Department of Legislative Services

Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE
Revised

House Bill 907 (Delegates McIntosh and Hixson)
Ways and Means Budget and Taxation

Environment - Natural Gas Production - Severance Tax

This bill establishes, beginning January 1, 2013, a 7.5% severance tax on the wholesale market value of natural gas, including natural gas liquids, from a well in Maryland, which is in addition to other gas production taxes. The bill establishes specified exemptions from the tax, but it requires the holder of any permit for gas exploration or production to keep records of the amount of gas produced each month, regardless of the status of the well. Severance taxes are paid to a newly established account within the Maryland Department of the Environment's (MDE) Oil and Gas Fund to support specified activities. Finally, the bill allows MDE to recover costs in a civil action from a person responsible for negative impacts of gas exploration and production.

The bill takes effect June 1, 2012.

Fiscal Summary

State Effect: Special fund revenues increase by about $8,000 in FY 2013, which accounts for the January 1, 2013 date for imposition of the tax, and by about $20,400 by FY 2017 from the collection of severance tax revenues on gas currently produced in Maryland. Special fund revenues may increase by a greater extent, though not likely before FY 2016, from future production in the Marcellus Shale. However, the relatively high severance tax rate is likely to result in a significant reduction or deferral of future development of shale gas resources in Maryland, which may also result in a decrease in State general/special fund revenues associated with general economic activity. Special fund expenditures may increase beginning in FY 2013 to support the uses of severance tax revenues specified in the bill.

Local Effect: Local severance tax revenues likely decrease for Allegany and Garrett counties beginning in FY 2016 to the extent that the severance tax established by the bill results in less natural gas resource development from the Marcellus Shale than would occur in the absence of the bill. Local expenditures may decrease, particularly in Allegany and Garrett counties, beginning in FY 2013, as the bill's specified uses of State severance tax revenues include activities to remediate the impact of drilling in areas of the State where drilling occurs.

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 severance tax is 7.5% of the wholesale market value of natural gas taken from a well in Maryland as of the date the gas is produced at the wellhead. The severance tax applies in addition to other taxes imposed on the production of gas, including a tax imposed by a local government. The bill defines "natural gas liquids" as components of natural gas that are liquid at the surface in the field facilities or gas-processing plants, and alters the current definition of "oil" to exclude natural gas liquids.

The severance tax does not apply to gas that is used for domestic or agricultural purposes on the property, a well that produces less than 5,000 cubic feet of gas per day, or gas withdrawn from a storage well.

The bill requires a permit holder or producer that has a well subject to the severance tax to keep records in accordance with MDE regulations and submit quarterly reports to MDE on the total gross amount of gas produced from a well per month, regardless of the status of the well. A permit holder or producer must pay any tax due with submission of the quarterly reports.

The bill establishes a new account within the existing Oil and Gas Fund to receive severance tax revenues collected by MDE. The bill expands the current required uses of money from the Oil and Gas Fund to include covering all costs incurred to conduct the study required under Executive Order 01.01.2011.11 issued by the Governor on June 6, 2011. Severance tax revenue in the new account must be used to (1) after the completion of this study, monitor regional impacts of gas exploration and production on areas of the State where gas is produced; (2) remediate negative environmental or ecological impacts that occur regionally in areas of the State where gas is produced that require immediate action to protect public health or safety, the environment, or natural resources, or are not corrected in accordance with applicable oil and gas laws and regulations; and (3) provide the necessary funding to any other State agency for these activities.

The bill also allows MDE to recover costs from a person that is responsible for correcting any negative impact from gas exploration and production in a civil action.

The bill defines a "gas interest" as the right to explore for gas on, or produce gas from, real property, but it does not include a fee simple interest in the surface rights of real property regardless of whether the fee interest includes the mineral rights. Finally, the bill expands the definition of a "person" as it applies to the oil and gas laws in the Environment Article, to include individuals and a broad array of associations and governmental units.

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 the Department of Natural Resources (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 minimal increase in special fund revenues beginning in fiscal 2013 from the value of gas that is currently produced in Maryland, and, eventually, 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 Oil and Gas Fund increase by an estimated $7,961 in fiscal 2013, which accounts for the January 1, 2013 date for imposition of the tax, increasing to $20,428 by fiscal 2017. This is based on quarterly payments, continuation of the volume of natural gas produced in Maryland in 2010 (about 43 million cubic feet), as reported by the U.S. Energy Information Administration (EIA), and the average-base case price for natural gas contained in the *Long Term Electricity Report* from the Department of Natural Resources' Power Plant Research Project. To the extent that prices or the actual volumes of gas produced by wells subject to the severance tax vary, severance tax revenues may differ from this estimate.

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 unknown variables may affect the amount of production that may occur in the future and the price of natural gas. However, assuming the relatively high severance tax rate established by the bill has no impact on the future rate of natural gas production in Maryland, under one set of assumptions, and *for contextual purposes only*, special fund severance tax revenues for the Oil and Gas Fund could increase by between $352,000 and $684,700 in fiscal 2016, and by between $522,600 and $1.67 million 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 (USGS) 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 7.5% severance tax rate, assuming that the tax rate itself does not affect production.

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

Scenario	**FY 2016-2017**
Low Price/Less Gas	$0.87
Low Price/More Gas	1.20
Mid Price/Less Gas	1.20
Mid Price/More Gas	1.64
High Price/Less Gas	1.72
High Price/More Gas	2.35

Source: Department of Legislative Services

As noted above, the estimates do not account for the impact of the relatively high tax rate established by the bill. The severance tax rate under the bill is higher than in most other states and is higher than in the surrounding states with Marcellus Shale resources. For example, as shown in Appendix 1, West Virginia levies a 5% severance tax and Pennsylvania recently enacted a law to impose well impact fees rather than a severance tax. Given the proximity of these surrounding states, the current severance tax rates in Allegany and Garrett counties, the relative dearth of existing gas pipeline and other infrastructure in Maryland, and the greater familiarity with the gas resources in other states, it may be likely that the natural gas extraction industry will defer development activities of the Marcellus Shale in Maryland until the underlying economics of gas resource development improve relative to surrounding states and other regions with shale gas resources.

To the extent that a 7.5% severance tax rate results in a substantial disincentive to engage in Marcellus Shale resource development in Maryland, the actual number of wells drilled in fiscal 2016 and 2017 will likely be less than the range of six to nine wells shown in Exhibit 1. Moreover, there is a possibility that no wells will be developed during this timeframe at all, resulting in no increase in special fund revenue for the Oil and Gas Fund in fiscal 2016 or 2017.

Legislative Services advises that the estimates provided above also do not account for the value of natural gas liquids extraction. Natural gas liquids resources are more prevalent in an area that USGS refers to as the Western Margin Marcellus Assessment Unit. Rich natural gas liquids resources have been found in Southwestern Pennsylvania, and other areas such as Eastern Ohio are expected to also have significant resources. Although the focus of Marcellus Shale energy development has generally been on "dry" gas, the market is currently much more favorable for natural gas liquids, which track more closely with the oil market. Currently, spot prices in the natural gas market are at very low levels, and the spread between natural gas prices and oil prices is unusually wide. Thus, while omitted from these estimates, severance tax revenues from future development of natural gas liquids in Maryland may also be significant if drilling does occur.

Cost Recovery

Pursuant to the bill, MDE could recover certain remediation costs from the responsible persons in a civil action; thus, special fund revenues could increase further due to any cost recoveries resulting from the bill.

State Expenditures: Special fund expenditures may increase beginning in fiscal 2013 to (1) remediate impacts, as specified in the bill; and (2) provide the necessary funding to any other State agency for these activities. Once the study required by the executive order has been completed, special fund expenditures would also be used to monitor regional impacts of gas exploration and production on areas where gas is produced. Because current natural gas production is so minimal, it is assumed that these activities will not be significant until production from the Marcellus Shale occurs.

MDE can implement the bill in the short term with existing budgeted resources. To the extent that the future production of natural gas from the Marcellus Shale is significant, MDE may need additional staff in the future to review reports submitted by permit holders and to support the activities authorized under the bill.

Local Fiscal Effect: As noted above, both Allegany and Garrett counties have local severance taxes. Therefore, to the extent that the additional, and relatively high, State severance tax rate established by the bill results in a reduction in the future rate of natural gas development from the Marcellus Shale formation relative to what would occur in the absence of the bill, local severance tax revenues decrease, likely beginning in fiscal 2016. Additionally, other sources of local revenue from general economic activity may also be indirectly impacted.

Local government expenditures associated with monitoring and remediating the impacts of gas drilling may decrease. The bill specifies that, after the completion of the ongoing study of the Marcellus Shale, severance tax revenue must be used by MDE to monitor regional impacts of gas exploration and production on areas of the State where gas is produced. It must also be used to remediate negative environmental or ecological impacts that occur regionally in areas of the State where gas is produced. Thus, State expenditures from the Oil and Gas Fund may supplant local expenditures related to monitoring or remediating the impacts of drilling in Allegany and Garrett counties.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Garrett and Washington counties, 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

Fiscal Note History: First Reader - March 6, 2012
ncs/lgc Revised - House Third Reader/Correction - March 30, 2012

Analysis by: Evan M. Isaacson

Direct Inquiries to:
(410) 946-5510
(301) 970-5510

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.
	Act 13 of 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