

Department of Legislative Services
Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

Senate Bill 705
Finance

(Senators Pipkin and Colburn)

Public Utilities - Hydroelectric Generating Station - Nutrient Filtration

This bill prohibits a hydroelectric generating station with a nameplate capacity of greater than 500 megawatts from opening its floodgates unless a filtration system is used that captures excess nitrogen, phosphorus, and sediment from the water that flows from the Susquehanna River into the Chesapeake Bay. The bill defines “excess nitrogen, phosphorus, and sediment” as an amount that exceeds the Total Maximum Daily Load (TMDL) for the Susquehanna River Basin under the State’s Phase II Watershed Implementation Plan (WIP).

Fiscal Summary

State Effect: To the extent that a filtration system sufficient to capture excess nitrogen, phosphorus, and sediment cannot be developed and installed in any given year, State expenditures (all funds) may increase significantly to remediate property damaged by any flooding that may occur due to the failure to open the floodgates of the Conowingo Dam; however, it is unlikely that the bill will be enforced due to conflicting federal laws and the potential to cause catastrophic flood damage.

Local Effect: To the extent that a filtration system sufficient to capture excess nitrogen, phosphorus, and sediment cannot be developed and installed in any given year, local expenditures, particularly in Cecil and Harford counties, may increase significantly due to any flooding caused by the failure to open the floodgates of the Conowingo Dam; however, it is unlikely that the bill will be enforced due to conflicting federal laws and the potential to cause catastrophic flood damage.

Small Business Effect: Potential meaningful impact on small businesses to the extent that the bill results in flooding that otherwise would not occur.

Analysis

Current Law: A person must obtain a permit from the Maryland Department of the Environment (MDE) to, among other things, construct, reconstruct, or repair any reservoir, dam, or waterway obstruction, or to make, construct, or permit to be made or constructed any change or addition to any reservoir, dam, or waterway obstruction.

Background:

The Conowingo Dam and the Susquehanna River Watershed

According to Exelon Corporation, the Conowingo Dam has been providing electricity since 1928. When constructed from 1926 to 1928, Conowingo was the largest power plant ever built. When the Conowingo Dam was completed in 1928, producing 252 megawatts, it became the second largest hydroelectric project in the United States, behind Niagara Falls. The Conowingo Dam is the only hydroelectric generating station in Maryland with a nameplate capacity of over 500 megawatts (currently its capacity is 572 megawatts). The Conowingo Dam has a license issued by the Federal Energy Regulatory Commission (FERC) that expires September 1, 2014. As a federally regulated dam, the Conowingo Dam is subject to numerous federal energy, dam safety, environmental, and emergency management laws.

MDE had previously identified the waters of the Conowingo Dam/Susquehanna River watershed as impaired by nutrients and sediments. A 2010 report specifically identified aquatic life as the designated use being impaired by phosphorus in the watershed. However, in 2011, MDE conducted a water quality assessment of the watershed and determined that the previous assessment was based on limited data and that, upon reassessment, aquatic life is not impaired at this time. However, the water quality assessment also noted that nutrient reductions will still be required to meet allocations assigned to the Northern Chesapeake Bay Tidal Fresh Bay Water Quality Segment by the Chesapeake Bay TMDL (Bay TMDL) established by the U.S. Environmental Protection Agency (EPA) on December 29, 2010.

In the Bay TMDL, EPA discusses the importance of several dams along the lower Susquehanna River as a factor influencing nitrogen, phosphorus, and sediment loads to the bay because of the large quantities of these pollutants contained in the dam's reservoirs. In the Bay TMDL, EPA assumed the current trapping efficiencies will continue. However, if future monitoring shows a change in the capacity of the Conowingo Dam to trap nutrients, the two-year milestone load reductions could be adjusted accordingly. EPA notes that it is imperative for New York, Pennsylvania, and Maryland to work together to develop an implementation strategy for addressing the

sediment, nitrogen, and phosphorus behind the Conowingo Dam through their respective WIPs, to prepare for any decrease in the dam's trapping efficiencies.

Currently, the State's Phase II WIP does not provide a strategy that specifically involves nutrient or sediment reductions from the Conowingo Dam, and neither Cecil County nor Harford County has discussed a role for the Conowingo Dam in its local Phase II WIP analysis submitted to MDE.

The Bay TMDL and the WIP Development Process

In December 2010, EPA established the Bay TMDL, which (1) sets the maximum amount of pollution the bay can receive and still attain water quality standards; and (2) identifies specific pollution reduction requirements. **Exhibit 1** illustrates Maryland's pollution reduction goals in the TMDL. All pollution reduction measures must be in place by 2025, with at least 60% of the actions complete by 2017.

Exhibit 1
Maryland's Pollution Reduction Goals in the Bay TMDL
(Million Pounds per Year)

<u>Pollutant</u>	<u>2010 Loads</u>	<u>Bay TMDL Target Load</u>	<u>Percent Reduction</u>
Nitrogen	52.76	41.17	22.0%
Phosphorus	3.30	2.81	14.9%
Sediment	1,376	1,350	1.9%

TMDL: Total Maximum Daily Load

Note: Target loads as revised by EPA in August 2011.

Source: Maryland Department of the Environment; U.S. Environmental Protection Agency

In 2010, each bay jurisdiction submitted a Phase I WIP that details how the jurisdiction will achieve its individual pollution reduction goals under the Bay TMDL. The Phase I WIP focused on the following three approaches for bridging the remaining loading gap: (1) developing new technology and approaches before 2017; (2) increasing the scope of implementation of existing strategies such as upgrading wastewater treatment plants, upgrading septic systems, and increasing the number and efficiency of stormwater runoff controls; and (3) improving regulatory requirements. The Phase I WIP establishes that all nutrient impacts from future growth must be offset if the Bay TMDL is to be met.

On January 26, 2012, Maryland released for public comment a draft of the State's Phase II WIP, which provides implementation strategies for the five major basins in Maryland (the Potomac River basin, Eastern Shore, Western Shore, the Patuxent River basin, and Maryland's portion of the Susquehanna River basin).

State/Local Fiscal Effect: MDE is not aware of any technology currently capable of filtering dissolved constituents such as nitrogen and phosphorus, or any technology that could adequately filter sufficient quantities of sediment without obstructing the flow of water. Thus, until such technologies can be developed, and unless they can be installed without prohibitive additional costs, the bill's prohibition would be triggered. Legislative Services cannot reliably estimate whether, when, or to what extent flooding may occur due to the failure to open the floodgates at any hydroelectric generating station of over 500 megawatts (currently, the Conowingo Dam is the only such facility in Maryland); any flooding that may occur could result in significant additional State and local expenditures to remediate damage and likely to defend lawsuits. However, because the Conowingo Dam is a federally licensed facility subject to numerous federal laws, it is unclear whether the bill's prohibition could even be enforced. It is further unclear what actions the federal government might take as a result and how any such actions may affect State or local finances or operations.

If a nutrient filtration system can be installed at Conowingo Dam that significantly reduces the nutrient and sediment loads to the Chesapeake Bay from the Susquehanna River, State and local expenditures related to the implementation of the WIP may decrease significantly.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Cecil County, Maryland Department of Agriculture, Department of Natural Resources, Maryland Department of the Environment, Public Service Commission, U.S. Environmental Protection Agency, Exelon Corporation, PJM Interconnection, Inc., Department of Legislative Services

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