maryland, Garrett and Allegany counties, the two Maryland counties that contain the vast majority of the portion of the Marcellus Shale located in the State, currently have taxes on natural gas production in their local laws. **Appendix 1** shows taxes based on natural gas production in each of the major Marcellus Shale states and **Appendix 2** shows severance taxes imposed on natural gas in six traditional natural gas-producing states with high levels of gas production that are located outside of the Marcellus Shale region.

State Revenues: The severance tax established by the bill will result in a negligible increase in special fund revenues beginning in fiscal 2013 from the value of natural gas that is currently produced in Maryland. Eventually, the tax could generate more significant revenues from the value of any gas extracted from the Marcellus Shale, to the extent permits are issued for that activity in the future.

Existing Gas Production in Maryland

Special fund severance tax revenues deposited into the Natural Gas Impact Fund increase negligibly beginning in fiscal 2013 from the collection of severance tax revenue on the value of natural gas produced by currently producing wells. According to the U.S. Energy Information Administration (EIA), about 43 million cubic feet of natural gas was produced in Maryland in 2010. Assuming a continuation of this volume of natural gas produced each year, and under the current projections of natural gas prices contained in the *Long Term Electricity Report* from DNR's Power Plant Research Project, severance tax revenues likely total less than $10,000 annually until the production of natural gas from the Marcellus Shale formation commences.

Future Development of Gas from the Marcellus Shale

A reliable estimate of any increase in special fund revenues from the severance tax imposed on the future extraction of natural gas from the Marcellus Shale cannot be made at this time, as several variables may affect the amount of production that may occur in the future and the price of natural gas. However, *under one set of assumptions and for contextual purposes only*, special fund severance tax revenues for the Natural Gas Impact Fund could increase by between $117,300 and $228,300 in fiscal 2016, and by between $174,200 and $556,100 in fiscal 2017. This range is based on the production scenarios shown in **Exhibit 1**, as well as high and low natural gas price scenarios derived from EIA projections.

Exhibit 1
Estimated Number of Wells and Production for Each Production Scenario
Fiscal 2016-2025

	Low Production Case		**High Production Case**	
Fiscal Year	**Wells**	**Gas (bcf)**	**Wells**	**Gas (bcf)**
2016	3	1.05	3	1.05
2017	3	1.51	6	2.44
2018	4	2.14	8	3.98
2019	5	2.83	11	5.90
2020	6	3.63	14	8.27
2021	7	4.57	18	11.24
2022	8	5.59	23	14.81
2023	9	6.73	29	19.02
2024	11	7.96	35	23.85
2025	12	9.22	41	29.18
Total	**66**	**45.24**	**188**	**119.72**

bcf: billion cubic feet
Note: Numbers may not sum to total due to rounding.
Source: Department of Legislative Services

Exhibit 1 shows the number of wells and amount of gas extraction that might occur under a low and high production scenario, which is based on a recent U.S. Geological Survey resource projection and several assumptions made regarding the accessibility of the gas resource in Western Maryland and the pace of well development. As shown in the exhibit, it is assumed that the initial extraction of gas does not occur until fiscal 2016, which is based on the assumption that initial gas well permits will be granted by MDE on

August 1, 2014, the deadline for the final Marcellus Shale Safe Drilling Initiative report, and based on the anticipated period following permit issuance before gas is actually extracted. Under these scenarios, peak production is not likely to occur until after 2030.

Exhibit 2 shows the fiscal 2016-2017 revenue estimates under each of six production-price scenarios with the application of a 2.5% severance tax rate, assuming that the tax rate itself does not affect production. The exhibit also shows the potential range of total revenues over the fiscal 2018-2025 period, which is significantly higher due to the anticipated increase in production over this time period.

Exhibit 2
Estimated Severance Tax Revenue Totals
($ in Millions)

Scenario	FY 2016-2017	FY 2018-2025
Low Price/Less Gas	$0.3	$4.9
Mid Price/Less Gas	0.4	7.4
High Price/Less Gas	0.6	11.0
Low Price/More Gas	0.4	13.3
Mid Price/More Gas	0.5	20.3
High Price/More Gas	0.8	30.1

Source: Department of Legislative Services

The estimates do not account for any income from the reinvestment of money within the Natural Gas Impact Fund or interest earned, which accrues to the general fund. This analysis also does not account for the collection of any penalties imposed under the bill for failure to file the required tax returns or to pay the tax. It is assumed that the penalty provisions do not materially affect State revenues.

State Expenditures: General fund expenditures increase in fiscal 2013 only for the Comptroller to undertake significant computer reprogramming. The Comptroller advises that, as a new type of tax, several programming modifications of its SMART tax processing system will be needed, which includes an estimated 1,872 hours of work at a cost of $187,200. Although the bill directs the Comptroller to distribute severance tax revenue necessary to administer the severance tax to an administrative cost account prior to depositing the revenue into the Natural Gas Impact Fund, this analysis assumes that the Comptroller must make the computer reprogramming changes prior to any tax revenue being received; thus, general funds are needed. Any ongoing costs can be absorbed with existing budgeted resources, however.

Special fund expenditures from the Natural Gas Impact Fund may increase beginning in fiscal 2013 to address the impact of gas exploration and production that cannot be attributed to a specified operator and for which there is no solvent responsible entity, as authorized by the bill. However, because current natural gas production is minimal, it is assumed that these activities will not be significant until production from the Marcellus Shale occurs.

It is also assumed that MDE can implement the bill in the short term with existing budgeted resources. Further, it is assumed that both MDE and DNR can handle the bill's annual reporting requirements with existing resources. To the extent that the future production of natural gas from the Marcellus Shale is significant, MDE and DNR may need additional staff to support the activities authorized under the bill. In particular, if the balance in the Natural Gas Impact Fund exceeds $25 million in any fiscal year, workloads may increase significantly for MDE and DNR to implement projects designed to address regional impacts identified by each agency, as authorized by the bill.

It is assumed that the bill's incarceration provisions do not materially affect State expenditures.

Local Fiscal Effect: Local government expenditures associated with monitoring and remediating the impacts of gas drilling may decrease. The bill specifies that severance tax revenue must be used by the State to address the impacts of gas exploration and production. Thus, State expenditures from the Natural Gas Impact Fund may supplant local expenditures related to monitoring or remediating the impacts of drilling, particularly in Allegany and Garrett counties.

It is assumed that the bill's penalty provisions do not materially affect local finances.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Garrett County, State Department of Assessments and Taxation, Department of Natural Resources, Maryland Department of the Environment, Comptroller's Office, Judiciary (Administrative Office of the Courts), Marcellus Shale Safe Drilling Initiative, U.S. Geological Survey, U.S. Energy Information Administration, U.S. Environmental Protection Agency, National Conference of State Legislatures, Department of Legislative Services

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Appendix 1
Severance Taxes in Marcellus Shale States

States	Severance Taxes
Maryland	No statewide severance tax or production fee on gas extraction.
	Garrett County – 5.5% tax on value of gas at wellhead paid by the producer.
	Allegany County – 7.0% tax on value of gas at wellhead paid by the producer (60.0%) and the purchaser (40.0%).
New York	No statewide severance tax or production fee on gas extraction.
	Currently, an advisory panel is evaluating several potential revenue streams.
Ohio	Imposes a severance tax of $0.025 per thousand cubic feet to be paid by the person who actually removes the gas.
	Also imposes a cost recovery assessment of $0.005 per thousand cubic feet on the owner of the gas resource.
Pennsylvania	No statewide severance tax or production fee on gas extraction.
	House Bill 1950, signed by Governor Corbett in February 2012 established an impact fee that may be imposed by counties on wells drilled into unconventional gas formations.
Virginia	No statewide severance tax or production fee on gas extraction.
	Authorizes local governments to impose local license taxes, which may amount to up to 3.0% of the value of the gas at sale, to be paid by the person engaging in the business of severing the gas.
West Virginia	Imposes a severance tax of 5.0% of the market value of the gas in the immediate vicinity of where it is produced plus $0.047 per thousand cubic feet of gas, to be paid by the person in the business of severing the gas for sale, profit, or commercial use.

Source: Department of Legislative Services

Appendix 2
Severance Taxes in Natural Gas-producing States Outside of the Marcellus Shale Region

States	Severance Taxes
Colorado	Imposes severance taxes ranging from 2.0% to 5.0% of the gross income attributable to the sale of the gas (the rate reaches 5.0% when an operator's income is above $300,000); 87.5% of specified property taxes paid can be credited against the tax; specified low-producing wells are exempt.
Louisiana	Imposes a rate of $0.164 per thousand cubic feet of gas (adjusted annually based on changes in natural gas prices).
New Mexico	Imposes a severance tax of 3.75% of the taxable value of the gas. Also imposes an additional conservation tax (0.19%), privilege tax (4.0%), and *ad valorem* production tax (with varying local rates) on the taxable value of the gas.
Oklahoma	Imposes a 7.0% severance tax on the gross value of the production of gas. Also imposes an excise tax of 0.095% of the gross value of natural gas produced.
Texas	Imposes a severance tax of 7.5% of the market value of gas. Also imposes a regulatory fee of $0.000667 per thousand cubic feet of gas.
Wyoming	Imposes a severance tax of 6.0% of the fair market value of gas after completion of the production process. Also imposes a conservation tax of up to 0.08% of the fair market value of gas, which may be adjusted by the Oil and Gas Conservation Commission, and is currently set at 0.04%.

Source: Department of Legislative Services