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CHESAPEAKE BAY FOUNDATION

Environmental Protection and Restoration
Environmental Education

Senate Bill 540

Federal Clean Water Act - Authority of State

Date: February 24, 2021	Position: Support
To: Senate Education, Health and Environmental Affairs Committee	From: Robin Jessica Clark Maryland Staff Attorney

Chesapeake Bay Foundation **SUPPORTS** SB 540. Under this legislation, the Maryland Department of the Environment (MDE) would have a responsibility to certify whether a project affects water quality. If a water quality impact is found, MDE would be required to impose conditions to mitigate its impact. The legislation would also state that this authority cannot be waived through a private settlement agreement that MDE enters with a regulated entity.

Section 401 of the Clean Water Act vests in states the authority and responsibility to ensure that federal projects will not negatively harm a state's water quality. A federal agency cannot issue a permit or license to conduct any activity that may result in the discharge of pollutants to navigable waters until a State certifies that the activity does not violate state water conditions.¹ The federal license must comply with applicable water quality standards or limitations.² Each State undergoes a public notice and comment process to develop and issue a water quality certification. Once issued, the water quality certification is then incorporated into the federal license or permit and must include any conditions or requirements set by the State to protect water quality.

Attached please find CBF's comments on the record to the Federal Energy Regulatory Commission on the relicensing of Conowingo Dam and the proposed settlement agreement between MDE and Exelon. Beginning on page 8, CBF details the deficiencies with MDE waiving its 401 Authority through a settlement agreement. By waiving its 401 authority through a private agreement, MDE eliminated the required public notice and comment process related to the waiver, thereby removing public accountability for that decision.

MDE's course of action related to the Conowingo relicensing set a bad precedent for future water quality certifications in Maryland. Regulated entities may now expect to be able to negotiate a private agreement with MDE that minimizes any water quality mitigation requirements, rather than navigating the license conditions and the public accountability that are standard requirements for a water quality certification.

CBF urges the Committee's FAVORABLE report on SB 540. For more information, please contact Robin Jessica Clark, Maryland Staff Attorney at rclark@cbf.org and 443.995.8753.

¹ 33 U.S.C. § 1341(a)(1).

² 33 U.S.C. § 1341(a)(1) requiring a water quality certification to ensure any discharge "will comply with the applicable provisions of sections 301, 302, 3030 [TMDLS], 306 and 307 of this Act.

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**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

In the Matter of

**Exelon Generation Company LLC
Conowingo Hydroelectric Project**

P-405-106

P-405-121

**CHESAPEAKE BAY FOUNDATION, INC.'S COMMENTS ON
OFFER OF SETTLEMENT**

Pursuant to the Commission's Rules of Practice and Procedure, *see* 18 C.F.R. § 385.602(f), the Chesapeake Bay Foundation, Inc. ("CBF"), hereby submits these comments to the Federal Energy Regulatory Commission ("the Commission") on the "Joint Offer of Settlement and Explanatory Statement filed with the Commission by Exelon Generation Company, LLC and the Maryland Department of the Environment," dated October 29, 2019, eLibrary No. 20191029-5119 (the "Settlement Offer").

The record before the Commission does not demonstrate that the Settlement Offer as a whole is adequate to mitigate the impacts to downstream water quality impacts resulting from the operation of the Conowingo Hydroelectric Project (the "Project" or "Conowingo Dam"). CBF requests that the Commission reject the Settlement Offer and conduct further proceedings as there is a genuine issue of fact regarding the water quality impacts from the Project, which the terms of the Settlement Offer do not address or mitigate in a meaningful or legally adequate way.

CBF is the largest independent non-profit organization dedicated solely to restoring and protecting the Chesapeake Bay and its tributary rivers. For over 50 years, CBF has worked to improve water quality by reducing the amount of pollution discharged to the Chesapeake Bay and its tributaries. CBF is headquartered in Annapolis, Maryland on the shore of the Chesapeake

Bay. CBF also has offices in Harrisburg, Pennsylvania; Richmond and Virginia Beach, Virginia; and Washington, DC. CBF has long been involved in the relicensing and water quality certification process for the Project. CBF intervened in the Final License Application Proceeding in 2013 and submitted comments to the Commission on the draft Environmental Impact Statement in September of 2014.¹ CBF also submitted extensive comments to Maryland Department of the Environment (“MDE”) during the Water Quality Certification process for the Project.² CBF then intervened in support of the State of Maryland in the series of lawsuits Exelon filed challenging the issuance of the Water Quality Certification. CBF is invested in the Conowingo Dam relicensing process because of the impacts the operation of the dam has to downstream water quality, CBF programming, and our members’ interests.³

FACTUAL BACKGROUND

I. The Chesapeake Bay and CBF’s Restoration Efforts

The Chesapeake Bay (“the Bay”) is the United States’ largest and most biologically diverse estuary, home to more than 3,600 species of plants, fish and animals.⁴ The Bay watershed encompasses 64,000 square miles from Cooperstown, New York to Virginia Beach, Virginia.⁵ Portions of the watershed are found in Delaware, Maryland, New York, Pennsylvania, Virginia, Washington, D.C., and West Virginia.⁶ The Susquehanna River is one of the five major

¹ Motion to Intervene of Chesapeake Bay Foundation, Inc., (Aug. 20, 2013), FERC e-Library No. 20130820-5013; See Letter from Kim Coble, Chesapeake Bay Foundation, to Secretary Kimberly Bose, Federal Energy Regulatory Commission (Sept. 29, 2014), FERC e-Library No. 20140929-5106.

² See Letters from Alison Prost, Chesapeake Bay Foundation, to Elder Ghigiarelli, Jr., Maryland Department of the Environment, (Aug. 23, 2017) and (Jan. 16, 2018) (attached as Exhibits “A” and “B,” respectively).

³ At the time of filing, 532 CBF members and e-subscribers had signed a petition supporting these comments.

⁴ Chesapeake Bay Program, *Facts and Figures*, <https://www.chesapeakebay.net/discover/facts> last visited Jan. 15, 2020).

⁵ Chesapeake Bay Foundation, *More than Just the Bay*, <https://www.cbf.org/about-the-bay/more-than-just-the-bay/> (last visited Jan. 15, 2020).

⁶ *Id.*

tributaries of the Chesapeake Bay.⁷ The Susquehanna River contributes about 50% of the freshwater discharged to the Chesapeake Bay and, in a normal flow year, about 25% of the sediment load and the greatest quantity of nutrients from non-tidal areas (nearly 66% of the nitrogen and 40% of the phosphorus transported to the Bay from the major river basins which contribute almost 90% of the freshwater).⁸

High levels of nutrients and sediment enter the water from agricultural operations, urban and suburban stormwater runoff, wastewater facilities, air pollution, and other sources.⁹ These pollutants cause algae blooms that block sunlight that is needed for underwater grasses and smother aquatic life on the bottom, and as the algae decay, consume oxygen and create “dead zones” where fish and shellfish cannot survive.¹⁰ Sediment runoff causes significant impairment of some streams and rivers within areas of the Bay watershed by clouding the waters, which harms underwater grasses, fish, and shellfish.¹¹ Through its various programs, campaigns, and initiatives designed to protect and restore the quality of the Bay and its tributaries by reducing the sediment and nutrients discharged to the Bay, CBF seeks to restore and maintain sustainable populations of crabs, fish, and oysters; and a clean and healthy ecosystem for our children and grandchildren.¹² The Conowingo Dam’s operation directly impacts CBF’s restoration efforts in the upper Chesapeake Bay.

⁷ Chesapeake Bay Foundation, *The Susquehanna River*, <https://www.cbf.org/about-the-bay/more-than-just-the-bay/susquehanna-river/> (last visited Jan. 15, 2020).

⁸ Robert M. Hirsch, U.S. Geological Survey, Scientific Investigations Report 2012-5185, *Flux of Nitrogen, Phosphorous, and Suspended Sediment from the Susquehanna River Basin to the Chesapeake Bay during Tropical Storm Lee, September 2011, as an Indicator of the Effects of a Reservoir Sedimentation on Water Quality 2-4* (2012), <https://pubs.usgs.gov/sir/2012/5185/pdf/sir2012-5185-508.pdf>.

⁹ Chesapeake Bay Foundation, *Dead Zones*, <https://www.cbf.org/issues/dead-zones/> (last visited Jan. 15, 2020).

¹⁰ *Id.*

¹¹ Chesapeake Bay Program, *Bay 101 – Sediment*, https://www.chesapeakebay.net/discover/bay-101/bay_101_sediment (last visited Jan. 15, 2020).

¹² Chesapeake Bay Foundation, *How We Save the Bay*, <https://www.cbf.org/how-we-save-the-bay/> (last visited Jan. 15, 2020).

II. The Conowingo Dam and Impacts to Downstream Water Quality

The Conowingo Dam sits on the Lower Susquehanna River, approximately ten miles upstream of its confluence with the Chesapeake Bay. The Project has been in operation since 1928 and has fundamentally altered the relationship of the Susquehanna River to the Chesapeake Bay. For more detail on the relationship between the Dam and water quality, please see CBF's comments to MDE on the Water Quality Certification from August 23, 2017 and January 16, 2018, incorporated by reference and attached as Exhibits A and B.

The Conowingo Dam alters the form and timing of pollutants entering the Bay, which impacts downstream water quality standards. During heavy rain events, sediment and nutrients are scoured from behind the dam, contributing pollution to downstream waters that negatively impacts water quality. The Lower Susquehanna River Watershed Assessment ("LSRWA") evaluated the impact of scouring events on downstream water quality, including effects on the attainment of the dissolved oxygen water quality standard. The study determined that scour events contribute to downstream non-attainment of dissolved oxygen, and the deposited material may contribute negatively to water quality impacts for years.¹³ The study concluded that scoured loads of sediment, on average, represented about 20% of the total loads that enter the Bay during storm events. This percentage increases with storm size. More severe storms are predicted in this region due to climate change.¹⁴

Recent model simulations of the effects of climate change on infill in the Conowingo Reservoir, or "Pool," indicate that by 2050 outputs of nutrient and sediment from the Project will *exceed* inputs, meaning the Dam itself will become a *source* of these pollutants (Figure 1) within

¹³ *Lower Susquehanna River Watershed Assessment, Maryland and Pennsylvania* 100 (March 7, 2016), available at <https://dnr.maryland.gov/waters/bay/Pages/LSRWA/Final-Report.aspx> (last accessed Jan. 16, 2020).

¹⁴ *Id.* at 79.

the new license term.¹⁵ In turn, these additional pollutants will have effects on downstream water quality, specifically the attainment of dissolved oxygen standards.

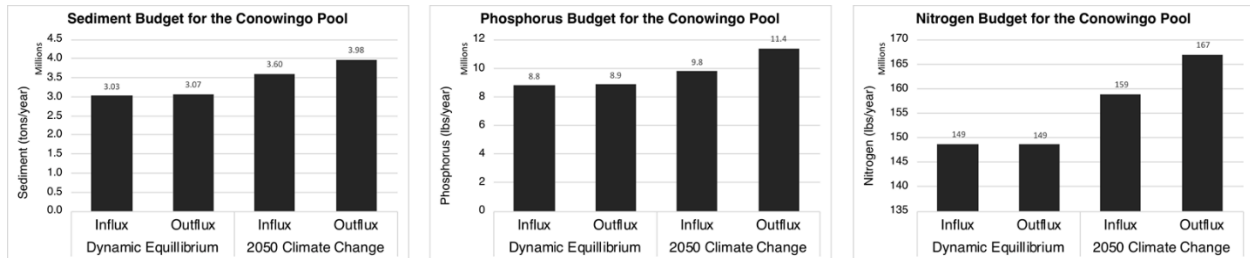


Figure 1. Figures show (a) Sediment, (b) Phosphorus, and (c) Nitrogen budgets for the Conowingo pool. Each figure has a set two scenarios – (1) Conowingo in dynamic equilibrium under 1991-2000 average hydrology, (2) Conowingo’s response under 2050 hydrology. And for both scenarios influx (input) and outflux (output) are shown.¹⁶

The State of Maryland developed a water quality certification for the Conowingo Dam, pursuant to its authority under Section 401 of the Clean Water Act that identified and attempted to mitigate the impacts of the Dam. The State of Maryland determined that the Conowingo Dam adversely impacts water quality in Maryland. Specifically, the State of Maryland found that

Although the Dam has in the past trapped and stored sediment and nutrients and served as a barrier to downstream transport to the Bay, the Reservoir is now full, as no efforts have been undertaken over the life of the Project, such as routine dredging, to maintain any trapping functions. *As a result*, sediments and nutrients move downstream, and during large storm events, significant amounts of trapped sediment and nutrients are scoured from [] behind the Dam and discharged downstream. By releasing significant amounts of sediment and nutrients *through scouring during storm events*, the Dam has altered the nature, timing, and delivery method of these materials with *adverse consequences for the Lower River and the Bay*. Nutrients discharged as a result of the in-filled state of the Reservoir *adversely impact DO levels* and thus aquatic life in the DO Non-Attainment Areas.¹⁷

¹⁵ Bhatt, Gopal, Q. Zhang, L. Linker, and G. Shenk. *Conowingo Infill and Climate change Impacts on the Chesapeake Bay Water Quality and TMDL* (in preparation).

¹⁶ *Id.*

¹⁷ Maryland Department of the Environment, Clean Water Act Section 401 Certification For the Conowingo Hydroelectric Project, FERC Project No. P-405/ MDE WSA Application No. 17-WQC-02, at 12 (April 27, 2018) (emphasis added).

Fundamentally, the Water Quality Certification found that the “discharge from the Project impacts water quality in the River below the Dam *and in the Bay*.”¹⁸ As discussed more below, none of these impacts are sufficiently addressed in the Settlement Offer.

LEGAL BACKGROUND

I. Water Quality Certification and the Clean Water Act

Section 401 of the Clean Water Act vests in states the authority and responsibility to ensure that federal projects will not negatively harm state water quality. A federal agency cannot issue a permit or license to conduct any activity that may result in the discharge of pollutants to navigable waters until a state certifies that the activity does not violate state water quality standards or limitations.¹⁹ The federal license must comply with applicable water quality standards, effluent limitations, and the provisions governing TMDLs.²⁰ Each state undergoes a public notice-and-comment process to develop and issue a water quality certification. Once issued, the water quality certification is then incorporated into the federal license or permit and must include any conditions or requirements set by the state to protect water quality. Such was the case here prior to Exelon’s various legal challenges which resulted in this Settlement Offer.

II. Hydropower Settlement Agreements under the Federal Power Act

The Commission is authorized to approve settlement agreements for hydropower licenses pursuant to Federal Power Act.²¹ The statute dictates that before authorizing a license for a hydropower project, the Commission must determine that any licensed project is:

¹⁸ *Id.* at 8 (emphasis added).

¹⁹ 33 U.S.C. § 1341(a)(1).

²⁰ 33 U.S.C. § 1341(a)(1) requiring a water quality certification to ensure any discharge “will comply with the applicable provisions of sections 301, 302, 303 [TMDLs], 306, and 307 of this Act.”

²¹ 16 U.S.C. §§ 791a et seq.

best adapted to a comprehensive plan for improving or developing a waterway or waters for the use or benefit of interstate or foreign commerce, for the improvement and utilization of waterpower development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning ground and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in section 4(e).²²

Section 4(e) of the Federal Power Act requires:

The Commission, in addition to the power and development purposes for which licenses are issued, *shall give equal consideration* to the purposes of energy conservation, the protection, mitigation of damages to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.²³

Thus, as the Commission reviews settlement agreements, the Commission must consider not just the wishes of the settling parties, but the greater public interest, and whether the settlement proposal meets the comprehensive development, environmental and equal consideration standards of the Federal Power Act.²⁴

The Commission issued a 2006 policy statement articulating certain guiding principles it considers when evaluating the legality of a proposed settlement. Pertinent to this Settlement Offer, and discussed in more detail in these comments, are the following principles:

- Measures must be based on substantial evidence in the record of the licensing proceedings
- Measures must be consistent with the law and enforceable. In particular, measures must be within the Commission's jurisdiction
- A relationship must be established between a proposed measure and project effects or purposes
- Measures should be as narrow as possible, with specific measures preferred over general measures

²² 16 U.S.C. § 803(a)(1).

²³ 16 U.S.C. § 797(e).

²⁴ 16 U.S.C. § 803(a)(1); *see* Federal Energy Regulatory Commission, *Policy Statement on Hydropower Licensing Settlements*, Dck. No. PL06-5-000, at 2, ¶4 (Sept. 21, 2006) (hereinafter, "FERC Policy Statement").

- Actions required under measures should occur physically/ geographically as close as possible to the project
- Measures must reserve the Commission’s compliance authority, as well as its authority to review and modify as necessary proposed resource or activity plans.²⁵

The Settlement Offer fails to meet these principles and is not in the public interest as it does not adequately address the water quality impacts of the operation of the Conowingo Dam on the Chesapeake Bay.

DISCUSSION

The Settlement Offer proposed by the State of Maryland and Exelon should be rejected because the provisions in the Settlement Offer purporting to address water quality impacts occur as unenforceable off-license provisions in a separate settlement agreement (the “Agreement”). If the Commission approves the Settlement Offer, the terms related to water quality impacts should be made part of the license terms and strengthened consistent with our comments below. Simply put, the Commission cannot accept the Settlement Offer as presented by the State of Maryland and Exelon as it violates the Federal Power Act and the Clean Water Act.

I. THE SETTLEMENT OFFER DOES NOT ADDRESS THE WATER QUALITY IMPACTS OF THE CONOWINGO DAM SUFFICIENTLY FOR THE COMMISSION TO ISSUE THE LICENSE.

A. The State of Maryland effectively abdicates its duty to protect downstream water quality from hydropower projects.

The State of Maryland has a duty to protect state water quality, and nothing in the Settlement Offer accomplishes that goal. The State of Maryland proposes to waive its water quality certification authority—the strongest power bestowed to a state under the Clean Water Act to protect water quality. The State of Maryland also proposes to waive its future ability to

²⁵ FERC Policy Statement, at 5, ¶12.

issue or amend the National Pollutant Discharge Elimination System permit for the Project under certain circumstances, an authorization not at issue in the licensing process. Nothing in the Settlement Offer addresses the water quality impacts of Conowingo Dam with the sufficiency necessary for the Commission to issue the operating license.

i. Section 401 Water Quality Certification

The Clean Water Act requires states to certify that federally licensed projects such as hydropower dams will not harm downstream water quality before the Commission can grant a license to operate. Specifically, section 401 requires that any federally licensed facility whose operation results in a discharge into state navigable waters obtain a certification that it “will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317” of the Clean Water Act.²⁶ It also requires that all conditions “necessary to assure” compliance with those provisions become conditions in the license for the facility.²⁷ Such is not the case here.

None of the Proposed License Articles contain conditions or limitations on the operation of the Project to mitigate the impacts of the discharge of pollutants. In the Agreement, the State of Maryland proposes to waive its water quality certification authority, after already engaging in an extensive public comment period and issuing a water quality certification with conditions aimed to protect water quality from the impacts of Conowingo Dam. Instead, Maryland proposes to address the extensive and well-documented water quality impacts from the operation of the Conowingo Dam in off-license provisions of the Agreement. This approach violates the Clean Water Act and sets bad precedent for hydropower licensing given that hydropower projects like Conowingo Dam have immense impacts on natural resources and water quality. Here, MDE

²⁶ 33 U.S.C. § 1341(a)(1).

²⁷ 33 U.S.C. § 1341(d).

established an administrative record to support issuing a water quality certification for the Project only to propose waiving it at this late stage.

The Final Environmental Impact Statement succinctly identified a primary water quality issue posed by the dam, stating that “sediment trapping in Conowingo Pond has reached a state of dynamic equilibrium, where, on balance, the full sediment load (*and the associated nutrient load*) is carried by the river through the reservoir to the Chesapeake Bay.”²⁸ The Settlement Offer makes *no mention* of the fact that the operation of Conowingo Dam contributes to the scouring of pollution from behind the dam during heavy rain events. This was initially the water quality issue that necessitated the Water Quality Certification in dispute between Exelon and the State of Maryland, and neither party has acknowledged this issue in the terms of the Agreement or the Proposed License Articles for the Project. In addition, as noted above, by 2050, within the term of the Project’s new license, the Conowingo Dam will be a *source* of nutrients and sediments to downstream waters. Instead of acknowledging and directly addressing these facts, the State of Maryland proposes to waive the Water Quality Certification—the one mechanism the state has to address downstream water quality impacts from the Dam. This flies in the face of the purpose of Section 401 of the Clean Water Act. The Commission should not accept an offer of settlement in which a state abdicates its duty to protect water quality harmed by the operation of a hydroelectric project subject to the Commission’s jurisdiction.

ii. NPDES permits and other pollution reduction provisions

In a further unnecessary move, the State of Maryland agrees in the off-license Agreement to not impose on Exelon “any additional nutrient or sediment-related measures or nutrient or sediment funding requirements associated with nutrients or sediment *originating from sources*

²⁸ Federal Energy Regulatory Commission, *Final Multi-Project Environmental Impact Statement for Hydropower Licenses, Susquehanna River Hydroelectric Projects* at 75 (Mar. 2015) (emphasis added).

outside the Project” as part of “any NPDES permit or state discharge permit for the Dam, any modification of the New License throughout its Term, [or] any new CWA Section 401 water quality certification issued in connection with a federal permit requirement for any construction related to the FERC Relicensing Proceeding, or any similar proceedings.” (emphasis added)²⁹ As such, the Agreement provides that the State of Maryland may not assert at any point during the license period that Exelon become responsible for addressing pollutants “originating from outside the Project.”³⁰ The phrase “originating from sources outside the Project” ought to be explicitly defined in the Agreement, as this language curtails the State of Maryland’s authority under the Clean Water Act and State law. Rather, only the term “Project” is defined as having “the meaning in the recitals of this Agreement.”³¹ The failure to clearly define the entire phrase will lead to disputes as to Exelon’s responsibility for pollutants it discharges from the pool behind the Dam through its operation. The Commission should not approve a settlement with undefined terms of importance to future Dam operation and Clean Water Act permitting. The Agreement should be revised to define the phrase so that it excludes material trapped behind the Dam; material that would not be there and pose a threat to water quality but for operation of the Project. Exelon has become responsible for this material and its impacts by virtue of how it operates the Project.

The practical effect of this provision, as currently drafted, is that the State of Maryland will effectively waive its ability to issue a NPDES permit, or modify the Dam’s existing NPDES permit, in any way that would require Exelon to reduce the amount of pollution coming through the dam as a discharge under the Clean Water Act. Hydropower dams have been held to be a

²⁹ Agreement, section 3.6(a) (emphasis added).

³⁰ *Id.*, section 3.6(a)(2).

³¹ *Id.*, 1.1.

point source, and therefore are susceptible to regulation under the NPDES permitting system.³² As established by the LSRWA, during a scour event, the Conowingo Dam releases pulses of pollutants that had been trapped behind the Dam. This release could constitute a discharge of a pollutant into a navigable body of water, as the Dam would no longer simply pass the same water through but add pollutants to downstream water.³³ It is inappropriate for the State of Maryland to waive its NPDES permitting responsibility through a settlement agreement when it is highly probable that Conowingo Dam will discharge pollutants during the lifetime of the license.³⁴ Furthermore, the State of Maryland's ability authority to waive the requirements for a NPDES permit for the Project is circumscribed by the Clean Water Act, as the prohibition against discharging pollutants into navigable waters is self-executing.³⁵

B. The Settlement Offer Does Not Meet the Requirements of the Federal Power Act to Give Equal Consideration to the Environmental Effects of Conowingo Dam.

As stated above, the water quality impacts of the Conowingo Dam should not be relegated to off-license provisions in the Agreement but should have been addressed through the Water Quality Certification process under the Clean Water Act and added to the License terms. Waiver aside, the Settlement Offer fails to meet the requirements of section 4(e) of the Federal Power Act because the water quality impact mitigation measures are not included in Proposed License Articles, despite a clear nexus between the Project's operation and downstream water quality impacts as demonstrated in the record.³⁶ The State of Maryland and Exelon cannot address water quality impacts through off-license agreements to simply transfer payments to the

³² *S.D. Warren Co. v. Maine Board of Environmental Protection*, 547 U.S. 370 (2006) (finding that a dam's alteration of water movement and flow fell under the Clean Water Act's definition of pollution and discharge).

³³ *South Fla. Water Management Dist. v. Miccosukee Tribe*, 541 U.S. 95 (2004).

³⁴ See Fig. 1, *supra*.

³⁵ See *National Wildlife Federation v. Consumers Power Co.*, 862 F.2d 580, 582 (6th Cir. 1988) (citing *United States v. Frezzo Brothers, Inc.*, 602 F.2d 1123, 1127 (3rd Cir. 1979)).

³⁶ See *supra* pp. 3-5.

Maryland Clean Water Fund, which is structured to be used whenever and wherever the State wishes – indeed, even in a way entirely disconnected from the matter of, and impacts from, the Conowingo Dam. This issue needs to be addressed directly in the terms of the License through the incorporation of the Water Quality Certification in the License, or in the provisions of the License itself which govern the operation of the Project. Furthermore, specific, proportional, and related mitigation needs to be applied in specific, related geographies, under specific timelines.

The Commission is obligated to give equal consideration to the environmental quality impacts associated with its approval of a hydropower license, which includes the downstream water quality impacts of the Conowingo Dam.³⁷ There are significant water quality issues associated with the operation of the Conowingo Dam that the Commission has identified in the FEIS, the state of Maryland identified in the Water Quality Certification, and stakeholders have raised again and again. The State of Maryland and Exelon have completely ignored the water quality impacts of the Conowingo Dam in this Settlement Offer and have not articulated how any of the measures in it address water quality with sufficient specificity for the Commission to approve the Settlement Offer under the Federal Power Act.

As stated in the 2006 Policy Statement, the Commission expects settlement agreements to describe how the proposals relate to project effects or project purposes in order to determine whether to license the facility under section 10 of the Federal Power Act. It is easier for the Commission to determine if the license comports with section 10 when a settlement agreement calls for “specific measures (rather than a general expenditure of funds), [... and] if the settling parties document how the measures are tied to project effects or purpose.”³⁸ Further, in order to approve a settlement agreement and issue a license under the Federal Power Act, the

³⁷ 16 U.S.C. § 797(e).

³⁸ FERC Policy Statement, at 7.

Commission’s decision must be supported by substantial evidence. This means that to support a license condition proposed in a settlement agreement, the parties must “develop a factual record that provides substantial evidence to support the proposed condition, and demonstrate[] how the condition is related to project purposes or to project effects.”³⁹ The Settlement Offer accomplishes none of these requirements.

First, the approach in the Agreement to address water quality is through general expenditures of funds, not specific measures. The provisions in the Agreement to address water quality consist exclusively of payments to the Maryland Clean Water Fund, with no specification of how the money is to be spent in order to improve water quality. For example, the Agreement states that Exelon will pay State of Maryland approximately \$11.3 million dollars over the course of the license for “financial support for other water quality improvement projects, including forest buffers and agricultural projects such as cover crops.”⁴⁰ This funding provision is vague. Neither party has articulated where the money would be spent, how much would be spent on specific projects, when the projects would occur, or how those projects would address the water quality impacts caused by operation of the Conowingo Dam. The Commission should require the State of Maryland and Exelon to articulate with a higher degree of specificity what the “other water quality improvement projects” would entail, where they would be implemented, how those measures proportionally relate to the Project’s impact, and when they would take place.

Second, measures proposed in a settlement agreement must be tied to the Project’s effect, and by proposing to address water quality in off-license provisions, the State of Maryland and Exelon have not developed a settlement agreement that adequately explains how the measures

³⁹ *Id.*, at 3.

⁴⁰ Agreement at 20 (section C.4 – Funding for Other Water Quality Projects).

are tied to the Project's impacts. Nearly all of the measures related to mitigating water quality impacts are imprecise proposals to expend money, with no demarcation of how the funds will be spent. More significantly, the terms of Agreement do not explain or quantify what the *benefit* of these measures will be *to downstream water quality*, meaning the Settlement Agreement does not describe the relationship between the measures and the water quality impacts of the Project.⁴¹ For example, one of the proposed projects in the Agreement is building a mussel hatchery upstream of the Conowingo Dam. Nothing in the Agreement quantifies the effectiveness or probability of success of mussel restoration in reducing pollution and mitigating the impacts of the Dam on downstream water quality. This provision is therefore not supported by substantial evidence on the record.

The remaining water quality provisions are even less specific than the mussel restoration plan and provide no quantification of the restoration benefits on downstream water quality via pollution reduction. The Agreement makes no effort to quantify the pollution reduction impacts of the "other water quality improvement projects," which is equally troubling considering the tools available to quantify BMP effectiveness based on landscape position, as utilized by the Chesapeake Bay Program and in Maryland's Bay Restoration Fund expenditures.⁴² At a minimum, the State of Maryland and Exelon needed to estimate the pollution reduction benefits of various water quality improvement projects, and directly link the impact of the operation of the Conowingo Dam to those mitigation measures. The parties did not, which left the public questioning what "other water quality improvement projects" would be installed with the

⁴¹ Policy Statement, at 7 (citing *Virginia Electric Power Company*, 110 FERC ¶ 61,241 at P11) (the Commission is "troubled by settlements which require measures, such as general funds to be used for unspecified measures, that are *not tied to either project impacts or purposes*.").

⁴² See, e.g., U.S. EPA, Chesapeake Bay Program, Chesapeake Assessment Scenario Tool, accessible at cast.chesapeakebay.net

proposed funding, and unable to comment on (1) whether those projects *could* mitigate the downstream impacts of the Dam; or (2) whether the amount of the mitigation funding would be sufficient to do so. Again, these provisions are not supported by substantial evidence on the record, making it impossible for the Commission, or the public, to evaluate whether the provisions are adequately mitigating the impact of the Conowingo Dam on downstream water quality. Indeed, the financial terms are belied by the record, and the initial determination to issue a Water Quality Certificate with a mitigation fund at approximately one-and-one-half orders of magnitude greater than that stated in the Settlement Offer.

Finally, prior decisions make clear that the Commission is “troubled by settlements which require measures, such as general funds to be used for unspecified measures, that are *not tied to either project impacts or purposes.*”⁴³ Conowingo Dam presents known water quality issues – the Dam now discharges more pollution into the Bay as storm intensity increases,⁴⁴ and will, during the license term, begin producing more pollution than is entering its pool.⁴⁵ *Nothing* in the Settlement Offer addresses the water quality impacts of the Conowingo Dam with any specificity, and the water quality provisions are all addressed in off-license provisions. This means that if approved, Exelon will have a license to operate a hydroelectric dam with documented downstream water quality impacts, for 50 years, without ever having to address these impacts. The Commission should not approve such a settlement or grant such a license.

It is not legally sufficient for the State of Maryland and Exelon to only address these water quality impacts through vague provisions in the off-license section of the Settlement Offer. The Federal Power Act requires the Commission to give equal consideration to the

⁴³ *Virginia Electric Power Company*, 110 FERC ¶ 61,241 at P11.

⁴⁴ Lower Susquehanna River Watershed Assessment, *supra* n. 12 and n. 13.

⁴⁵ See Bhat, et al. n. 14.

environmental impacts of a hydropower project before licensing it. If the Commission issues a license for the Project with the License Articles as proposed by the State of Maryland and Exelon, the Commission will not have given equal consideration to the water quality impacts of the Conowingo Dam because those terms are expressly missing from the license. Equally troubling is the fact that the off-license provisions of the Agreement exist solely as contract terms between Exelon and Maryland and would not be made a part of the License Articles as currently proposed. As a result, the Commission has no authority to enforce those terms as a condition of the Project's operation. Downstream citizens are similarly hamstrung since the State of Maryland has proposed to waive its water quality certification authority and is requesting the Commission to issue a license with no specific and measurable provisions to address water quality.

As stated above, the limitations and requirements of a section 401 water quality certification shall become conditions on any federally licensed project.⁴⁶ The Commission's own regulations make such conditions enforceable by the public, in providing that "[a]ny person may file a complaint seeking Commission action against any other person alleged to be in contravention or violation of any statute, rule, order, or other law administered by the Commission, or for any other alleged wrong over which the Commission may have jurisdiction."⁴⁷ Under the terms of the Settlement Offer and Agreement, however, many of Exelon's commitments would not become components conditions of the License for the Project, and would not be enforceable by citizens affected by its operation. As established by the evidence in the record, the operation of the Dam significantly affects downstream water quality,

⁴⁶ 33 U.S.C. § 1341(d).

⁴⁷ 18 C.F.R. § 385.206.

and this must be acknowledged and addressed in the terms of the Settlement Offer, Agreement, and License to operate the Project.

II. CONTESTED ISSUES OF FACT RELATED TO THE SETTLEMENT OFFER.

CBF contests the Settlement Offer as there is a genuine issue of material fact related to the downstream water quality impacts of the operation of the Conowingo Dam. Heavy rainfall events lead to scour events where pollutants are released from behind the Dam.

As noted earlier, modeling estimates of the effects of climate change by scientists at the Chesapeake Bay Program show that by 2050, Conowingo Dam will be releasing more pollutants than the pollutants coming downstream from various sources further up the Susquehanna River. Model estimates indicate that at that point, sediment, phosphorus, and nitrogen outputs are greater than inputs – by approximately 9%, 15%, and 5% respectively.⁴⁸ Nothing in the Settlement Offer addresses those water quality impacts, therefore the Commission should reject its terms.

The LSRWA evaluated the impact of scoured sediment and nutrients on downstream water quality, and concluded that the nutrients associated with scoured sediments from behind Conowingo Dam cause impacts to the upper Chesapeake Bay ecosystem, as the nutrients become biologically available and lead to lower dissolved oxygen.⁴⁹ The study concluded that the “concentration of dissolved oxygen (DO) available to the Bay’s aquatic life is *diminished by Conowingo Reservoir scour events.*”⁵⁰ A more recent study synthesized insights from field observations and additional modeling conducted to evaluate the potential impacts of the infilling

⁴⁸ See *supra* Figure 1

⁴⁹ Lower Susquehanna River Watershed Assessment at 158.

⁵⁰ *Id.* (emphasis added).

of Conowingo Dam on downstream waters and reaffirmed the effects of scour on downstream water quality.⁵¹ For example, bottom sediments scoured to a depth of 10 cm would result in a contribution of half of the total phosphorus load delivered during Tropical Storm Lee and 12% of the total nitrogen input. The study authors also acknowledge the impacts of this scour on downstream dissolved oxygen standards. Nothing in the Settlement Offer acknowledges this impact or aims to address the impact of scour events on downstream water quality.

The LSRWA also evaluated the percentage of scoured material that enters the Bay after large storm events. This study concluded that approximately 20% of the sediment load entering the Bay during Tropical Storm Lee was scoured sediment from behind the Dam.⁵² The study modelled the scour contribution for large storm events—up to 800,000 cubic feet per second of water flowing through the dam—and determined that the average contribution of sediment from scour was 30%.⁵³ The study indicated that “as flow increases the bed sediment scour load becomes an increasingly higher proportion of the total sediment load.”⁵⁴ This means that as the region experiences bigger storms, which will occur due to climate change, the percentage of sediment scoured from behind the Conowingo Dam will increase, and the nutrients associated with that sediment will decrease downstream dissolved oxygen. Again, the Settlement Offer does not address this impact in the proposed License Articles. What scant measures are proposed for water quality impacts are not sufficiently tied to the Project impacts for the Commission to conclude that the proposals will in fact mitigate the impacts to downstream dissolved oxygen

⁵¹ Palinka, Cindy, J. Testa, J. Cornwell, M. Li, and L. Sanford, *Influences of a River Dam on Delivery and Fate of Sediments and Particulate Nutrients to the Adjacent Estuary: Case Study of Conowingo Dam and the Chesapeake Bay* (Nov. 5, 2019).

⁵² Lower Susquehanna River Watershed Assessment at 79.

⁵³ *Id.* at 78.

⁵⁴ *Id.*

caused by scour events. Additionally, as discussed above, during the term of the License, the Conowingo Dam will itself become a source of pollutants due to climate change.⁵⁵ None of these reasonably foreseeable water quality impacts are addressed in the Settlement Offer. All of this evidence creates a significant issue of material fact that not addressed in the terms of the Settlement Offer.

CONCLUSION

For all the foregoing reasons, CBF urges the Commission to reject the proposed Settlement Offer and convene a technical conference pursuant to Rule of Practice and Procedure 601, 18 C.F.R. § 385.601, or such other appropriate evidentiary hearing or proceeding necessary to address the disputed or unresolved issues identified herein.

Respectfully submitted,

/s/ Paul W. Smail
Paul W. Smail
Brittany E. Wright
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Dated: January 17, 2020

Counsel for Chesapeake Bay Foundation, Inc.

⁵⁵ Bhatt, et al., *supra*.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document by electronic mail, or by first-class mail if no e-mail address is provided, upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated: January 17, 2020

/s/ Paul W. Smail

Paul W. Smail

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EXHIBIT A

**Chesapeake Bay Foundation Comments on Conowingo Dam
Water Quality Certification, Application #17-WQC-02
August 23, 2017**



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Via electronic and first class mail

August 23, 2017

Elder Ghigiarelli, Jr.
Deputy Program Administrator, Wetlands and Waterways Program
Water management Administration,
Maryland Department of the Environment
1800 Washington Boulevard, Suite 430, Baltimore, MD 21230
elder.ghigiarelli@maryland.gov.

Re: Application #17-WQC-02, Lower Susquehanna River and Upper Chesapeake Bay, Use I & 2 Waters

Dear Mr. Ghigiarelli,

Chesapeake Bay Foundation provides these comments in response to the Maryland Department of the Environment's Public Notice of the Proposed Relicensing of the Conowingo Hydroelectric Project Application for Water Quality Certification (Notice) issued on July 10, 2017. CBF represents over 200,000 members throughout the watershed interested and directly affected by the decision to grant water quality certification to Exelon for a project that will persist over the next 50 years or more. Moreover, we conduct environmental education programs in the Lower Susquehanna and Susquehanna Flats regions, support advocacy and on the ground restoration projects designed to enhance water clarity to the Susquehanna Flats that contribute to the persistence and expansion of submerged aquatic vegetation, a crucial habitat for the bay's blue crabs and many other species.

Thank you for the opportunity to comment on the application for a Water Quality Certification ("WQC") under Section 401(a)(1) of the Clean Water Act for the Conowingo Hydroelectric Project, FERC Project Number 405 ("Conowingo Dam" or "the Dam"). The Chesapeake Bay Foundation (CBF) is committed to fully implementing the Chesapeake Bay Total Maximum Daily Load ("TMDL"), or the Chesapeake Bay Blueprint, to reduce pollution levels by 25 percent for nitrogen, 24 percent for phosphorus, and 20 percent in sediment pollution, Bay-wide¹ by 2025 to make the Bay once more a productive estuary safe for swimming and fishing. This effort requires all six states in the Bay watershed, as well as the District of Columbia, to reduce pollution from every source. CBF recognizes that the Conowingo Dam has played a crucial role in curtailing the sediment pollution that travels down the Susquehanna River and eventually reaches the Bay. However, over time, the Dam's ability to trap pollution has diminished due to sediment build up behind the dam. As discussed below, studies have also shown that the Dam itself has the ability to impact water quality. Therefore, the state of Maryland must ensure that impacts of Conowingo Dam's

¹ U.S Environmental Protection Agency, CHESAPEAKE BAY TMDL, ES-1 (Dec. 2010), *available at* https://www.epa.gov/sites/production/files/2014-12/documents/bay_tmdl_executive_summary_final_12.29.10_final_1.pdf

operations on downstream water quality are addressed and mitigated as part of the new operating permit. This is why CBF has formally intervened as a party to the Federal Energy Regulatory Commission (FERC) relicensing of the Dam, and submits the following comments regarding the impacts of the Dam on Maryland's water quality. CBF also requests inclusion on the "interested persons" and "service" lists to receive timely notice of all applications, public notices, information and studies, and decisions regarding the Conowingo Dam.

We have focused our comments on the WQC on effects relative to achievement of the water quality standards (i.e., dissolved oxygen, water clarity, chlorophyll a) associated with the Chesapeake Bay TMDL for nutrients and sediment.² We defer the general scientific basis for defining project impacts from flow regulation, impeding fish passage and trapping coarse sands and gravel on from flow regulation, impeding fish passage and trapping coarse sands and gravels on habitat and designated uses incorporating by reference the more detailed discussion submitted by The Nature Conservancy.

Under the Clean Water Act and applicable Maryland state laws and regulations, a federal permit or license to conduct any activity that may result in any discharge to navigable waters may not be issued unless the state certifies that the activity does not violate State water quality standards or limitations.³ It is fully within the state's authority to impose more stringent water quality standards than those set by the federal Act,⁴ and any WQC must comply with all applicable provisions of the Clean Water Act, including the provisions governing TMDLs.⁵ Finally, it is well-established that the alteration of water, including the alteration of movement, flow, circulation, or chemical composition, is included in the Clean Water Act's definition of pollution and is within a State's legitimate interests when considering a WQC.⁶ To that end, we disagree with Exelon's contention that the Conowingo project, as proposed, is consistent with applicable Maryland Water Quality Standards. While it is true that the origin of the sediment and nutrients from behind the Dam is mostly from upstream of Conowingo, the Dam does alter the form of these sediments and nutrients and the timing by which they enter the Chesapeake Bay.^{7 8} For example, the Dam changes the grain

² <https://www.epa.gov/chesapeake-bay-tmdl>

³ 33 USCS §1341; COMAR 26.08.02.10.

⁴ 33 USCS §1370.

⁵ 33 USCS 1341(1)(a) requiring a WQC to ensure any discharge "will comply with the applicable provisions of sections 301, 302, 303 [TMDLs], 306, and 307 of this Act..."

⁶ *See, e.g., S.D. Warren Co. v. Maine Board of Environmental Protection*, 547 US 370 (2006) (finding that a dam's alteration of water movement and flow fell under the Clean Water Act's definitions of pollution and discharge).

⁷ Lawrence P. Sanford, Stephanie Barletta, UNCES Horn Point Laboratory, Cambridge, MD, Grace Massey, Kelsey Fall, Virginia Institute of Marine Science, Gloucester Point, VA. The Impacts of Conowingo Particulates on the Chesapeake Bay: Suspended Particle Size, Settling and Transport. UMCES Contribution TS-705-17. Final Report to Exelon Generation and Gomez and Sullivan, July 2017.

⁸ Cornwell, J., M. Owens, H. Perez, and Z. Vulgaropoulos. 2017. The Impact of Conowingo Particulates on the Chesapeake Bay: Assessing the Biogeochemistry of Nitrogen and Phosphorus in

size profile of downstream sediments, preferentially passing finer sediments that tend to stay in suspension longer, with potential negative effects on downstream water clarity and underwater grasses. Coarser materials are preferentially retained by the Dam, again with negative downstream impacts as these materials are needed to build and protect desirable habitats, like islands and shorelines, for fish spawning and rearing, mussels and Submerged Aquatic Vegetation, for fish spawning and rearing, mussels and Submerged Aquatic Vegetation. In addition, scouring events caused by high flows mean more nutrients and sediments will flow downstream than are attributed to upstream sources. These are all incremental impacts directly, indirectly, or cumulatively caused by Conowingo Dam's impoundment and artificial release of the Susquehanna River.

Of particular relevance to the WQC are the findings of the Lower Susquehanna River Watershed Assessment⁹ (LSRWA). The LSRWA evaluated the impact of scouring events on downstream water quality, namely additional loads of nutrients, as well as effects on dissolved oxygen (DO), water clarity, and chlorophyll a concentrations. These findings were reviewed and confirmed at a more recent workshop sponsored by the Chesapeake Bay Program Scientific and Technical Advisory Committee.¹⁰ As detailed below, modeling results indicate detectable negative effects on these water quality parameters and these effects are more severe if the scour event occurs during the summer. Results also suggest that nutrients from scour events deposit downstream and may contribute to negative water quality impacts for years, though these effects diminish over time.

The study included the coupling of multi-dimensional hydrodynamic and eutrophication models that included estimates of sediment transport for multiple grain sizes and of diagenetic processes in bottom sediments. Both of these features were deemed important in estimating the effect of reservoir scour on downstream water quality. These models were used to run several different scenarios; probably the most relevant to downstream impacts are scenarios 4 through 6 (see Table 4-9 in the Lower Susquehanna River Watershed Assessment report).

Scenario 4 assumed that the Watershed Implementation Plans (WIPs) were not in effect, the reservoirs had all reached dynamic equilibrium and there is a winter scour event. Results of this scenario indicated a scour event would add 7,800 tons of particulate (organic) nitrogen and 2,600 tons of particulate phosphorus, in addition to watershed loads, over a 4-day period.

Reservoirs and the Chesapeake Bay. UMCES Contribution TS-703-17. Final Report to Exelon Generation and Gomez and Sullivan. July 28, 2017.

⁹ Lower Susquehanna River Watershed Assessment, Maryland and Pennsylvania, May 2015 Final. Found at: <http://dnr.maryland.gov/waters/bay/Pages/LSRWA/Final-Report.aspx>

¹⁰ Linker, L., R. Hirsch, W. Ball, J. Testa, K. Boomer, C. Cerco, L. Sanford, J. Cornwell, L. Currey, C. Friedrichs, R. Dixon. 2016. Conowingo Reservoir Infill and Its Influence on Chesapeake Bay Water Quality. STAC Publication Number 16-004, Edgewater, MD. 51 pp. Found at: http://www.chesapeake.org/pubs/356_Link2016.pdf

Scenario 5 assumed the WIPs are in full effect, the reservoirs have reached dynamic equilibrium and there is a winter scour event. Additional loads were estimated to be the same as Scenario 4, indicating the amount scoured is not affected by WIP implementation.

Scenario 6 assumes the WIPs are in full effect, the reservoirs are trapping at current condition and there is a scour event that occurs during summer, fall or winter. Additional loads of phosphorus and nitrogen were estimated to be as high as 14,300 tons of nitrogen and 3,180 tons of phosphorus, but these include watershed and scour loads.

It should be noted the additional loads associated with lost capacity and increased scouring are not quantified or offset by any sector under the Chesapeake Bay Blueprint¹¹ The applicant for the WQC should be held responsible for mitigating loads associated with these scour events, as again, they are proximately caused by the Dam's operation itself.

The water quality effects of these scour events, including effects on water quality standards attainment were also quantified. Scenarios 4 – 6 all indicated increased chlorophyll a concentrations downstream as well as decreases in water clarity. A June storm event had the most impact on water quality, stimulating higher chlorophyll concentrations and decreases in water clarity that extended up to 37 miles downstream of the dam and persisting throughout the summer.

In terms of attainment of the dissolved oxygen standards, the study examined, for each of the 92 TMDL segments and applicable water quality standard, the percent of time and volume that a given water quality criterion (i.e., DO, chlorophyll, water clarity) was outside an allowed exceedance. Attaining DO standards in the volume-time integral represented by deep-channel water from June to September is a main driver of the Bay TMDL.

Scenario 4 indicates that a reservoir scour event occurring in the winter places an additional 1 percent of the volume-time integral outside of DO standards in segments CB4MH (in the mainstem of the Bay) and PATMH (the mesohaline part of the Patapsco River). Scenario 5 indicates an increase of 1% nonattainment in segments CB4MH, EASMH (the Eastern Bay), and CHSMH (the lower part of the Chester River). Scenario 6 indicated that a June high-flow storm event has the most detrimental influence on deep channel DO followed by a storm of the same magnitude in January, and then October. The June event scenario had an estimated increase in deep-channel DO nonattainment of 1%, 4%, 8%, and 3% in segments CB3MH (in the mainstem of the Bay, north of CB4MH), CB4MH, CHSMH, and EASMH, respectively when compared to the No Storm Scenario. The January storm condition had an estimated increase in deep-channel DO nonattainment of 1%, 1%, 2%, and 2% in segments CB3MH, CB4MH, CHSMH, and EASMH, respectively, when compared to the No Storm Scenario.

¹¹ U.S. Environmental Protection Agency Chesapeake Bay Program Office, *Lower Susquehanna River Assessment Appendix D: Estimated Influence of Conowingo Infill on the Chesapeake Bay Water Quality*. Spetember 25, 2014. Page 31-32 (finding that TMDL allocations may need adjustment when Conowingo Dam is found to have reached dynamic equilibrium, and identifying further research and analysis needs in order to “advance considerably the understanding of the influence Conowingo Reservoir infill has on Chesapeake water quality”).

For the October high-flow event, the estimated deep-channel DO saw increased nonattainment of 2% and 1% in CHSMH and SEVMH (Severn River), respectively, compared to the No Storm Scenario.

Although these percentages may seem small, Clean Water Act regulatory requirements prohibit any increase in nutrient loads that causes diminishment of water quality standard achievement.¹²

More recently, Exelon agreed to fund additional studies at the request of the State of Maryland that, among other things, would lead to better understanding of the form, fate, and effects of nutrients that are scoured from behind the Dam. These studies, conducted by the University of Maryland Center for Environmental Studies (UMCES), were to be used in conjunction with those from the LSRWA to determine the extent and magnitude of downstream water quality impacts. Final reports from these studies were not available for stakeholders to review when the Department initiated public comment for the water quality certification process.

CBF requested an extension to the public comment period based on the missing information, and the UMCES studies were released on July 28, 2017 within the extended comment period. Of particular relevance is the work by Cornwell et al.¹³ One key finding is that much of the phosphorus released during scour is, initially, in a form that is not bioavailable (due to binding with iron). However, some particles do settle in the mid-Bay and others will eventually be transported there. Under conditions in the mid-Bay, particularly anoxia, this phosphorus can become available for uptake by phytoplankton and, therefore, can contribute to eutrophic conditions, including depressed DO.

An unexpected result from Cornwell et al. 2017 is the finding of a substantial amount of adsorbed ammonium in sediments in the Conowingo Pond, at concentrations exceeding those in similar sediments downstream. This ammonia could be mobilized during scour events (or during dredging) adding nitrogen loads to downstream waters. Both these findings regarding increased mobilization of nutrients during scour events affirm the findings of the LSRWA study regarding increases in the nonattainment of the DO standard in some segments downstream.

The Maryland Department of the Environment (MDE) should include these findings in their water quality certification. Specifically, we recommend that additional modeling scenarios, similar to those conducted as part of the LSRWA study, be run with the new information from the UMCES study about the fate, transport, form, and concentrations of nutrients and sediments from the Conowingo Reservoir, to assess the impact on water quality standards attainment. In addition, we believe MDE should also consider projected effects of climate

¹² 40 CFR §122.4.

¹³ Cornwell, J., M. Owens, H. Perez, and Z. Vulgaropoulos. 2017. The Impact of Conowingo Particulates on the Chesapeake Bay: Assessing the Biogeochemistry of Nitrogen and Phosphorus in Reservoirs and the Chesapeake Bay. UMCES Contribution TS-703-17. Final Report to Exelon Generation and Gomez and Sullivan. July 28, 2017.

change on the water quality response, given the long-term duration of the permit. Of particular interest is the projected increase in the frequency and intensity of storms, as these will mean more scour events, and higher temperatures that could affect DO.¹⁴ The Chesapeake Bay Program is currently working to include climate change into its models and MDE could leverage this ongoing work for this evaluation. The scenarios should include critical conditions such as severe storms during the summer as this is when impacts are likely to be the greatest. The uncertainties of impact noted above are surely sufficient to seek adequate scientific resolution prior to issuing a WQC, and the studies sought are reasonably implemented modeling runs, not the multi-year work of the previous research. In its application, Exelon does not propose any mitigation for its downstream water quality impacts. They cite the LSRWA findings, but ignore those that specifically address impacts to downstream water quality. As described above, operation of the Conowingo Dam alters the form of nutrients and the timing by which they enter the Chesapeake Bay and these changes cause incremental effects on DO and the achievement of water quality standards. Consequently, appropriate mitigation measures should be required as a condition for a new license to Exelon for the operation at Conowingo Dam in order to provide reasonable protection to Maryland waters.

As part of the WQC process under the Clean Water Act, Maryland is responsible for setting forth any effluent limitations or any other conditions or limitations and monitoring requirements that may be necessary to assure compliance with the Act and the Chesapeake Bay TMDL.¹⁵ Federal regulations explicitly prohibit issuing such certifications where the conditions of the permit do not provide for compliance with water quality standards or where conditions cannot ensure compliance with applicable water quality requirements of affected states.¹⁶ As has been demonstrated, scour events result in violation of downstream water standards and the WQC must ensure that there are sufficient offsets to mitigate these impacts.

These measures could include financial assistance for nutrient reduction projects upstream of the Dam, in Maryland, Pennsylvania, and New York such as agricultural practices, wastewater treatment plant upgrades, green infrastructure, and restoration of the system's "natural filters" such as propagation of freshwater mussels in fresh water and oyster restoration downstream. Such mitigation efforts should result in pollution reductions that are

¹⁴ Johnson, Z., M. Bennett, L. Linker, S. Julius, R. Najjar, M. Mitchell, D. Montali, R. Dixon. 2016. The Development of Climate Projections for Use in Chesapeake Bay Program Assessments. STAC Publication Number 16-006, Edgewater, MD 52 pp. Available here: http://www.chesapeake.org/pubs/360_Johnson2016.pdf

¹⁵ 33 USCS §1341(d) ("Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations, under section 301 or 302 of this Act [33 USCS § 1311 or 1312], standard of performance under section 306 of this Act [33 USCS § 1316], or prohibition, effluent standard, or pretreatment standard under section 307 of this Act [33 USCS § 1317], and with any other appropriate requirement of State law set forth in such certification, and shall become a condition on any Federal license or permit subject to the provisions of this section").

¹⁶ 40 CFR §122.4.

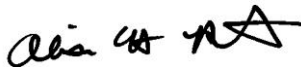
equivalent to the maximum amounts of nutrients estimated to be associated with sediments scoured from behind the Dam and any additional pollution produced as a result of the Dam's presence and operation. CBF remains skeptical of dredging as a viable option to mitigate these water quality impacts, but if this activity is pursued, MDE must consider the potential water quality effects of adsorbed ammonia in Conowingo Pond that would be released during dredging.¹⁷

Finally, CBF realizes that a public hearing will be held as part of the water quality certification process. We feel that incorporating the findings of the UMCES study and suggested additional model runs should occur prior to such a hearing and that the Department should propose a draft water quality certification for public review that incorporates appropriate mitigation measures to offset the additional nutrient loads, prior to, and to be discussed at that hearing.

Again, we thank you for the opportunity to comment on this important state action.

Sincerely,

Sincerely,

A handwritten signature in black ink, appearing to read "Alison Prost" with a stylized flourish at the end.

Alison Prost
Maryland Executive Director

¹⁷ Cornwell, J., M. Owens, H. Perez, and Z. Vulgaropoulos. 2017. The Impact of Conowingo Particulates on the Chesapeake Bay: Assessing the Biogeochemistry of Nitrogen and Phosphorus in Reservoirs and the Chesapeake Bay. UMCES Contribution TS-703-17. Final Report to Exelon Generation and Gomez and Sullivan. July 28, 2017.

EXHIBIT B

**Chesapeake Bay Foundation Comments on Conowingo Dam
Water Quality Certification, Application #17-WQC-02
January 16, 2018**



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January 16, 2018

Elder Ghigiarelli, Jr.
Deputy Program Administrator, Wetlands and Waterways Program
Water management Administration,
Maryland Department of the Environment
1800 Washington Boulevard, Suite 430, Baltimore, MD 21230

VIA Email: elder.ghigiarelli@maryland.gov

Re: Application #17-WQC-02, Lower Susquehanna River and Upper Chesapeake Bay, Use I & 2 Waters

Dear Mr. Ghigiarelli,

Thank you again for the opportunity to provide comments on the above-referenced Water Quality Certification (WQC) application. Please refer to our initial letter dated August 23, 2017 and oral comments of Chesapeake Bay Foundation Maryland Executive Director Alison Prost made during the public hearing on December 5, 2017 as a basis for this supplemental written comment.

Conowingo Dam and the deep pond created by the dam, change the form and timing of pollutant discharges to downstream waters including the Lower Susquehanna River and Chesapeake Bay mainstem¹. Therefore, the Chesapeake Bay Foundation believes the dam's continued operation is itself directly and proximately responsible for some of the pollution coming through the Dam – especially that which occurs during high-flow storm and scour events – and that these additional loads contribute to the violation of downstream water quality standards.

Furthermore, though we recognize that the Conowingo Dam has, historically, played a role in reducing the sediment and associated nutrients from the Susquehanna River that reach the Bay – some have called it the “Bay’s biggest best management practice (BMP)”- we also note that the accumulating sediments and associated nutrients that reached the Conowingo Reservoir were not managed by Exelon. Because of Exelon’s failure to address sediment accumulation, the Bay jurisdictions are faced with needing to reduce additional pollutant loads to achieve the sediment, phosphorus and nitrogen allocations of the Chesapeake Bay Total Maximum Daily Load (TMDL).

Negative Effects on Attainment of Downstream Water Quality Standards Must be Mitigated

The most recent estimates of the additional load reductions that are needed to achieve downstream water quality standards and account for the lost trapping capacity of Conowingo, that includes the effect of scouring events, is roughly 6 million pounds of nitrogen and 0.26 pounds of phosphorus.² Exelon needs to play a role in achieving these additional reductions.

¹ Linker, L., R. Hirsch, W. Ball, J. Testa, K. Boomer, C. Cerco, L. Sanford, J. Cornwell, L. Currey, C. Friedrichs, R. Dixon. 2016. Conowingo Reservoir Infill and Its Influence on Chesapeake Bay Water Quality. STAC Publication Number 16-004, Edgewater, MD. 51 pp. Found at: http://www.chesapeake.org/pubs/356_Linker2016.pdf

² https://www.chesapeakebay.net/channel_files/25782/wqgit_dec_4-5_2017_mpa_policy_decisions_briefing_presentation_story_board-12.3.17_jsadd.pdf slide 351

As detailed in our August 23, 2017 letter, the Lower Susquehanna River Watershed Assessment (LSRWA) study³ evaluated the impact of scouring events on downstream water quality including effects on attainment of the dissolved oxygen (DO) water quality standard. Results indicate scour events cause increases in non-attainment of the DO standards in some downstream segments. For example, a scour event occurring in June had an estimated increase in deep-channel DO nonattainment of 1%, 4%, 8%, and 3% in segments CB3MH, CB4MH, CHSMH, and EASMH, respectively when compared to the No Storm Scenario. Results also suggest that nutrients from scour events deposit downstream and may contribute to negative water quality impacts for years.

As part of the WQC process under the Clean Water Act, Maryland is responsible for setting forth any effluent limitations or any other conditions or limitations and monitoring requirements that may be necessary to assure compliance with the Act and the Chesapeake Bay TMDL. As has been demonstrated, scour events result in violation of downstream water standards and the WQC must ensure that there are sufficient pollutant offsets to mitigate these impacts. **Therefore, Exelon should be held responsible for their contribution to the impacts on downstream water quality.**

Consequently, we recommend that MDE run scenarios similar to those that were conducted as part of the LSRWA study, but with the Phase 6 model. In addition, given the long-term duration of the proposed permit, we recommend these scenarios consider the effects of climate change that includes increases in the size of storm events and the frequency of their occurrence, both of which will lead to increased pollution and more scour events. The Chesapeake Bay Program has quantitative estimates for expected effects of climate change by 2050. These input parameters should be used in the updated modeling scenarios.

With these results in hand, we recommend the following approach to estimate the amount of phosphorus and nitrogen load reductions necessary to mitigate for these impacts. We caution, however, that the numbers used below are for illustrative purposes since they are based on the “old” Chesapeake Watershed Model (Phase 5.3.2), not the “newer” version (Phase 6) that includes many refinements, including updated modeling inputs for the Conowingo. As noted above, increases in non-attainment due to scour events range from 1% - 8%. The LSRWA estimated that to offset a 1 percent increase in Deep-Channel DO nonattainment would require a reduction of about 2.4 million pounds of nitrogen and 0.27 million pounds of phosphorus (p.95). So, for example, to offset a 4% increase in nonattainment in CB4MH would require nitrogen (N) reduction of 9.6 million pounds and 1.08 million pounds of phosphorus (P). These load reductions, however, are not solely Exelon’s responsibility as they result from nutrients that originate upstream of the Dam during storms as well as those that are scoured from behind the Dam.

Results of the LSRWA (p. 79) indicate that, on average, scoured loads of sediments represented about 20% of the total loads that enter the Bay from storm events. We note that this proportion is likely conservative. This percentage increases with the size of the storm and more severe storms are likely in the future due to climate change. In addition, a study by the Lower Susquehanna Riverkeeper suggested that scour may have been underestimated by the LSRWA study.⁴

Under this scenario, Exelon would be responsible for achieving 20% of the 9.6 million pounds of N or **2.4 million pounds** and 20% of the 1.08 million pounds of P or **0.27 million pounds**. Again, these numbers are for illustration, but represent a logical, scientifically-based approach for estimating mitigation requirements for Exelon.

The most efficient and permanent practices are those that plant trees because of the land conversion factor and permanence on the landscape once complete. If impervious surfaces are converted to forest, the most

³ Lower Susquehanna River Watershed Assessment, Maryland and Pennsylvania, May 2015 Final. Found at: <http://dnr.maryland.gov/waters/bay/Pages/LSRWA/Final-Report.aspx>

⁴ LSRWA Modeling Review Final Report, Prepared for Earth Justice and Lower Susquehanna Riverkeeper by Paul Frank, P.E., August 25, 2017

efficient load reduction, then 207,253 acres would be needed for nitrogen and 148,351 acres for phosphorus. While less efficient, there's more opportunity to convert turf or highly erodible ag lands to forest. That scenario would require 287,735 acres for the nitrogen offset and 613,636 acres for the phosphorus offset. Using these two scenarios and the BMP cost per acre range of these practices from \$150 to \$300 per acre as reasonable boundaries for cost, the total offset would range between \$22.2 Million and \$184 Million. These calculations are derived from two Chesapeake Bay Program Draft reports and current Chesapeake Assessment Scenario Tool (CAST) BMP cost spreadsheets.⁵

If these land conversions are made early in the license term, the benefits will propagate through time as annual load reductions. Conversely, if offset contributions were applied to annual practices such as cover crops, the load reduction efficiency is much less and the benefit will cease at the end of the license term. CBF would discourage a cost-based offset approach that does not take permanence of load reduction into account.

A Chesapeake Stormwater Network report ⁶ is instructive for looking at opportunity. The top 4 counties in turf acreage in Pennsylvania (Lancaster, York, Dauphin and Luzerne) contain 350,413 acres of turf. If we are to consider that certain counties in Maryland also contribute loads to CB4MH and adjacent segments, we could include an additional 306,621 acres of opportunity from Harford, Baltimore and Anne Arundel Counties. Of course, the phasing of payments into an account for these BMPs and application of optimization tools for N and P effectiveness should also be encouraged.

CBF suggests an appropriate mechanism to manage the mitigation contribution of Exelon to the Chesapeake Bay Program Partnership effort and its distribution should be through a special account held for this purpose. This would allow the leveraging of additional private and public investments to offset loads attributed to the Conowingo Dam infill and lost capacity estimated by the Phase 6 Chesapeake Bay Model⁷. CBF would prefer that disbursements to this account be made annually through the timeframe of any approved Chesapeake Bay Partnership plan to address additional reductions due to Conowingo Dam infill.

At this time, given the extreme costs, risk of resuspension of adsorbed ammonia and limited utility in replacing lost sediment storage capacity, CBF is not recommending dredging of the Conowingo pond as a mitigation measure. Perhaps within an adaptive management framework as discussed below, the technology and markets will in the future be developed sufficiently for an innovative or beneficial use of dredged sediments from the pond to be cost-effective while protecting downstream water quality, but that is yet to be determined. In addition, the lack of a remedy for bypassing beneficial coarse sediment identified by some stakeholders is likely contributing to habitat degradation in the segment downstream of the dam to the mouth of the river. Future iterations of a sediment management plan that might include dredging of a sediment trap at the appropriate location within the reservoir should take into account the

⁵ Urban Tree Canopy Expansion and Urban Forestry Planting BMPs, DRAFT Fact Sheet, Chesapeake Bay Program

https://www.chesapeakebay.net/channel_files/23644/attach_c_utc_fact_sheet_draft_for_feedback.pdf

A Guide for Forestry Practices in the Chesapeake TMDL Phase III WIPs, Prepared by the Forestry Workgroup, Chesapeake Bay Program Office, DRAFT July 31, 2017

https://www.chesapeakebay.net/channel_files/24878/draft_forestry_bmp_info_packet_for_wip_iii.pdf

⁶ The Grass Crop of the Chesapeake Bay Watershed, Technical Bulletin #8: The Clipping Point, Chesapeake Stormwater Network, April 1, 2010

<http://chesapeakestormwater.net/2009/06/the-grass-crop-of-the-chesapeake-bay-watershed/>

⁷ Allocation of Conowingo Infill Nutrient and Sediment Loads: Comparing Cost Effectiveness in Different Phosphorus Load Allocation Scenarios Among Jurisdictional Partners, Chesapeake Bay Program, Revised 6/27/17

https://www.chesapeakebay.net/channel_files/24809/conowingocostofphosreductions_20170622_2.pdf

potential for separation and beneficial use of coarse sediments downstream, rather than sediments being sold for commercial purposes.

Downstream Beneficial Uses Need to be restored

As outlined by our Nature Conservancy colleagues, the Susquehanna River Basin Commission (SRBC), and others, Conowingo Dam's daily peaking operations have had a significant and unmitigated impact on the ecosystem of the lower River and Upper Chesapeake Bay. Modifying current operations to restore habitat quality and availability below the dam will be necessary to achieve designated uses under the requested license term. Dam operations impact aquatic resources of the non-tidal and tidal segments of the river⁸ and impacts may extend as far south as oyster aquaculture operations near Rock Hall.⁹

MDE must consider requiring Exelon to modify existing operations to provide meaningful restoration to downstream aquatic habitat for diadromous and resident fish, bivalves, macroinvertebrates, submerged aquatic vegetation and water quality. As documented in biological surveys and hydraulic habitat models, these communities are currently in fair to poor condition, or absent, below Conowingo Dam. CBF supports the proposed initial flow schedule shared by TNC and SRBC and an adaptive management plan, to manage flows to accommodate the myriad of designated uses of downstream segments and the economies on which they depend. To that end, CBF incorporates by reference the comments submitted by TNC to the extent they do not conflict with our own.

Evidence from TNC and CBF's submitted economic study by E3 suggest both the aforementioned nutrient load mitigation and operational changes are financially feasible while still maintaining profitability for Exelon.

Economic Study

An analysis was conducted by Energy + Environmental Economics, Inc. (E3) to estimate the range of market revenues for Conowingo Hydroelectric Dam, assuming it remains a merchant generator in the Mid-Atlantic electricity market, in order to inform how much economic "headroom" (i.e. "excess" profits available after a reasonable return on investment) exist to mitigate the Dam's incremental environmental and ecological impacts on the Bay.¹⁰ A copy of the study is attached to this comment letter.

For its analysis, E3 used publicly available information, including: historical river flows and monthly Conowingo generation data (the latter from SNL Energy); historic hourly flow and monthly generation data for a representative base case, and two additional operational/hourly flow scenarios from the Susquehanna River Basin Commission; market and price data from regional electricity transmission organization PJM; and financial information (market revenues and projections of capital and operating costs for Conowingo) from Exelon's 2011 and 2013 Conowingo relicensing filings with the Federal Energy Regulatory Commission.

To arrive at an unlevered internal rate of return (IRR), E3 researched fully merchant projects, and chose 10 percent as a reasonable target IRR, within a range shown from independent power producers. E3 examined average seasonal prices and dispatch for the dam, and the differences among the scenarios for

⁸ The Nature Conservancy's August 23rd letter and associated filings.

⁹ Since the public hearing, CBF has learned that freshwater flows from dam operations may even create prolonged freshets which could impair the designated uses of EASMH for oyster aquaculture operations as far south as Rock Hall (Scott Budden Orchard Point Oysters, personal communication).

¹⁰ Energy + Environmental Economics, Inc., "An Economic Analysis of the Conowingo Hydroelectric Generating Station," August 2017. It should be noted that some of these calculations are necessarily estimates, as Exelon does not make available proprietary data. In addition, compensation to Exelon through renewable energy markets was not explicitly assessed, although it could add value and revenues. It should also be noted that revenues for the dam have declined in recent years due to the suppression of energy market prices in PJM, and that the dam's total generation does vary significantly from year to year, which can change revenue estimates. Muddy Run's operations and economics were not included in this analysis, as the intent was to focus solely on Conowingo dam's operations and incremental economics.

average hourly prices and output by season. It then calculated total revenues for the base case and the two alternative scenarios and performed a *proforma* analysis to calculate the unlevered IRR and the annual headroom available, with the resulting headroom ranging from a low of \$27.1M to a high of \$44.1M.

Draft Conditions

In light of these recommendations, the WQC should at a minimum include the following or similar conditions:

- 1) Given the direct and proximate relationship between the operation of Conowingo Dam and deep pool, and the fact that the form and timing of nutrient pollution discharged through the Dam during certain storm events is altered by both residence and scour, and the fact that known accumulating sediments went unmanaged by Exelon for decades, and given that the result is a certain level of nonattainment of specific Maryland water quality standards in some segments of the deep channel below the dam which persist over a period of time, Exelon Corporation shall provide sufficient mitigation for the addition of such pollution. Such mitigation shall generally be accomplished in concert with that being undertaken or contributed to by the Chesapeake Bay Program partnership, as outlined by the Principals' Staff Committee of the Chesapeake Bay Program.¹¹
- 2) An average amount of increase in several Chesapeake Bay downstream segment(s)' nonattainment of dissolved oxygen standards, due to storm events at the dam, should be calculated with the Phase 6 watershed model and include future effects of climate change expected by 2050. Exelon's responsibility for contributing to this nonattainment should be based on up to date estimates of the contribution of scour during storm events to non-attainment. Then as illustrated above this number should be translated to annual pounds of nitrogen and phosphorus and cost estimates to achieve these reductions.
- 3) Such mitigation shall be annually deposited into an account to be managed and directed by a neutral third-party funds administrator into grants for the purpose of reducing sediment and nutrient inputs into the Susquehanna by upstream land uses such as agriculture. The locations, specific grantees, and best management practices so supported shall be chosen by the fund manager for their benefit/cost-efficiency and relative ease of implementation. The account shall be used to collect and distribute both public sector and private investments to offset pollution loads attributable to the Conowingo Dam infill and lost capacity estimated by the Phase 6 Chesapeake Bay Model.
- 4) Exelon shall manage flow so as to restore downstream beneficial uses which have been and continue to be heavily impacted by the current highly unnatural flow regime utilized at the dam. Changes required include implementation of the proposed initial flow schedule shared by TNC and SRBC and implementing an adaptive management plan to ensure that operational changes result in meaningful restoration of diadromous fish, mussels, SAV and related aquatic communities and downstream water quality conditions, to achieve designated uses.

A recommended adaptive management condition follows below.

Adaptive Management Condition

Since the current FERC operating license will be in place for the next 37 years, and since various conditions are very likely to change over that timeframe (e.g., modeled or monitored pollution flows and downstream impacts, the frequency and severity of adverse weather events due to climate change, changing nutrient and sediment pollution management practices and technologies, data on fish/habitat, and the financials of dam management) this Water Quality Certification should have a mechanism or framework for adaptive management. The following constitutes our outline of that framework.

- 1) In addition to meeting the WQC's conditions for flow and habitat, fish passage, and water quality, set out in this WQC, financial resources provided as mitigation by Exelon shall also be used to contribute

¹¹https://www.chesapeakebay.net/channel_files/25523/draft_conowingo_wip_framework_december_19_to_psc.pdf

to ongoing monitoring and research so that such WQC conditions may be amended, as changes in modeled or monitored pollutant flows, the frequency and severity of adverse weather events due to climate change, and changing nutrient and sediment pollution management practices and technologies occur, and as new information about nutrient changes in the pond, downstream impacts, and healthy fisheries is developed over the life of the operating license.

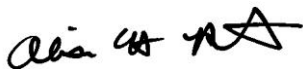
- 2) Every seven years until the operating license expires or is reissued for this facility in 2055, there shall be convened by Maryland Department of the Environment (MDE) or its successor agency a combined expert and stakeholder panel to consider the changes in flows, pollution loads, downstream impacts, fish and habitat data, and technology noted above, as such information is collected from monitoring and modeling, or new studies or circumstances provide new relevant operating, financial, environmental, or technical information. A potential turning point for such information may be 2030 to consider the effects of any flow changes affected by other licenses such as Muddy Run upstream. The panel will meet and make recommendations for altering any of the conditions specified in this Certificate according to its best professional judgement.

The expert and stakeholder panel shall be comprised of such regional NGO, state agency, federal agency, and academic experts, as well as interested stakeholders and Exelon's representatives, with demonstrated expertise and continuing interest in water quality and the Chesapeake Bay Total Maximum Daily Load (TMDL), climate change, best management practices for point and nonpoint source pollution control, fish passage, flow management and habitat, and hydropower management, as MDE shall appoint at each seven-year increment.

- 3) At each seven-year increment, MDE shall consider the recommendations of the expert and stakeholder panel, and after public notice and hearing, shall make whatever changes to the WQC's conditions it deems necessary and appropriate. Such changes shall be in effect until the next seven-year evaluation.

Again, the Chesapeake Bay Foundation and its 240,000 members throughout the watershed are depending on a prudent and swift decision on firm water quality certification conditions by MDE so that development of the Phase III Watershed Implementation Plans for completing the Bay TMDL and any additional TMDL for implementing the Conowingo Watershed Plan will ensure that Maryland's Water Quality Standards and Designated Uses of the Lower Susquehanna and Chesapeake Bay are met once again.

Sincerely,



Alison H. Prost, Esq.,
Maryland Executive Director
Interim Vice President of Environmental Protection and Restoration
Chesapeake Bay Foundation

Executive Summary

An Economic Analysis of the Conowingo Hydroelectric Generating Stations

Prepared for: Water Power Law Group

An analysis was conducted by Energy and Environmental Economics, Inc. (E3) to estimate the range of market revenues for Conowingo Hydropower Dam, assuming it remains a merchant generator in the Mid-Atlantic electricity market, in order to inform how much economic headroom (i.e., excess profits) exists to mitigate the incremental impacts of the Dam's continued operation on ecological resources of the Susquehanna River and Chesapeake Bay. The analysis focused on identifying market revenue estimates for the project, costs associated with owning and operating the project, how benefits and costs change under different operational scenarios and how much economic headroom is potentially available.

E3 used publicly available information including river flow information and market data from PJM, the regional electricity transmission organization in the Mid-Atlantic, to develop estimates for electricity generation and associated market revenues for a variety of operational scenarios. E3 estimated economic headroom through financial *proforma* modeling.

Estimates for the total revenues for Conowingo range between \$115 million to \$121 million annually. Estimates for available headroom---after a 10% rate of return--- ranged from \$27 million to \$44 million annually depending on the operational scenario and climate conditions, as well as the range of revenue estimates. These values translate to a present value capital investment that could be used towards mitigation efforts of at least \$268 million (real 2008 \$).

The estimates of revenues and headroom, did not include the following sensitivities. First, compensation through renewable energy markets, for example a Renewable Energy Credit (REC) payment that the project could potentially be eligible for if it were able to get certified as an eligible resource, was not explicitly assessed. This additional value stream could potentially increase the revenues Conowingo could earn over the term of their requested license. Based on preliminary estimates, the REC payment necessary to offset revenue losses is within range of REC market values. Secondly, it is likely that revenues for Conowingo have declined in recent years due to the suppression of energy market prices in PJM. In addition, the total generation from Conowingo seems to vary significantly from year to year, which may change the revenue estimates for the project. Finally, this analysis does not include the operations or economics of Muddy Run pumped storage, rather it focused on the incremental economics of Conowingo dam. The operations and combined economics of the projects were filed with FERC.



An Economic Analysis of the Conowingo Hydroelectric Generating Station

Prepared for: Water Power Law Group

Final: August 8th, 2017

Attorney-Client Work Product, Privileged and Confidential



Energy+Environmental Economics

An Economic Analysis of the Conowingo Hydroelectric Generating Station

Prepared for: Water Power Law Group

Final: August 8th, 2017

Attorney-Client Work Product, Privileged and Confidential

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1 Background

Energy and Environmental Economics, Inc. (E3) was retained by the Water and Power Law Group PC (“WPLG” or “client”) to perform an economic analysis of the Conowingo Hydroelectric Generating Station (“Conowingo” or “Project”), which is wholly owned and operated by Exelon Corporation. The project is a 570 MW hydroelectric peaking plant located on the Susquehanna River in northern Maryland.¹

The purpose of this analysis is to provide an estimation of the range of market revenues for Conowingo assuming it remains a merchant generator in the PJM market². This analysis has been performed to help WPLG, The Nature Conservancy and the Chesapeake Bay Foundation develop a more informed strategy associated with Exelon’s relicensing process for the Project with the Federal Energy Regulatory Commission (FERC) and Maryland regulatory agencies. Ultimately, the economic valuation can be used to inform how much economic headroom exists to support Exelon’s investment in mitigating its effects on ecological resources of the Susquehanna River and Chesapeake Bay.

We address the following questions with this report:

- + What are the market revenue estimates for the project?
- + What are the costs associated with owning and operating the project?
- + How do these benefits and costs change under different operational scenarios?
- + How much headroom is potentially available for mitigation efforts in the Susquehanna River and Chesapeake Bay?

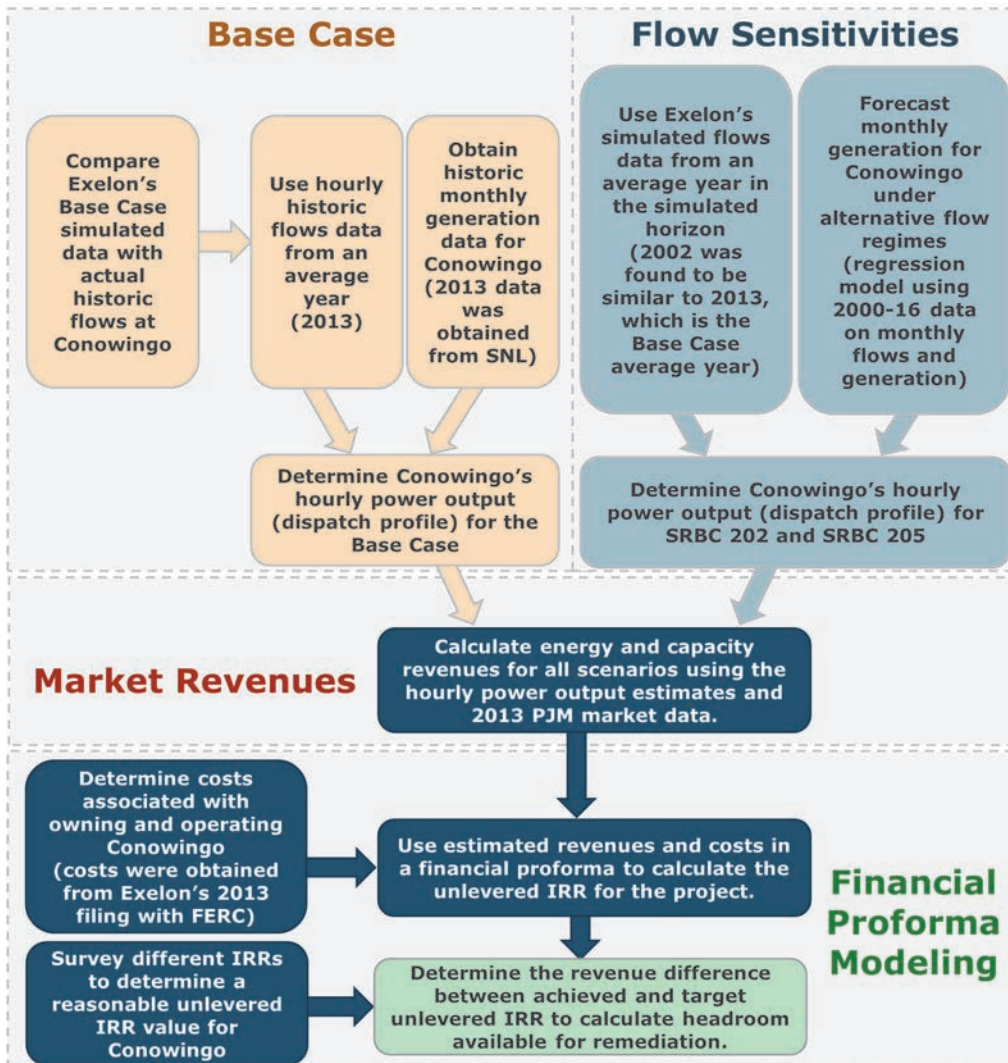
¹ More details can be found on Exelon’s website: <http://www.exeloncorp.com/locations/power-plants/conowingo-hydroelectric-generating-station>

² PJM Interconnection is a regional transmission organization (RTO) responsible for maintaining wholesale electricity markets for energy, capacity and ancillary services in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. More details can be found here: <http://www.pjm.com/about-pjm/who-we-are.aspx>

2 Analysis Approach

The inputs and methodology used in the analysis are described in detail in sections 2.1 and 2.2 respectively. For the analysis, E3 used available flows and PJM market data, and developed estimates for hourly Conowingo generation and associated market revenues for the Base Case as well as the flow scenarios. An overview of the analysis is shown in Figure 1.

Figure 1: Analysis overview for the Base Case as well as the flow scenarios.



2.1 Input Data, Assumptions and Limitations

2.1.1 INPUTS

In order to identify which year to use for the Base Case, E3 analyzed PJM market prices, USGS flows at Conowingo, and historic generation levels for the project. Table 1 shows the values for the parameters used to identify an ‘average’ year for the Base Case. Even though annual average flows at Conowingo are closer to the period average in 2010 and 2014, E3 picked 2013 as an average year due to the annual average day ahead LMP and total annual generation at Conowingo being close to the period average.

Table 1: Base Case Selection - 2013 flows, prices, and generation approximate the average values in the 2010-2016 period.

Year	Annual Average Day Ahead LMP ³ (\$/MWh)	Annual Average Flows (cfs)	Total Annual Generation (MWh)
2010	49	35,528	1,645,359
2011	45	72,090	2,518,452
2012	33	31,697	1,639,132
2013	38	33,351	1,699,398
2014	52	34,927	1,594,647
2015	32	30,909	1,597,488
2016	23	27,295	1,369,003
Average 2010-16	39	37,971	1,723,354

Table 2 summarizes the data used for the analysis, and the corresponding sources, for the Base Case and the two sensitivity scenarios.

³ (LMP) Locational marginal pricing

Table 2: Key data inputs and a description of data sources.

Key Inputs	Base Case	SRBC 202	SRBC 205
Flows: Flows at Conowingo	Historic hourly flows for 2013 from United States Geological Survey (USGS)	2002 SRBC 202 hourly flows simulated by Exelon (provided to E3 by the Nature Conservancy)	2002 SRBC 205 hourly flows simulated by Exelon (provided to E3 by the Nature Conservancy)
Power Production: Monthly generation	Historic 2013 monthly generation data obtained from SNL Energy	Forecasted from 2002 cumulative monthly flows simulated by Exelon for SRBC 202	Forecasted from 2002 cumulative monthly flows simulated by Exelon for SRBC 205
Generation profile: Hourly power production	Calculated by E3 using hourly to monthly flow ratios to allocate 2013 historic monthly generation	Calculated by E3 using hourly to monthly flow ratios to allocate forecasted 2002 SRBC 202 monthly generation	Calculated by E3 using hourly to monthly flow ratios to allocate forecasted 2002 SRBC 205 monthly generation
Market data: PJM energy and capacity market data	2013 historic PJM market data used across all flow scenarios <ul style="list-style-type: none"> - Hourly energy prices - Seasonal capacity prices 		

2.1.2 ASSUMPTIONS AND LIMITATIONS.

It is important to note that Exelon operates Conowingo and Muddy Run, which is a pumped hydro storage facility upstream of Conowingo, as a coordinated facility. Conowingo pond provides the after bay for generation at Muddy Run. For the purpose of this analysis, E3 has focused on Conowingo only, and assumed Muddy Run's impacts

on Conowingo operations are captured in historic operations data, as well as Exelon's simulated data for the alternative flow regimes (SRBC 202 and SRBC 205).

In addition, energy prices and flow regimes for a Base Year (2013) were assumed to be constant for the study horizon. Changes to either would change the valuation results, but the examination of those sensitivities is outside of the scope of the analysis.

2.2 Methodology Description

In order to address the four study questions, E3 utilized a combination of publicly available data published market and hydro flow data, and generation data developed by Exelon and provided by The Nature Conservancy. E3 analyzed three scenarios, described in more detail below.

E3's methodology included the following steps for each scenario:

1. Determining flows at Conowingo
2. Developing Conowingo dispatch profile
3. Estimating market revenues
4. Estimating target and achieved unlevered IRR
5. Calculating annual and upfront capital available for mitigation

These steps are described in detail below.

2.2.1 STEP 1: DETERMINING FLOWS AT CONOWINGO

2.2.1.1 *Overview of Operational Scenarios*

For this study, the economics of Conowingo dam were estimated using three operational scenarios; the base case scenario and two potential future scenarios that were developed and proposed by stakeholders through the FERC re-licensing process.⁴ A description of each scenario is included in Table 3 and the operational parameters for each scenario are included in Appendix 5.2. The scenarios are approximations based on best available data, therefore each has limitations in its ability to simulate future conditions.

⁴ TNC MOI 2015.

Scenario Name		Description
The Base Case		Current operations with primary goal of maximizing revenue. This does not include moderate increases to minimum flow releases proposed by Exelon in their recent CWA 401 application.
Alternative Flow Regimes	SRBC 202	Potential future operations to restore up to 50% of maximum available habitat. Includes higher minimum releases, a capped maximum generation flow during key spawning and reproductive months and a guided rate of change.
	SRBC 205	Potential future operations, similar to SRBC 202, but include run-of-river operations during spring to improve migratory fish habitat. It is hypothesized that this level of mitigation may make the facility eligible for compensation under renewable energy markets. ⁵

The Base Case was developed using data from a year representative of average PJM market prices, average Conowingo flows, and average annual power generation at the dam. The client was also interested in understanding the impact of alternative flow regimes at Conowingo on the revenues, and consequently the available headroom. The alternative flow regimes analyzed were SRBC 202 and SRBC 205. SRBC 202 is an alternative flow regime proposed by a group of stakeholders in the relicensing proceeding of Conowingo in Maryland, provided to E3 by The Nature Conservancy.

Base Case Flows: Benchmarking Exelon’s simulated flows

⁵ It is noted that this is hypothetical. In order to be eligible for RPS in Pennsylvania, the facility requires Low Impact Hydropower Institute certification. LIHI certification requires the applicant to meet eight criteria including ecological flows and fish passage.

For the Base Case, E3 compared historic flows data from an average year obtained from the United States Geological Survey (USGS) website to Exelon’s Base Case hydro simulation. With this verification analysis, E3 confirmed that currently, Exelon operates Conowingo in a manner consistent with its Base Case hydro flow simulation.⁶ For the verification analysis E3 compared the hourly USGS flows to Exelon’s simulated hourly flows for the Base Case. The datasets had overlap for the October 2007 to December 2007 period.

Figure 2: Benchmarking hourly average Exelon and USGS flows at Conowingo – October 2007 to December 2007.

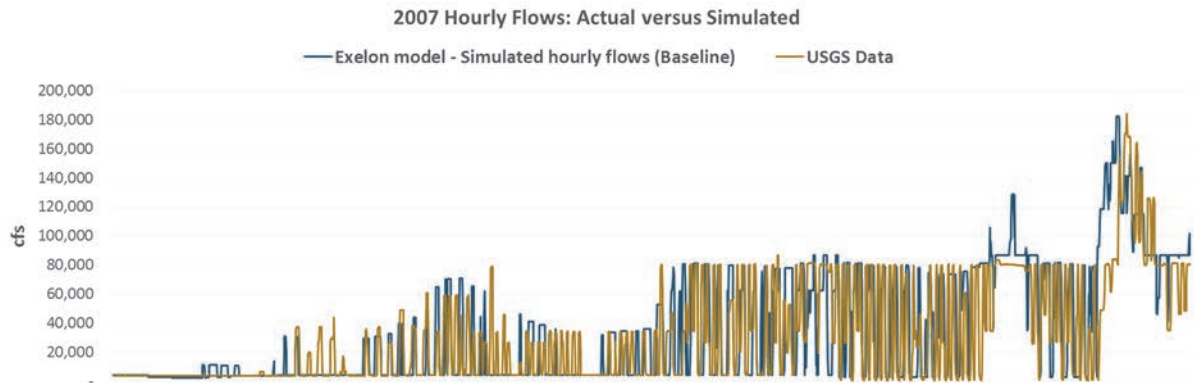
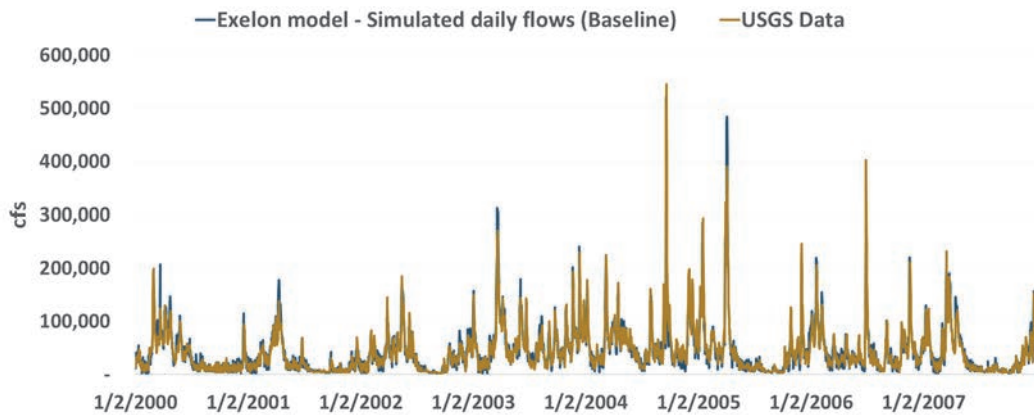


Figure 3: Benchmarking daily average Exelon and USGS flows at Conowingo – 2000 to 2007.

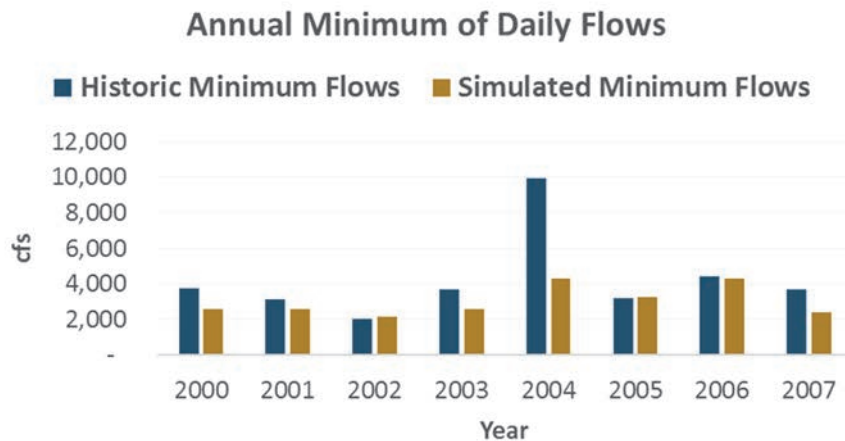


⁶ Historical flows data was obtained from USGS: <https://waterdata.usgs.gov/usa/nwis/uv?01578310>

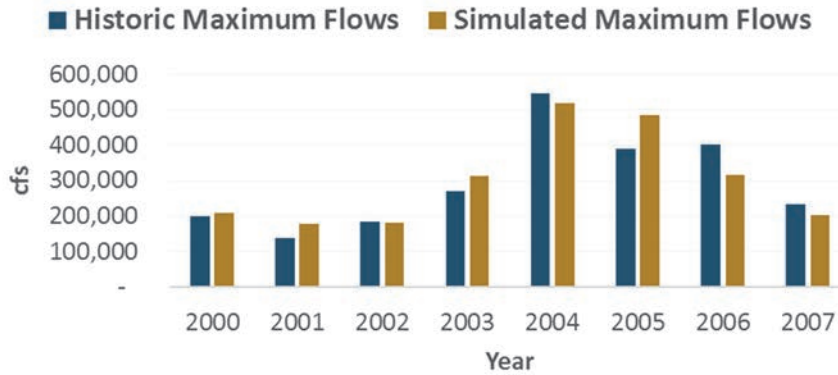
In addition to comparing the flows at the hourly time step, E3 also verified that the historical daily flows were similar to the Base Case daily flows simulated by Exelon. As seen in Figures 2 and 3, Exelon’s simulated daily flows in the 2000-2007 timeframe match historically observed data from USGS. Given the similarity in actual and simulated flows, E3 utilized actual flows from 2013 to estimate Conowingo’s dispatch profile.

Figure 4 show the comparison between annual minimum, maximum and average flows for the 2000-2007 time horizon.

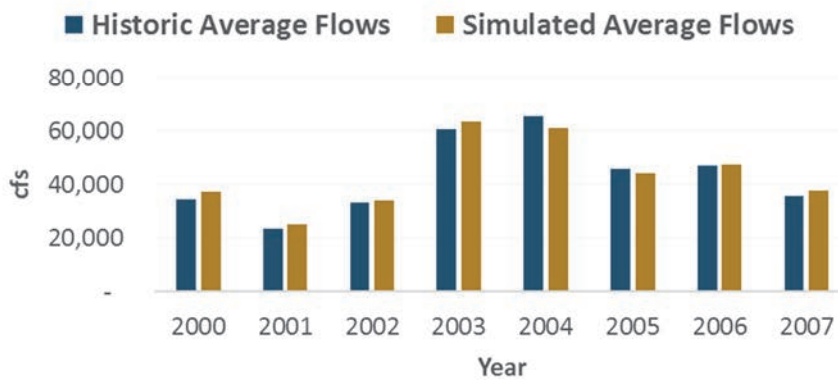
Figure 4: Comparison of historic and simulated annual daily minimum, maximum and average Conowingo flows.



Annual Maximum of Daily Flows



Annual Average of Daily Flows



The comparison of hourly flows by month and daily flows by year can be found in Appendix B.

2.2.1.2 Alternative flow scenarios: SRBC 202 and SRBC 205

For the alternative flow scenarios (SRBC 202 and SRBC 205), E3 used flows data simulated by Exelon,⁷ and provided to E3 by The Nature Conservancy. The simulated data was available for the 1967-2007 period. In order to keep the scenario analysis consistent with the Base Case year assumptions, E3 tried to identify a year in the simulation period with flows closely resembling 2013 flows for Conowingo.

⁷ The Nature Conservancy provided E3 with data simulated by Exelon for Conowingo flows under different regimes

After comparing the annual minimum, maximum and average flows levels, E3 concluded that year 2002 has similar hydrological conditions at Conowingo to year 2013. E3 also compared the flow duration curves of daily flows, which are the daily flows for the years sorted from the highest to lowest values, for the two years. The comparison is shown in Figure 5.

Table 3 shows the minimum, maximum, average and total flows for the 1980-2007 horizon, and how the values for each of those years compare to the Base Case average year 2013. Figure 3 shows the comparison of the flow duration curves for the year selected from the simulation period (2002) and the Base Case average year (2013).

Table 3: Comparison of flows in the 1980 – 2007 time horizon to the Base Case average year 2013 (target year shown in green in the table).

	Baseline flows		Baseline flows	Baseline flows	Difference from target year	Difference from target year	Difference from target year	Difference from target year
	Minimum	Maximum	Average	Total	Minimum	Maximum	Average	Total
2013	3,680	192,000	33,351	12,173,220	-	-	-	-
1980	719	215,000	28,430	10,405,422	(2,961)	23,000	(4,921)	(1,767,798)
1981	726	301,000	30,358	11,080,514	(2,954)	109,000	(2,994)	(1,092,706)
1982	781	211,000	34,619	12,635,852	(2,899)	19,000	1,267	462,632
1983	848	357,000	41,928	15,303,806	(2,832)	165,000	8,577	3,130,586
1984	798	470,000	49,779	18,219,256	(2,882)	278,000	16,428	6,046,036
1985	821	165,000	30,469	11,121,262	(2,859)	(27,000)	(2,882)	(1,051,958)
1986	938	361,000	41,242	15,053,248	(2,742)	169,000	7,890	2,880,028
1987	893	236,000	32,263	11,776,040	(2,787)	44,000	(1,088)	(397,180)
1988	2,260	184,000	27,159	9,940,180	(1,420)	(8,000)	(6,192)	(2,233,040)
1989	2,900	232,000	39,859	14,548,460	(780)	40,000	6,508	2,375,240
1990	4,270	215,000	48,311	17,633,450	590	23,000	14,960	5,460,230
1991	3,810	199,000	29,665	10,827,810	130	7,000	(3,686)	(1,345,410)
1992	1,730	163,000	35,497	12,991,830	(1,950)	(29,000)	2,146	818,610
1993	4,120	467,000	52,476	19,153,600	440	275,000	19,124	6,980,380
1994	2,560	358,000	51,700	18,870,530	(1,120)	166,000	18,349	6,697,310
1995	2,770	174,000	27,972	10,209,960	(910)	(18,000)	(5,379)	(1,963,260)
1996	5,270	622,000	63,467	23,228,860	1,590	430,000	30,116	11,055,640
1997	3,620	118,000	29,705	10,842,380	(60)	(74,000)	(3,646)	(1,330,840)
1998	1,550	332,000	41,327	15,084,440	(2,130)	140,000	7,976	2,911,220
1999	2,110	222,000	26,831	9,793,150	(1,570)	30,000	(6,521)	(2,380,070)
2000	3,760	199,000	34,350	12,572,060	80	7,000	999	398,840
2001	3,100	138,000	23,560	8,599,260	(580)	(54,000)	(9,792)	(3,573,960)
2002	1,990	185,000	33,386	12,185,850	(1,690)	(7,000)	35	12,630
2003	3,680	271,000	60,681	22,148,730	-	79,000	27,330	9,975,510
2004	9,910	545,000	65,536	23,986,310	6,230	353,000	32,185	11,813,090
2005	3,200	390,000	45,805	16,718,950	(480)	198,000	12,454	4,545,730
2006	4,400	403,000	47,075	17,182,500	720	211,000	13,724	5,009,280
2007	3,660	232,000	35,618	13,000,610	(20)	40,000	2,267	827,390

Figure 5: 2002 and 2013 flow duration curves (log scale).

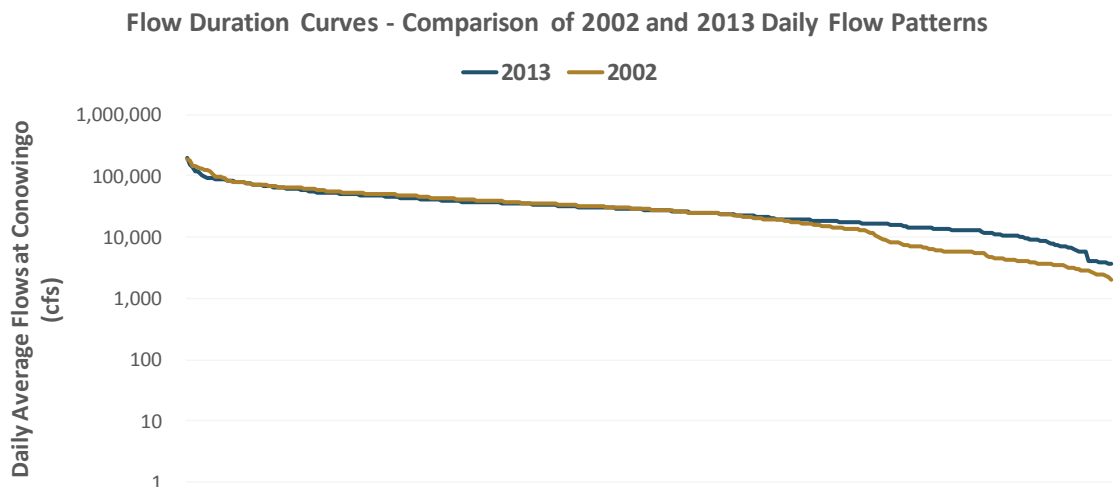


Figure 5 shows that the flows on the lower end are much lower in 2002 than in 2013. However, relative to the other years in the 1980 – 2007 sample, 2002 has mean, minimum, maximum as well as total cumulative flows closest to 2013, which is the Base Case year. All other years have cumulative annual flows, minimum flows and/or maximum flows that are considerably more different from 2013 than 2002 is.

The selection of 2002 as the analysis year for the flow scenarios implies that E3 estimates for total annual generation, as well as corresponding revenues for Conowingo under SRBC 202 and SRBC 205 are likely underestimated.

2.2.2 STEP 2: DEVELOPING HOURLY CONOWINGO DISPATCH PROFILE

Once the flows for the Base Case, SRBC 202 and SRBC 205 were obtained, E3 developed generation data associated with these flow regimes. For the Base Case, E3 was able to utilize historic data on Conowingo’s monthly power output obtained from SNL energy, given that historic generation at Conowingo is consistent with the Base Case generation profile.⁸ For determination of the generation associated with SRBC 202 and SRBC 205, E3 developed a regression model that utilized historic relationships between monthly cumulative flows and monthly power output. Using the regression model, E3 was able to predict what Conowingo’s monthly generation would be for the SRBC 202 and SRBC 205 regimes by using Exelon’s simulated data for the monthly flows associated with those two operational regimes.⁹

2.2.2.1 Base Case

E3 obtained monthly generation data from SNL. No hourly generation was available for Conowingo. To estimate power output from flows, E3 used the following formula:

⁸Can be downloaded at: https://www.snl.com/web/client?auth=inherit#powerplant/PP_GenerationChart?ID=2487

⁹Please see Appendix 5.3

Equation 1: Determining the hourly power output from monthly power generation, hourly flows, and cumulative monthly flows.

$$\text{Hourly power generation} = \text{Monthly power generation} \times (\text{Hourly flows} / \text{Monthly flows})$$

E3 allocated the total historic monthly generation in 2013 to each hour consistent with how total monthly flows were allocated to the hours of the month. This implies that the relationship between flows and power generation is linear, which is a simplifying assumption made for this analysis.

For some hours, using this allocation resulted in power generation that exceeded the project's nameplate capacity. For those hours, the generation was capped at the maximum power output of the project (nameplate capacity), and the difference between the estimated generation and maximum possible generation in each hour was assumed to be compensated at the average annual on-peak energy price.

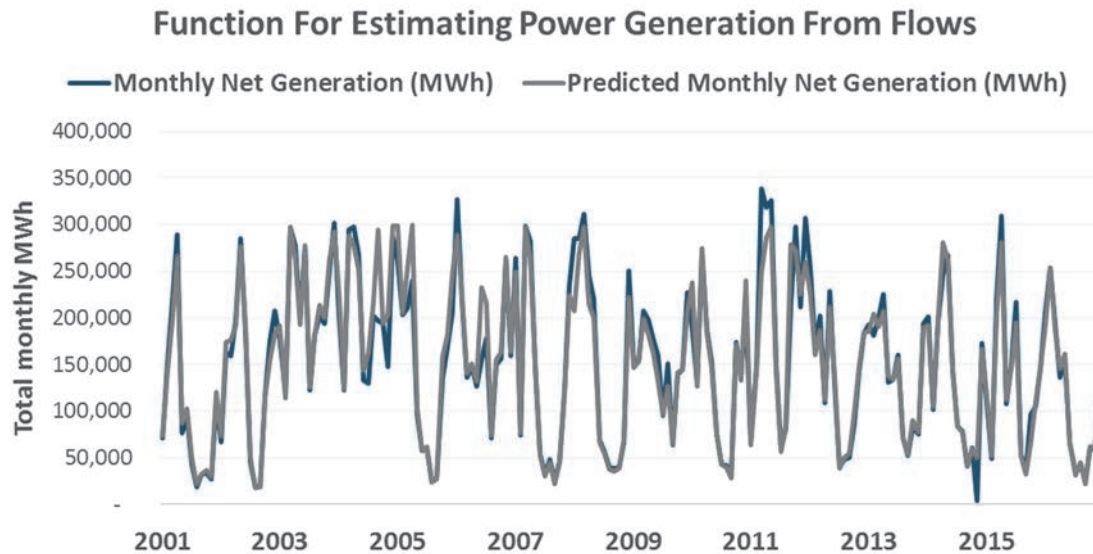
2.2.2.2 Stakeholder Scenarios (SRBC 202 and SRBC 205)

E3 could not use historic power generation at Conowingo for analyzing SRBC 202 and SRBC 205 as flow regimes, because current operations at Conowingo are different from those two regimes. To estimate generation for the SRBC 202 and SRBC 205 flow regimes, E3 developed a regression model¹⁰ to establish the relationship between cumulative monthly flows and total monthly generation. E3 used 2001 to 2016 historic monthly flows and generation data to develop the model due to Conowingo historic generation data only being available from 2001¹¹. Using the relationship established with this simple model, E3 estimated what the monthly power generation for the 2002 simulated year would be, under the SRBC 202 and SRBC 205 operational regimes, by utilizing the monthly cumulative flows provided by Exelon for the two regimes.

¹⁰ Specifications of the model can be found in the Appendix.

¹¹ SNL data for monthly generation at Conowingo only begins in 2001.

Figure 6: Regression model prediction of monthly flows and actual monthly flows for the 2001-2016 time frame.



E3 compared the estimates from this regression model to Exelon’s estimates of the changes in power generation relative to the Base Case for each of these flow scenarios.

For both the sensitivity analyses, E3 used the same methodology for allocating the monthly total generation to create an hourly profile described in Equation 1.

2.2.3 STEP 3: ESTIMATING MARKET REVENUES

Using the estimated dispatch profile for the project, E3 calculated the energy market revenues by multiplying the hourly estimated power output for the different flow regimes (Base Case, SRBC 202, and SRBC 205) and the average year’s (2013) hourly day-ahead energy market prices.

In addition, E3 calculated the potential capacity revenues in PJM that could be earned by Conowingo by multiplying the project’s unforced capacity value (UCAP) by the average year’s seasonal capacity prices posted by PJM. These were assumed to be constant across all the flow regimes.

For ancillary services revenues, E3 used the values filed by Exelon in 2013 to develop revenue estimates the project could potentially earn in the ancillary service markets for the Base Case. E3 decreased the Base Case ancillary services revenues proportionally to the decline in energy revenues for the SRBC 202 and SRBC 205 flow regimes.

For SRBC 205, E3 estimated the REC price that would be needed for the lost energy and ancillary service revenues due to more constrained operations to be compensated for through the REC markets, i.e. E3 calculated the REC payment that would be needed per MWh of energy generated to make up for the lost PJM market revenues.

For this, E3 calculated the expected revenue losses for SRBC 205 relative to the Base Case, and divided them by the expected change in generation. E3 calculated the implied REC price for Exelon to be indifferent between the Base Case and SRBC 205 using both E3 modeled revenue losses and change in generation, as well as those filed by Exelon and provided by The Nature Conservancy.

2.2.4 STEP 4: ESTIMATING TARGET AND ACHIEVED UNLEVERED IRR

Using the estimated market revenues, and projections of the capital and operating costs associated with owning and operating of Conowingo filed by Exelon with FERC, E3 calculated the 46-year unlevered Internal Rate of Return (IRR) for the project under different flow regimes. We utilized the unlevered IRR metric because return on equity is driven by the amount of debt in the capital structure.

2.2.4.1 Financing Costs

E3 developed a financial proforma model to estimate the unlevered after-tax IRR for Conowingo. To estimate annual capital and operating costs, E3 used Exelon's 2011 and 2013 FERC filings, which had values for annual operations and maintenance costs (O&M), property taxes, capital expenditures, relicensing fees, as well as costs associated with any protection, mitigation and enhancement measures (PM&E). The O&M costs (including O&M associated with environmental measures), and property taxes are assumed to be incurred on an annual basis, whereas the estimated acquisition cost is a one time cost. The estimates for costs associated with the 2016

Fish Passage Settlement Agreement are assumed to be reflected in the annual ongoing PM&E capital expenditures. A summary of the costs can be found in Table 4.

E3 calculated the after-tax unlevered IRR using these cost assumptions, and the revenues for each scenario. Exelon acquired Conowingo in 2008, and is requesting a renewed license to operate the asset through 2055. For calculation of the IRRs, E3 assumed that the revenues stayed constant in each scenario for the 2008 – 2055 time frame.

Table 4: Capital and operating costs from Exelon’s 2011 and 2013 FERC filings.

Component	Value
O&M costs	\$16M (escalated at 2%)
Property taxes	\$3.8M
Estimated 2008 acquisition cost	\$281.7M
Annual ongoing capital expenditures	\$15.7M
Relicensing costs	\$15M
PM&E O&M costs	\$55M
PM&E capital costs	\$5.4M

2.2.4.2 Determining a reasonable target IRR

E3 compared the unlevered IRR achieved for the different flow regimes to what a reasonable unlevered IRR for the project would be. A reasonable IRR provides Exelon with an unlevered, after-tax return commensurate with the risk it bears owning and operating Conowingo. If Conowingo were fully contracted, the unlevered after-tax IRR should be priced greater than the off-taker’s weighted average cost of capital (WACC). For instance, Potomac Electric’s WACC is currently

8.01%.¹² However, Conowingo, as a fully merchant project in PJM, bears energy and capacity market risk, so the expected return would need to be higher than 8%.

E3 researched appropriate rates of return for a fully merchant project and found two potentially appropriate benchmarks. The benchmarks were used to estimate an after-tax IRR that would be reasonable for Conowingo, and compensate Exelon appropriately for the risk associated with Conowingo. The California State Board of Equalization's 2017 capitalization rate study, which is used to assess property taxes, recommends IRRs of 11.2% to 12.8%.¹³ This range is based on analysis of independent power producers that hold a mix of contracted and merchant generation assets (Calpine, AES, NRG Energy, Dynegy) and diversified electric utilities (Xcel Energy, Duke Energy, NextEra Energy). A Brattle report prepared in 2014 for 2018 online dates recommends an 8% after-tax IRR in PJM.¹⁴

Given this range, E3 determined 10% to be a reasonable target IRR.

2.2.5 STEP 5: CALCULATING ANNUAL AND UPFRONT CAPITAL AVAILABLE FOR REMEDIATION

2.2.5.1 Annual Headroom Available

E3 utilized the proforma model to determine what level of annual revenues would provide a 10% unlevered IRR for Conowingo. After determining this revenue level, E3 calculated the annual headroom available for remediation to be the difference between these target revenues and Base Case revenues estimated as described in section 2.2.3.

¹² Can be found on Exelon's investor relations webpage: <http://www.exeloncorp.com/investor-relations/recent-rate-cases>

¹³ <https://www.boe.ca.gov/proptaxes/pdf/2017capratestudy.pdf>

¹⁴ The report can be downloaded at:

http://www.brattle.com/system/publications/pdfs/000/005/010/original/Cost_of_New_Entry_Estimates_for_Combustion_Turbine_and_Combined_Cycle_Plants_in_PJM.pdf?1400252453

2.2.5.2 Upfront Capital Available

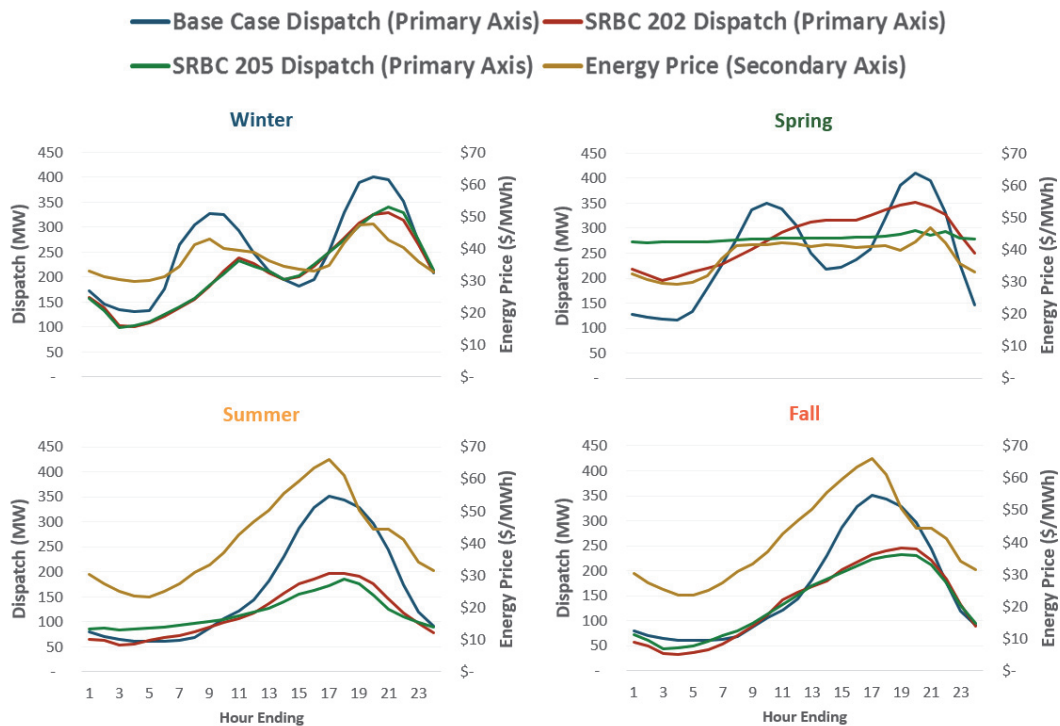
After calculating the annual headroom available for remediation by using the methodology described in section 2.2.5.1, E3 estimated the upfront capital available for remediation as the present value (10%) of the annual headroom stream for the 2008-55 period.

3 Results

3.1 Conowingo Hourly Dispatch

Using the approach described in section 2.2.2., E3 estimated the operations of Conowingo. In general, the project’s dispatch seems to be correlated with energy prices in the Base Case, except in the spring. Under the Base Case, the Project is likely more constrained in its operations in the spring due to higher seasonal run-off. For the stakeholder alternatives (SRBC 202 and SRBC 205), in the spring, the project is constrained in its peaking ability; SRBC 202 includes higher minimum flows, maximum flows and ramping rates and SRBC 205 is instantaneous run-of-river in the Spring.

Figure 7: 2013 Average seasonal prices and dispatch for Conowingo. Figure represents average of hourly prices and estimated hourly power output for all the months in the season.



3.2 Market Revenues

Using the methodology described in Section 2, E3 calculated the total revenues from Conowingo in the Base Case to be \$121 million annually. These estimates are higher than Exelon’s 2013 FERC filings by \$11.5 million, but in the same overall range, with the exception of capacity market revenues. The breakdown of the different revenue components, and how they compare to Exelon’s filing is summarized in Table 5.

For SRBC 202 and SRBC 205, E3 estimated the annual revenues to be \$116 million and \$115 million respectively. These values do not include the revenues that Conowingo could make by selling into the REC market. E3 calculated the implied REC price, i.e. the value per MWh of Conowingo’s generation if it were certified as a REC resource, that would be needed in the SRBC 205 scenario for Exelon to be indifferent between the Base Case operations and the SRBC 205 flow regime. E3 calculated the implied REC price using both E3 modeled revenue losses and change in generation, as well as Exelon’s estimates. Exelon’s revenue loss estimates include the losses for Muddy Run, and would be lower for Conowingo. Therefore, the implied REC price by using Exelon’s filings is likely overestimated if only Conowingo is taken into consideration.

Table 5: Comparison of E3 estimates and Exelon 2013 filing for different components of PJM market revenues

Base Case			
Revenue Source	E3 Model Estimates	Exelon 2013 FERC Filing	Difference (E3 Estimates – FERC Filing)
Energy	\$70M	\$68M	\$2.6M
Capacity ¹⁵	\$51M	\$42M	\$8.7M

¹⁵ Exelon uses 2013 calendar year to calculate PJM’s capacity prices, whereas E3 uses the capacity prices from the 2013-2014 capacity year.

Ancillary Services	\$0.4M	\$0.4M	-
Total Revenues (\$)	\$121M	\$110M	\$11M
Generation (MWh)	1,699,398	1,669,000	30,398
Total Revenues (\$/MWh)	\$71	\$66	\$5

Similarly, E3 compared its estimates for the flow scenarios to the values filed in 2013 by Exelon, which are for both Conowingo and Muddy Run, and are therefore likely lower for Conowingo alone. The results are summarized in Table 6.

Table 6: Comparison of E3 estimates and Exelon’s revenue estimates under alternative flow regimes (SRBC 202 and SRBC 205).

SRBC 202			
Revenue Source	E3 Model Estimates	Exelon 2013 FERC Filing ¹⁶	Difference (E3 Estimates – FERC Filing)
Energy	\$64M		
Capacity	\$51M		
Ancillary Services	\$0.4M		
Total Revenues (\$)	\$116M	\$108M	\$8M
Generation (MWh)	1,640,009	1,678,000	(37,991)

¹⁶ Exelon simulated data has changes in total generation and revenues, but they were not broken out by component.

Total Revenues (\$/MWh)	\$71	\$64	\$6
SRBC 205			
Revenue Source	E3 Model Estimates	Exelon 2013 FERC Filing ¹⁷	Difference (E3 Estimates – FERC Filing)
Energy	\$64M		
Capacity	\$51M		
Ancillary Services	\$0.4M		
Total Revenues (\$)	\$115M	\$105M	\$10M
Generation (MWh)	1,652,373	1,701,000	(48,627)
Total Revenues (\$/MWh)	\$69	\$62	\$8

In addition, the REC prices needed for the revenues in the SRBC 205 flow scenario to be the same as the Base Case are summarized in Table 7. Therefore, if Conowingo was able to supplement its revenues with REC prices of \$3/MWh - \$4.25/MWh, the revenues in the SRBC 205 operational scenario would be identical to the revenues estimated for the Base Case. With these additional REC revenues, Exelon would be indifferent between operating Conowingo consistent with the Base Case, or under the SRBC 205 operational flow regime.

¹⁷ Exelon simulated data has changes in total generation and revenues, but they were not broken out by component.

Table 7: REC payment needed per MWh of energy generated in SRBC 205 operational scenario by Conowingo to make up for the lost PJM energy and ancillary service market revenues using Exelon’s filings as well as E3’s modeled estimates.

	E3 SRBC 205	Exelon SRBC 205
Total generation (MWh)	1,652,373	1,701,000
Total revenue reduction relative to Base Case (\$)	\$7,023,091	\$5,100,000
Implied REC price needed (\$/MWh)	\$4.25	\$3.00

3.3 Proforma Analysis Results

With the financial proforma analysis, E3 was able to calculate the after-tax unlevered IRRs for Conowingo under different flow regimes. E3 also calculated the after-tax unlevered IRRs implied by Exelon’s revenue estimates from the FERC filing. The results of this analysis are shown in Table 8.

Table 8: Comparison of after-tax unlevered IRRs for the different flow regimes.

Scenario	E3 Model Estimates	Calculations Using Exelon’s Revenue Estimates
Base Case	20.84%	18.04%
SRBC 202	19.41%	17.51%
SRBC 205	19.19%	16.82%

3.4 Headroom Calculation Results

As described in section 2.2.5, E3 calculated the annual headroom and upfront capital available for investment in mitigation. The available headroom is lowest for the SRBC 205 regime, due to the overall revenues being lower, however the SRBC 205 operational regime could have access to additional revenues through sale of RECs associated with Conowingo's generation. Based on E3's analysis, the REC payment needed in the SRBC 205 flow scenario is \$3/MWh to \$4.25/MWh depending on whether Exelon's assumptions on market revenues and annual generation are used or E3's modeled estimates. Across the different flow scenarios, and based on differences in modeling between E3's estimates and Exelon's estimates, the annual available headroom is in the \$27 million to \$44 million range per year.

Exelon has already modified their Base Case operations to increase minimum flow levels. Therefore, the Base Case, although closest to their current operations, may still overestimate market revenues by assuming a higher level of dispatchability for Conowingo than currently exists due to the 401 Cert application.

Table 9: Estimate of annual headroom.

Annual headroom available (\$)	E3 Model Estimates	Calculations Using Exelon's Revenue Estimates
Base Case	\$44.1M	\$32.2M
SRBC 202	\$37.9M	\$30.0M
SRBC 205	\$37.0M	\$27.1M

Using the annual headroom stream provided in Table 9, E3 calculated the available upfront capital that could be used for undertaking remediation efforts in the Chesapeake Bay as the present value of the annual headroom discounted at the target 10% after-tax unlevered IRR.

Table 10: Present value (10%) of annual headroom available in the 2008 to 2055 time horizon.

PV of annual headroom available (2008\$)	E3 Model Estimates	Calculations Using Exelon's Revenue Estimates
Base Case	\$436.4M	\$318.9M
SRBC 202	\$375.9M	\$297.1M
SRBC 205	\$366.9M	\$268.4M

It is important to note that if Conowingo were able to access REC markets and receive a payment of \$3/MWh - \$4/MWh for its generation in the SRBC 205 operational scenario, the headroom available for SRBC 205 would be the same as the Base Case.

4 Conclusions

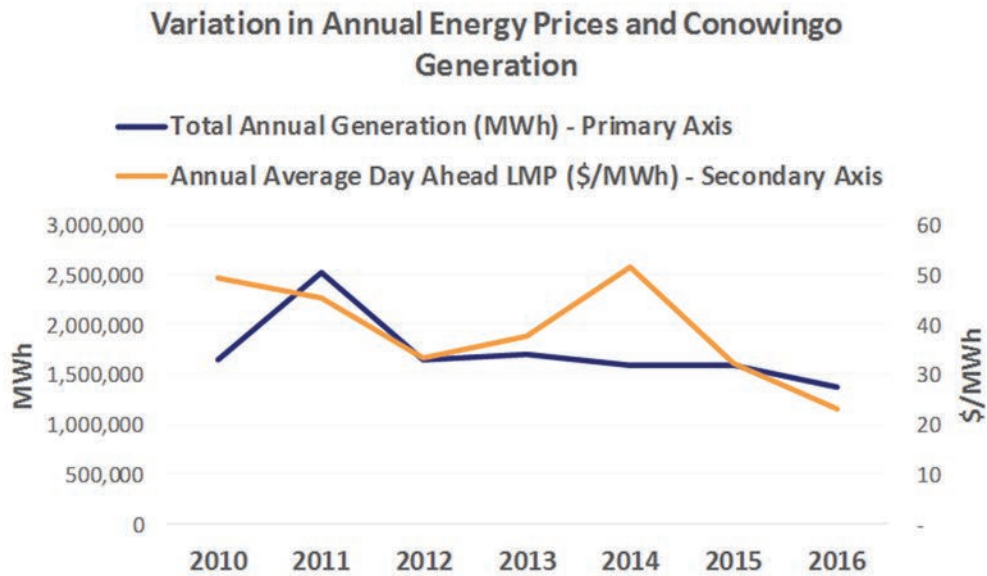
E3's estimates for the total revenues for Conowingo range between \$115 million to \$121 million depending on the operational scenario. For the Base Case, SRBC 202 and SRBC 205 regimes, E3's calculated revenues were higher than Exelon's model estimates. The difference in revenues primarily stems from the capacity value of the project in PJM in 2013. E3 utilized the seasonal capacity values posted by PJM, whereas Exelon used a calendar year average capacity market price, which was lower. E3 utilized seasonal capacity prices due to PJM posting its capacity market clearing prices seasonally. However, if E3 were to calculate calendar year capacity revenues for the Base Case assuming annual capacity prices, the estimated revenues would be lower and more in line with Exelon's filings. In addition to differences in capacity market revenue estimates, E3's modeled energy market revenues were also higher than Exelon's.

The estimates for available headroom for remediation ranged from \$27 million to \$44 million annually depending on the flow regimes, access to renewable energy markets, as well as the range of revenue estimates calculated through E3's analysis versus those filed by Exelon. These values translated to a present value capital investment that could be used towards remediation efforts of \$268 million (real 2008 \$) to \$436 million (real 2008 \$), depending on the flow regime and whether E3's estimates or Exelon's filing estimates were used.

For the SRBC 205 operations regime, E3 did not include the REC payment that the project would potentially be eligible for if it were able to get certified as a REC eligible resource. This additional value stream could increase the revenues Conowingo could earn, and make Exelon indifferent between the Base Case and SRBC 205 operational regimes. In order for the total revenues for SRBC 205 to be the same as the Base Case, Conowingo would need a REC payment of \$3/MWh-\$4.25/MWh for its generation, depending on whether E3's modeled estimates or Exelon's filings are used.

It is likely that revenues for Conowingo have declined in recent years due to the suppression of energy market prices in PJM. In addition, the total generation from Conowingo seems to vary significantly from year to year, which may change the revenue estimates for the project. Figure 6 shows the variation in total annual generation at Conowingo as well as the range of energy prices in the 2010 to 2016 horizon.

Figure 8: 2010 to 2016 variation in Conowingo annual generation and PJM energy market prices.

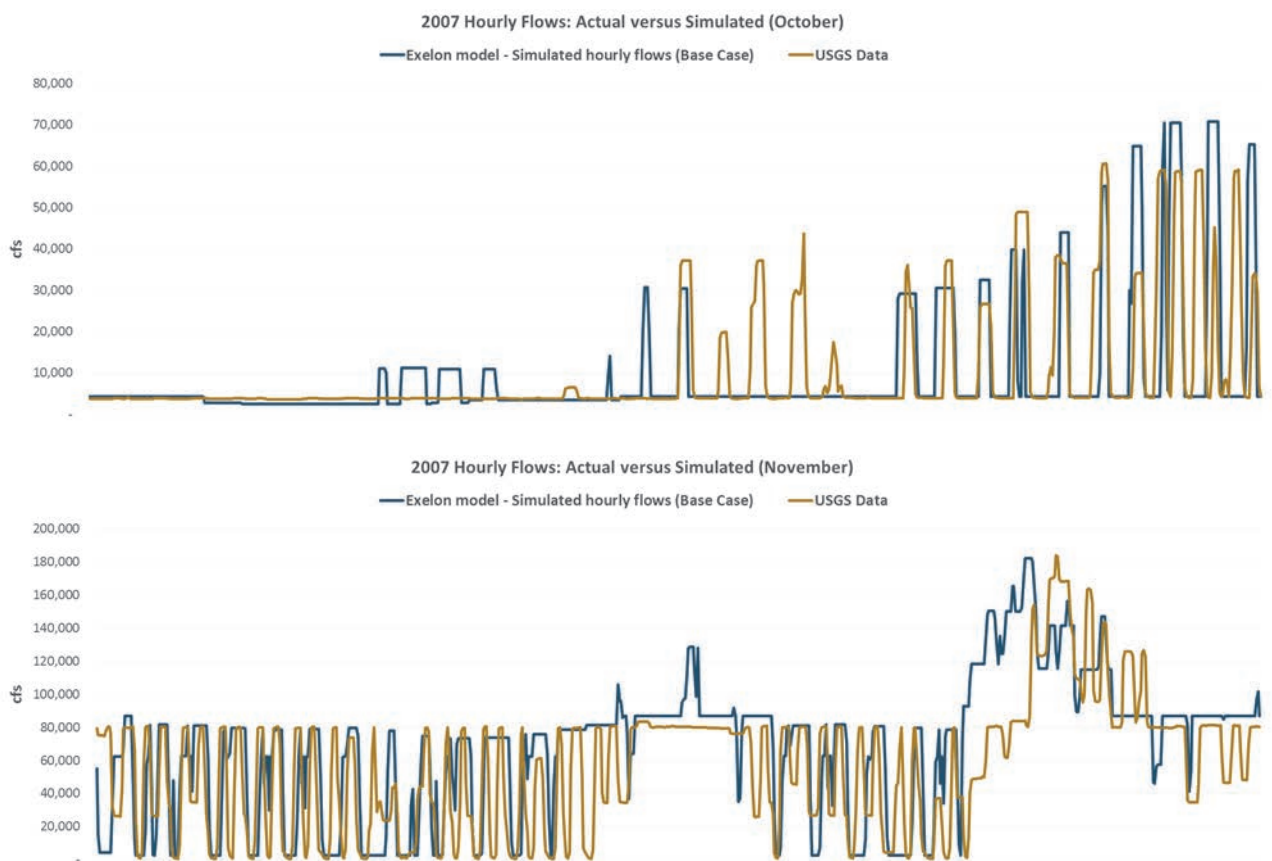


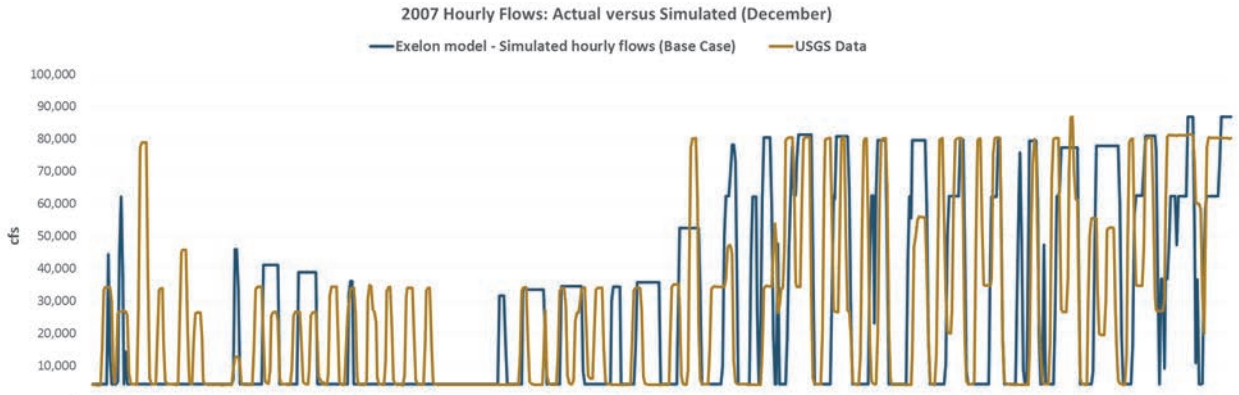
Further analysis would be needed to capture the impact of lower energy prices and changes in power generation on Conowingo’s long term revenue forecasts.

5 Appendix

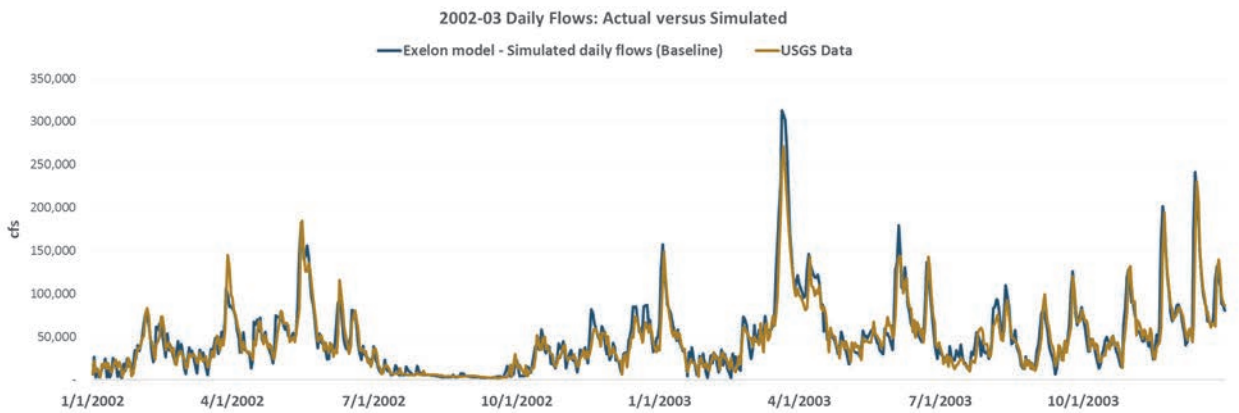
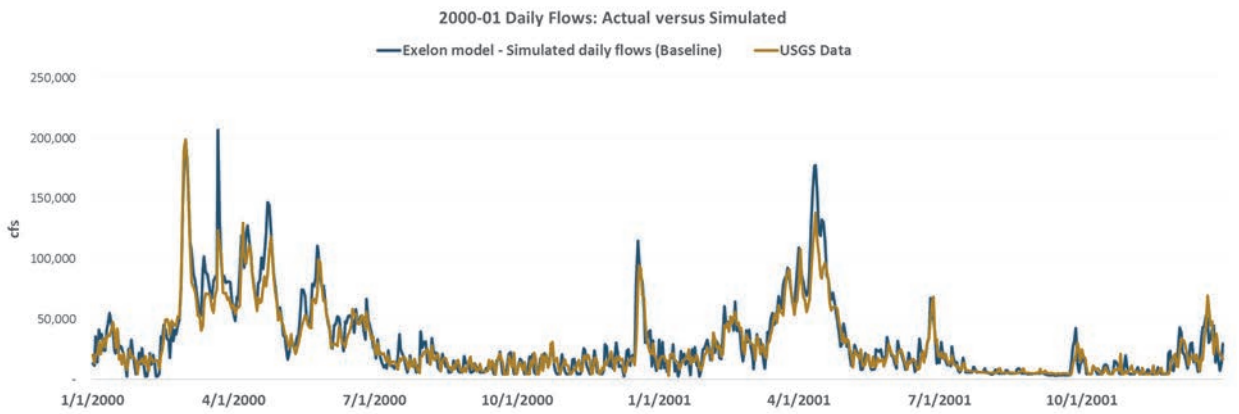
5.1 Comparison of historic and simulated flows

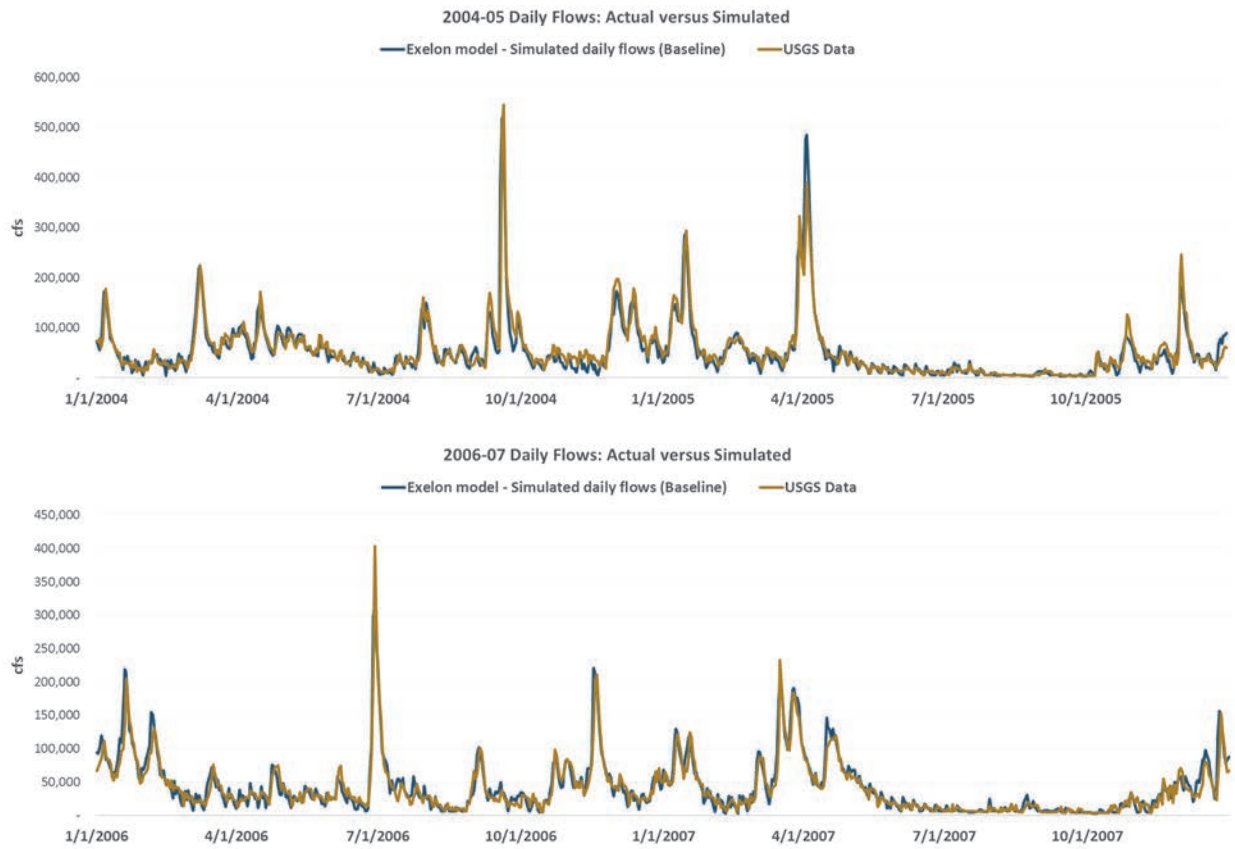
5.1.1 COMPARISON OF HOURLY FLOWS: OCTOBER 2007 – DECEMBER 2007





5.1.2 COMPARISON OF DAILY FLOWS: 2001 – 2007





5.2 Operational parameters for flow scenarios

Scenario name	Hourly Min Flow (cfs)	Hourly Max Flow (cfs)	Hourly Flow Change (cfs/hr)
Base Case	Jan	1,750	86,000 cfs 86,000 cfs
	Feb	1,750	
	Mar	3,500	
	Apr	10,000	
	May	7,500	
	Jun	5,000	
	Jul	5,000	
	Aug	5,000	
	Sept. 1-15	5,000	
	Sept. 15-30	3,500	
	Oct	3,500	
	Nov	3,500	
	Dec	1,750	
SRBC 202	1/1-1/31	10,900	4/1 to 11/30: 65,000 otherwise: 86,000 20k
	2/1-2/29	12,500	
	3/1-3/31	24,100	
	4/1-4/30	29,300	
	5/1-5/31	17,100	
	6/1-6/30	9,700	
	7/1-7/31	5,300	
	8/1-8/31	5,000	
	9/1-9/30	5,000	
	10/1-10/31	4,200	
	11/1-11/30	6,100	
	12/1-12/31	10,500	
SRBC 205	1/1-1/31	10,900	4/1 to 11/30: 65,000 otherwise: 86,000 5k if flow < 10k cfs 10k if flow < 30k cfs 20k of flow < 86k
	2/1-2/29	12,500	
	3/1-3/31		
	4/1-4/30	Marietta flow +	
	5/1-5/31	intervening inflow	

6/1-6/15	
6/16-6/30	9,700
7/1-7/31	5,300
8/1-8/31	4,300
9/1-9/30	3,500
10/1-10/31	4,200
11/1-11/30	6,100
12/1-12/31	10,500

5.3 Regression model for determining relationships between cumulative monthly flows and total monthly generation for Conowingo

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	97%							
R Square	94%							
Adjusted R Square	94%							
Standard Error	20396							
Observations	192							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	2	1.29316E+12	6.46578E+11	1554.221331	4.5487E-118			
Residual	189	78626695703	416014263					
Total	191	1.37178E+12						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	8.22E+03	3.65E+03	2.25E+00	2.56E-02	1.54E+04	1.01E+03	1.54E+04	1.01E+03

Sum of monthly flows	7.42E-03	1.99E-04	3.72E+01	6.57E-89	7.03E-03	7.81E-03	7.03E-03	7.81E-03
Sum of monthly flows squared	- 4.48E-11	- 2.14E-12	- 2.09E+01	- 5.48E-51	- -4.90E-11	- 4.05E-11	- 4.90E-11	- 4.05E-11

SB0540 LRSA Testimony 2.22.21.pdf

Uploaded by: Evgeniadis, Ted

Position: FAV

Testimony of the Lower Susquehanna Riverkeeper in SUPPORT of Senate Bill 0540

February 22, 2021

Dear Chairman Pinsky and Members of the Committee,

As the Lower Susquehanna Riverkeeper, I thank you for this opportunity to submit testimony in support of SB0540.

1. Threats to the Susquehanna River & Chesapeake Bay

Since 1928, Conowingo dam has dramatically altered the Susquehanna River's flow patterns, holding back sediment and nutrients, and preventing it from moving downstream at natural rates, while preventing the migration of many species of fish such as the American shad and American eel, in exchange for hydroelectric power that generates private profits for Exelon. Historically, the Susquehanna River has transported sediment, from 10 million tons per year (in the 1930s) to under 3 million tons per year (2000s). Part of the sediment, and associated pollutants including nitrogen and phosphorus, have entered the Chesapeake Bay, while the remainder has been trapped behind the lower Susquehanna River dams. Scouring of sediment from behind Conowingo Dam into the Chesapeake Bay and the loss of its sediment retaining capacity represent two imminent and substantial threats to the bay.

The first threat is commonly referred to as "dynamic equilibrium." Dynamic Equilibrium is the point at which the amount of sediment flowing into the reservoir equals the amount leaving the reservoir, and the stored volume of sediment is relatively static. As Conowingo Reservoir has already reached dynamic equilibrium we see a massive increase in the annual average output of sediment and phosphorus to the Chesapeake Bay. The annual load of sediment from the Susquehanna to the Chesapeake has increased, perhaps as much as an additional 2 million tons. Along with this sediment, we will see an additional 30 to 40% increase in phosphorus and a 2% increase in nitrogen. These increases, if not mitigated, will affect aspects of the Chesapeake Bay health and management from the size of dead zones, to feeding and breeding capabilities of aquatic species (including crab and oysters), to channel dredging frequency and costs.

The 2nd threat to complement dynamic equilibrium is called "catastrophic pulse." During 4 days in 1972, the flood waters of Tropical Storm Agnes transported 4 years-worth of sediment and pollutants down the Susquehanna River from New York and Pennsylvania. When the flood waters reached the lower Susquehanna River dams the waters scoured another 8 years of pollutant bearing sediment that had been trapped in the reservoir behind the dams (much from Conowingo). This "catastrophic pulse" of 12 years-worth, or 30 million tons of sediments combined with the surge of freshwater to inflict the biggest single damaging event ever recorded in the Chesapeake Bay. Over the past 40 years sediment has accumulated behind the dam to a level exceeding 1972 levels, creating a threat of damages even greater than that experienced in 1972. Over the next 40 years there is a 33% chance of a 100-year return interval storm event

similar to Agnes. Scientists agree that the question is not if a “catastrophic pulse” will occur again, but only a matter of when.

Hydroelectric dams serve one purpose, and that is to produce power. They do not serve as a best management practice (BMP) for any watershed, as Exelon has repeatedly claimed it has throughout this relicensing process. In fact, there are considerable risks since the Dam’s reservoir is now full. Also, if Exelon wants to claim their dam has served as a BMP then they should be maintaining it like a BMP and conduct routine dredging operations. The Bay Program’s Scientific and Technical Advisory Committee studied the impacts of increased sediments from the Susquehanna River on the Chesapeake Bay. According to the scientists the consequences includes increased amounts of phosphorus reaching the middle portions of the Chesapeake Bay. Increased turbidity in the Bay and faster sedimentation everywhere in the Upper Bay, especially in navigation channels, which would increase the need for channel dredging. Adverse impacts on the recovery of underwater grass beds because the sediment would reduce the amount of light reaching the plants. Benthic (bottom-dwelling) organisms would suffer increased mortality and reduced reproduction. Those that are not killed would have to spend more energy to keep from being buried. Young oysters are especially sensitive to sediment deposition. Fish might be impacted as increased sediment could affect their feeding, clog gill tissues and smother eggs. Siltation could also result in habitat alterations, and increased turbidity may change the abundance of planktonic prey important for larval and juvenile fish. The Conowingo Dam exacerbates these threats.

2. Sediment/Nutrient Scour & Flow

When speaking about scour, Exelon’s lead attorney David Bruin incorrectly stated that “Scour has no bearing on the dam’s operations. There is no science that shows the dam is causing harm to the bay.” That statement is blatantly false in saying that a 94 foot tall Hydroelectric Dam, which has a reservoir full of harmful sediment and nutrients ready to be scoured and delivered downstream like a loaded cannon, does not cause any harm to the Chesapeake Bay. Anytime the flood gates open at Conowingo Dam, it causes harm to the River and Bay. After high flows in the summer of 2018, many captains all around the bay indicated that their businesses ceased to operate due to sediment and nutrient loads coming from the Conowingo Dam. Conowingo Dam poses a direct threat for the sustained future of shellfish harvesting and fishing in the Upper and Middle Bay. The commercial seafood industry in Maryland and Virginia combined generates \$3.39 billion in sales, \$890 million in income, and nearly 34,000 jobs for the local economy per year. This industry will be wiped out not if, but when we receive another large storm event like Hurricane Agnes.

Researchers studied the effects of sediment transport in relation to flow using various models outlined in the study titled Lower Susquehanna River Watershed Assessment (LSRWA). However, decision makers cannot rely on the LSRWA because of its serious shortcomings. The LSRWA used a “daisy chain” of models to produce estimates and make predictions about future conditions related to the Conowingo Dam Project’s sediment discharges, with output from one model fed into the next model in the series. At each stage, the modelers made choices that resulted in under-estimations of sediment quantities and therefore underrepresented potential sediment impacts and associated nutrient impacts on the Chesapeake Bay.

The LSRWA modelers did not model a 25-year, 50-year, 75-year, or 100-year return interval flow event, which have a high to reasonable chance of occurring during the license period. The decision not to model and study the effects of a larger return interval flow event was a serious

omission in the LSRWA. Because the relationship between sediment concentration and flow is exponential, a 50-year, 75-year or 100-year return interval flow event would have produced sediment scouring effects substantially greater than storms modeled by the LSRWA modelers. Given this omission, nobody knows what will happen to the Bay if a large storm hits the watershed, which was the essence of the LSRWA. To not include those modeling efforts, was disingenuous to this entire relicensing process and downplayed the true harm the dam poses to the River and Chesapeake Bay.

Also, The LSRWA modelers underestimated the effects of the flow events they modeled by using *averages* to represent peak flow conditions and associated sediment concentrations. Both the USGS and the Corps' models represented "peak" Tropical Storm Lee conditions based on *daily average flow* rather than using other methods of calculating peak conditions, a choice that caused the LSRWA to underrepresent the storm's effects. While the highest daily average flow recorded during Tropical Storm Lee was 709,000 cfs, the highest *24-hour running average flow* was 746,000 cfs, and the highest *instantaneous flow* was 778,000 cfs. Similarly, for one part of their analysis the Corps modelers represented Tropical Storm Lee by its *storm average flow*, which was just 632,000 cfs. These choices likely explain why the models predicted sediment quantities that were lower than the best available estimates or actual measured data suggested. The consequences of these choices were substantial because the relationship between flow and transport of sediment is an exponential, not linear, relationship. Had the LSRWA modelers represented these storms using a more appropriate measure of peak flows, because of the exponential relationship they would certainly have predicted much greater sediment and nutrient effects. Instead, the LSRWA models presented an unjustified rosy picture of the likely effects of future high-flow events.

Furthermore, it is important to note that the LSRWA modeling efforts indicate that the scour threshold for the current reservoir condition ranges from about 300,000 cfs to 400,000 cfs, with the threshold for mass scouring occurring at about 400,000 cfs, which represents a 4- to 5-year return flow event. The term mass scouring refers to the flow magnitude that results in very high erosion rates where significant high mass transport from the bed occurs. However, the often-cited 400,000 cfs value originated from Gross et al. (1978), cited by Lang (1982), and was based on a 1-year comparison of sediment loads at Harrisburg, PA, (upstream of the Marietta gauge) and Conowingo, assuming that the threshold occurs when loads at Harrisburg are lower than at Conowingo. This comparison necessarily assumed no sediment inputs/outputs between these two gauges, ignoring several small tributaries and perhaps more importantly the two reservoirs upstream of Conowingo. More recent work suggests that the scour threshold has decreased with Reservoir infill and now could be as low as 175,000 cfs (Palinkas, 2019)

Additionally, the LSRWA modelers did not properly evaluate the effects of a large flow event on the SAV growing season. The LSRWA modeling considered the effects of sediment discharges to the Chesapeake Bay during the months of January, June, and October. The modelers made this choice even though the 1967-2013 historic flow record shows there were more days at or above the scouring threshold during March, April, and May than all other remaining months. As a result, the SAV growing season was largely excluded from the analysis.

The inconclusiveness of the LSRWA and its inability to accurately forecast potential scour effects of the Dam remains to be a significant issue. Funding for resiliency initiatives must be greatly increased by Exelon in the settlement. Hypothetically speaking, if this settlement is

entered as agreed upon and we receive an Agnes level storm in the next 10 years, the millions of dollars of damage that the Dam will create in the Bay will not be properly mitigated for under this settlement. It provides grossly insufficient funding to account for extreme weather events that will cause harm to downstream water quality.

3. Dredging

When dredging is performed (hydraulically or mechanically), any contaminant attached to the sediment could be released during placement. To predict the release of contaminants, elutriate tests can be performed. The standard elutriate test is used to predict the release of contaminants to the water column resulting from open water placement. The modified elutriate test is used to evaluate the release from a confined disposal facility. The results will vary depending on the grain size of the material being dredged. Since the LSRWA was a broad assessment of alternatives, elutriate tests **were not** performed on the potential dredged material. If specific dredging and placement sites are investigated in the future, then it is recommended that these tests be done at that time. The LSWRA states that increasing or recovering sediment storage volume of the reservoirs via dredging or other methods is possible, and in some cases can effectively reduce sediment and associated nutrient scour. (Lower Susquehanna River Watershed Assessment, MD & PA, 2015)

The LSRWA claims that dredging will offer little value in offsetting sediment/nutrient load based on the models used in the study. However, considering the models' inputs are flawed and there are discrepancies in its methodology, it is inaccurate to claim dredging will have no significant effect. Also, the LSRWA is inconclusive in determining the effects of long-term dredging. It is critical to mention the deficiencies of the LSRWA as researchers used the models in the study to determine if dredging is a viable option. Unfortunately, due to the shortcomings of the LSRWA study stated above we cannot rely on the conclusions suggested in the study but must rely on those who have experience in the field of dredging and time-tested proven methods of successful implementation. Much of the several hundred million cubic yards of sediment dredged each year from U.S. ports, harbors, and waterways could be used in a beneficial manner, such as for habitat restoration and creation, beach nourishment, aquaculture, forestry, agriculture, mine reclamation, and industrial and commercial development.

Dredging was a concept that was shunned among researchers due to its high cost estimated at over \$250 million per year to dredge an appropriate amount to offset loads coming in. However, due to the inconclusiveness of the LSRWA, those researchers cannot presume dredging the Conowingo Reservoir would not be beneficial. In the proposed settlement, Exelon will provide a mere \$500,000 which is allocated to a "sediment disposal study," not actual dredging. In this settlement, Exelon will put forth zero funding to maintain its reservoir capacity over the next 50 years. It is Exelon's absolute responsibility to address the infill of sediments and nutrients which is trapped behind their dam. The loss of trapping capacity and catastrophic pulse are the largest threats to the Chesapeake Bay. Actions need to be taken now to offset potential scour and Exelon must pay for routine dredging as part of the settlement agreement in addition to the sediment disposal study.

We have received excellent feedback on dredging the Reservoir by a highly respected company, Harbor Rock. HarborRock provides an environmentally friendly and sustainable dredged material management solution for the Conowingo Reservoir and a sediment and nutrient solution to the wider Chesapeake Bay ecosystem. HarborRock's state-of-the-art process can effectively destroy organic compounds, is designed to meet all existing air emissions standards, and will be routinely and accurately monitored. The end products are proven to be inert and pass all environmental tests. The facility will supply aggregate to construction markets by either truck, rail, or barge. HarborRock is the only proven innovative and environmentally sustainable management solution to the dredged material management problems facing the Chesapeake Bay that provides measurable environmental and economic development benefits in a fully sustainable way.

HarborRock has estimated the capital and operating costs for a reuse facility sized to remove enough sediment to meet the necessary nutrient reduction mentioned in the Conowingo Watershed Implementation Plan. HarborRock states that an all-inclusive reuse fee which includes dredging, reuse and sale of the final products will cost \$41 million per year. This all-in cost is drastically lower than the \$257 million which was suggested in previous reports. According to HarborRock, Hydraulic dredging when the Dredge is in place, costs about \$1.5 to \$2.0 per Cubic yard with a CY being nominally 25% solids. HarborRock is budgeting about \$800,000 per year as the operating cost for dredging. This figure does not include the capital costs for the Dredge, docks etc. A big cost component of dredging is the mobilization and demobilization of the Dredge itself. This will be especially true at Conowingo, given the fact a Dredge cannot be pulled or sailed into place and road access is tough. Therefore, HarborRock is envisioning having to assemble the Dredge alongside the Reservoir and floating it into service on the Reservoir. To the dredging industry, dredging the Conowingo Reservoir is not a big job as compared to dredging a port or major waterway, river, or channel for maritime commerce.

By their calculation, nitrogen is the limiting nutrient, meaning more phosphorous will be removed than needed to meet MDE's requirement. In fact, over 153 tons in excess will be removed. At the same rates being charged Exelon, **the value of these credits is over \$83 million/ year – twice the cost of the HarborRock reuse fee!**

As a service provider to Exelon, the State of Maryland or both:

- I. HarborRock will privately finance, build, own & operate a \$100+ million facility that will dredge the Conowingo Reservoir and convert the sediment into an inert lightweight aggregate (LWA), and;
- II. For less than the \$41 million/year estimated for the Phase III Susquehanna River Basin WIP, LWA Reuse will:
 - a) Achieve Maryland's previously mandated goals for Exelon at the Conowingo Dam;
 - b) Achieve Maryland's Phase III Watershed Implementation Plan (WIP) for the Susquehanna River Basin, and;

- c) Create an additional 153 tons/year of phosphorous reductions available for sale, valued at \$83 million/year;
- d) Provide metered data to verify & quantify reductions in nutrients and contaminants in real-time;
- e) Be “No-risk” to Maryland. The LWA Reuse fee will be indexed to the quantity of nutrients reduced. Maryland will only pay for what it actually gets;
- f) Convert clean or contaminated sediments of varying properties into inert marketable products;
- g) Create over 65 family-wage manufacturing jobs and over 200 in-direct jobs.

4. Final Thoughts

The Susquehanna River is a public resource and should not be sold off to a private company for exclusive use without ensuring that the impacts to the public have been properly mitigated. This bill will level the playing field, as MDE will not be able to blindly waive their right to a 401 Water Quality Certification in the proposed settlement. The 401 Water Quality Certification issued in April 2018 has substantive provisions that must be considered in this settlement. It would be hypocritical for MDE to waive its right, in addition to setting horrible precedent for the state and the rest of the country. Again, the settlement provides grossly insufficient funding to mitigate the dam’s operations over the next 50 years. This simply cannot happen as the settlement provides roughly \$78 million over the 50-year license term while the substantive State Water Quality Certification required over \$8 billion over 50 years. It is worthy to note that Exelon’s gross revenues were over \$34 billion in 2019 with net income above \$3 billion and free cash flow over \$6 billion. Given their profitability, a company this size should be giving back to the environment and its people what has freely been given to them, rights to a public resource for pure profit. And given their profitability, increased funding should not be an issue for Exelon. They remain to be the most lucrative utility company in the entire country and must pay their fair share for exclusive use of the Lower Susquehanna River. The financially insufficient proposed settlement poses a firm roadblock to any genuine path forward to the cleanup of the Conowingo Dam and assurance that Maryland can meet our TMDL and climate goals.

Sincerely,



Ted Evgeniadis

Lower Susquehanna Riverkeeper

Executive Director – LSRA

SB540 Conowingo testimony 2021 MDLCV SUPPORT.pdf

Uploaded by: Harbeson, Kristen

Position: FAV



MARYLAND LEAGUE
OF CONSERVATION VOTERS

February 24th, 2021

Support SB540: Federal Clean Water Act - Authority of State

Maryland League of Conservation Voters

Lynn Heller, Board Chair
Maris St. Cyr, Vice Chair
Michael Davis, Treasurer
Hon. Virginia Clagett
Stuart Clarke
Candace Dodson-Reed
Verna Harrison
Melanie Hartwig-Davis
Ed Hatcher
Hon. Steve Lafferty
Bonnie Norman
Katharine Thomas

Kim Coble
Executive Director

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marylandconservation.org

Dear Chairman Pinsky and Members of the Committee,

Maryland LCV supports SB540: Federal Clean Water Act - Authority of State, and we thank Senator Hershey for his leadership on this issue. SB540 prohibits the state from entering into an agreement that waives the state's authority under § 401 of the federal Clean Water Act (the State's Water Quality Certification) as part of its duties related to the federal relicensing of the Conowingo Dam.

Ensuring Maryland does not enter into a settlement agreement with Exelon that waives this authority is critical for three reasons:

1. **Marylanders and the Bay at risk:** The settlement would put the Bay in precarious risk of a catastrophic scouring event of the sediment behind that dam that could eliminate our progress towards our 2025 Bay restoration goals and damage the Bay for years to come. It could also ignore the environmental justice concerns affecting those who have been identified as living in an environmental justice hot spot just downstream of the dam.
2. **Loss of billions of dollars:** The settlement with Exelon will be for nearly 50 years. Once signed, the state would lose billions of dollars over the life of the permit. These funds could be used to clean up the pollution allocated to the Conowingo sediment build up including 6 million pounds of nitrogen and 260,000 pounds of phosphorus every year.
3. **Disastrous 'fine print':** The 'Collateral Proceedings' section of the settlement would mean that permits and watershed implementation plans could not require additional action for 50 years, and the fatal flaws in existing permits could not be fixed for decades.

Background:

Exelon, which boasts over thirty billion dollars in annual revenue,¹ operates the Conowingo Dam. This 252-megawatt plant across the Susquehanna River was built in 1928 and powers about 159,000 homes. The dam blocks 97% of historically available spawning habitat for migratory fish in PA and NY. Downstream, extreme peaking operations of the dam have eliminated almost all spawning habitat for fish such as striped bass, as well as historic habitat for other keystone species important to water quality including freshwater mussels and submerged aquatic vegetation.

For years, the dam has acted as a barrier for pollution coming down the Susquehanna River. The dam has been settling out 200 million tons of polluted sediment for the last 90 years in a 14-mile reservoir that is now full. This means that from now on, pollution coming down the Susquehanna from upstream will be going through the dam into the Chesapeake Bay. While this is a challenge, we also have a huge opportunity to ensure that Exelon is part of the solution.

Conowingo Dam requires a federal license from the Federal Energy Regulatory Commission (FERC) that must be renewed every 50 years. The dam's license was up for renewal in 2014. As a part of the federal re-licensing process, Maryland had the opportunity to issue a State Water Quality Certification (WQC) for the dam—with new conditions that would help ensure the owner, Exelon Corporation, was responsible for a number of cleanup requirements.

Exelon applied for a Water Quality Certification from Maryland in 2014. The application was deficient, and the state notified Exelon that the application would be denied if it was not withdrawn. This happened three more times until finally, in 2018, MDE issued a final WQC for Conowingo Dam with robust conditions that would require Exelon to pay a fair share for the cleanup around the dam. Under this new Maryland-issued water quality certification, the new conditions would require Exelon to control the pollution running through the dam by reducing nutrients to the level that was previously being trapped by the reservoir. This amounts to about 6 million pounds of nitrogen and 260,000 pounds of phosphorus a year beginning in 2025. If Exelon could not reduce the pollution, it would pay into funds that would be used to reduce sources of pollution. Unfortunately, Exelon sued Maryland and, after the lawsuit was filed, Maryland proposed to settle with Exelon.

This proposed settlement waives Maryland's right to apply the Water Quality Certification and would be disastrous for Maryland and the Bay and would be in place for 50 years.

SB540 simply states that the State may not enter into a settlement agreement related to the Conowingo relicensing if it waives its authority under the Water Quality Certification. We support this bill for three main reasons:

¹ <https://www.macrotrends.net/stocks/charts/EXC/exelon/revenue>

1. Marylanders and the Bay at risk

One big hurricane could scour out a huge amount of sediment laden with all sorts of pollution that is built up behind the Conowingo dam and send polluted water downstream resulting in significant impacts to the Bay. The dam did not create the sediment, primarily Pennsylvania agriculture did. However, the dam operation does prevent the polluted sediment from going downstream and significantly affecting the health of the river and Bay.

Studies show that the operation of the dam itself is causing some of this scouring and pollutant loading (up to 20% of the pollution coming past the dam in big storm events). A large enough storm could destabilize much of the sediment behind the dam and dump much of it into the Bay. This would not only have negative impacts on the ecosystem of the Bay, but it is also worth noting that according to [Maryland EJScreen Mapper](#), the area just below the dam in Harve de Grace and Perryville is an environmental justice hotspot. These already overburdened communities would feel the disproportionate impacts of pollution going through the dam.

Under the Clean Water Act and Maryland state law, a federal permit to any facility that discharges to navigable waters may not be issued unless the state certifies that the activity does not violate state water quality standards or limitations. The dam is not meeting water quality standards and therefore, should not receive a permit.

2. Loss of billions of dollars

The settlement only requires Exelon pay \$200 million over nearly 50 years. However, much of the work these funds would be applied is already underway and has nothing to do with water quality. In fact, only about \$61 million in cash payments, or about \$1.2 million worth of pollution reduction per year, would be required. Studies show that the actual cost of meaningfully reducing the nutrients and sediment behind the dam has been estimated at approximately \$41 – \$172 million each year. While the financing to address the sediment pollution at the Conowingo Dam is currently being discussed, at this point in time, the state should not agree for the next 50 years that Exelon's obligations are limited to approximately 1% of the financial needs.

3. Disastrous 'fine print'

3.6 SRBC, Conowingo WIP, Chesapeake Bay TMDL, and Similar Proceedings (a) Collateral Proceedings states: *"As part of this Settlement Agreement and throughout its Term, MDE agrees that it shall not seek to impose upon Exelon, as part of (1) any SRBC proceeding, the Conowingo Watershed Implementation Plan (or "Conowingo WIP"), the Chesapeake Bay TMDL or any proceedings related thereto including proceedings of the Chesapeake Bay Program partnership (each, a "Collateral Proceeding"), or (2) any NPDES permit for the Dam, any State Discharge Permit for the Dam, any modification of the New License throughout its Term, any new CWA Section 401 water quality certification issued in*

connection with a federal permit requirement for any construction related to the FERC Relicensing Proceeding, or any similar proceedings” This language means that under the settlement, Maryland would agree to not make the WIP or the NPDES permit stronger for nearly 50 years. Conowingo desperately needs a stronger WIP and NPDES permit if we want to reach our 2025 goals to restore the Bay and keep it healthy for years beyond. “MDE agrees that it shall not seek to impose upon Exelon” any additional requirements under these provisions **even if it becomes apparent during the dam’s 50-year license that additional requirements are necessary to assure compliance with the Clean Water Act and/or water quality standards.**

NPDES Permit: Under the settlement, MDE could not put in place a more stringent permit than what the current permit requires and the current NPDES Clean Water Act permit is woefully inadequate. Under the current NPDES permit, that would essentially remain in effect under this settlement, 398.41 pounds of sediment would be permitted to be discharged per day on average.² ‘Emergency releases’ would also be allowed. So, this allows all those litter filled dam releases we see summer after summer and could lead to increasingly devastating problems in the future. The fact we see this release happen time and time again shows that the underlying controls are inadequate. The permit also does not address a lot of issues such as possible catastrophic scouring, effects on fish populations, and effects that changes in flow rates have downstream.

Conowingo Watershed Implementation Plan: Under the proposed settlement, Maryland would not be able to significantly improve the Conowingo Watershed Implementation Plan (CWIP). The current CWIP has no plan to address the millions of pounds of sediment behind the dam. It does not require enough best management practices to mitigate the influx of pollution coming down to the Bay from upstream, and it does not hold Exelon financially accountable for cleaning up the pollution. The CWIP goals that are laid out cannot be performed without sufficient funding. Finally, because no feasible funding source was identified for the CWIP, the nitrogen, phosphorus, and sediment loads at the dam will need to be allocated among the other states if this plan falls through. In terms of both funding and additional loads, officials from Bay partner states have already sounded their concerns over the inequity of this approach. SB540 would help Maryland from having to rely on vague cleanup plans and inequitable offsets.

²A monthly average of 30mg/L and daily maximum of 45mg/L of suspended solids. Average design flow is 47.74 MDG (MDG= Millions of Gallons per day). Since 1mg/L is 8.3454e-6 gallons, that means 398.41 pounds of sediment permitted to be discharged per day on average equating to 145,519 pounds of sediment permitted per year legally to be discharged.

<https://mde.maryland.gov/programs/Water/WetlandsandWaterways/Documents/ExelonMD/FERC/Conowingo-Vol1-Public.pdf#page=180&zoom=100,249,344>

Conclusion:

SB540 is a bi-partisan bill that will prevent Maryland from entering into a settlement agreement that waives the state's authority under Section 401 of the Clean Water Act and jeopardizes the state's clean-up efforts for the next 50 years. **For all the above reasons, Maryland League of Conservation Voters urges a favorable report of SB540.**

If you have any questions, please email Water Program Director Ben Alexandro at balexandro@mdlev.org.

SB 540 - WKC Sign-On Testimony - Conowingo.pdf

Uploaded by: Johnson, Esq., Morgan

Position: FAV



Testimony in Support of Senate Bill 540 (Senator Hershey) Federal Clean Water Act - Authority of State

February 24th, 2021

Dear Chairman Pinsky and Members of the Committee:

We are writing in strong support of Senate Bill 540 on behalf of Waterkeepers Chesapeake, a coalition of seventeen Waterkeepers, Riverkeepers, and Coastkeepers working to make the waters of the Chesapeake and Coastal Bays swimmable and fishable. These comments are also submitted on behalf of Clean Water Action, Maryland Conservation Council, Maryland Campaign for Environmental Human Rights, Maryland Legislative Coalition, MOM's Organic Market, Preservation Maryland, ShoreRivers, Sierra Club, Unitarian Universalist Legislative Ministry of Maryland and Maryland WISE Women.

In October 2019, Maryland and Exelon reached a tentative settlement for the Conowingo Dam. The proposed settlement agreement would require Maryland to waive its clean water rights over the next 50 years and would require Exelon to pay less than 1% of the \$172 million in annual cleanup costs required under the Maryland-issued Water Quality Certification (WQC). **This settlement would forfeit over \$8.5 billion from Exelon over the next fifty years,**¹ placing the clean-up burden for Conowingo Dam onto the shoulders of taxpayers. In addition, the state and the public would have no opportunity to put any new obligations on Exelon until the year 2070.

This bi-partisan emergency bill (SB 540) will prevent Maryland from entering into such a problematic settlement agreement that waives the state's authority under Section 401 of the Clean Water Act.

Background

Conowingo Dam requires a federal license that must be renewed every 50 years. The Dam's license was up for renewal in 2014. As a part of the federal re-licensing process, Maryland had the opportunity to issue a Water Quality Certification (WQC) for the Dam—with new conditions that would ensure the owner, Exelon Corporation, is responsible for a number of clean up requirements. Exelon applied for a Water Quality Certification from Maryland in 2014. The application was deficient and the state notified Exelon that the application would be denied, if it was not withdrawn. This happened three more times, until finally, in 2018,

¹ Calculated from payment-in-lieu amounts from [Maryland's CWA Sec. 401 Water Quality Certification](#) for the Dam, over the 50 year life of the license.

MDE issued a final WQC for Conowingo Dam, with robust conditions that would require Exelon to pay a fair share for the cleanup around the Dam. The WQC held Exelon responsible for the removal of 6 million pounds of nitrogen and 260,000 pounds of phosphorus every year for the next 50 years.

Exelon subsequently sued the state and, after the lawsuit was filed, Maryland proposed to settle with Exelon in a closed-door process that didn't include watermen, community stakeholders, or greater citizen input. The proposed settlement agreement was then submitted to FERC in October 2019, which has not yet approved the settlement.

MDE has the ability to withdraw the proposed settlement agreement before FERC makes a final determination on it. SB 540 allows the General Assembly to take swift action and withdraw Maryland from a deal that forces Maryland taxpayers to shoulder the burden of clean-up for a Fortune 100 Energy Company generating revenues of approximately \$33.5 billion. SB 540 will bring the settlement back to the negotiations table with all interested parties represented and provide a level playing field for a fair, sufficiently-funded and functional settlement.

Marylanders pay while Exelon walks away

While Exelon *claims* that the settlement is worth \$200 million, actual cash payments under the settlement are only \$61 million over the entire 50 years—much of that is focused on species and habitat restoration rather than water quality. In contrast, the Water Quality Certification issued in 2018 requires \$172 million per year just for nitrogen and phosphorus reductions. This financially-deficient settlement would only require Exelon to pay \$1.2 million a year, whereas the Maryland-issued Water Quality Certification (WQC) would have required \$172 million a year in cleanup costs.

As drafted, this settlement would forfeit over \$8.5 billion from Exelon over the next fifty years, as would be the “payment-in-lieu” cost outlined in the WQC. Conceivably, the only source of funding to cover this gap is Maryland taxpayers. This is clearly a bad deal for Maryland, and a bad deal for the Bay. By passing this bill, the General Assembly can help make sure Exelon pays its fair share.

The proposed settlement puts Maryland in an untenable position—waiving all Clean Water Act authority at the Dam for 50 years

By passing SB 540 and preventing Maryland from waiving the 2018 Water Quality Certification, the state would have to withdraw the settlement agreement to remove the

waiver of the WQC. If the state moves forward on the settlement agreement without this change, Maryland will be losing out on billions of dollars of cleanup support from Exelon over the next 50 years and there will be no public accountability measures to ensure Exelon meets the clean-up terms under the settlement.

Millions of pounds of sediment & nutrient pollution (including nitrogen & phosphorus), along with trash and debris, will continue to flow down the Susquehanna River from Conowingo Dam, into local rivers and streams, and the Chesapeake Bay. Many of the impacted waterways are drinking water sources for Maryland residents, including the City of Baltimore. The nutrients and sediments from the Dam kill off aquatic species, such as crabs, fish and oysters, that are an essential part of Maryland's seafood economy.

The CWIP is a pipe dream—not a plan

The Conowingo Watershed Implementation Plan (CWIP) released by the Bay Program in October of 2020 offers no clear plan to address sediments behind the Dam. At the start of the CWIP planning process, dredging analysis and planning was supposed to be a high priority in the final CWIP. The current draft makes very few references to dredging, and concludes only that “more study is needed.” Furthermore, the best management practices in the CWIP (selected to offset the pollutant load at Conowingo) will be mainly taking place upstream of the dam in Pennsylvania. Few, if any, best management practices will take place in urban areas of Maryland, yet these communities will ultimately foot the bill.

In addition, the CWIP does not hold Exelon financially accountable for the dam. Analyzing planning documents for the CWIP shows that the drafters' interest in holding Exelon accountable to the process waned over time with the burden falling to the Bay states and their respective taxpayers. Exelon has no definitive role, financial or otherwise, in the drafted CWIP. The financing plan for the CWIP paints a grimmer picture—all of the Bay states are expected to be the source of financial contribution for the plan.

The goals of the CWIP can't be met without sufficient funding—between \$72 and \$172 million per year—in perpetuity. Available editions of the financing strategy indicate that Bay Partner states will have to pay for these pollution reductions. Other clear sources for funding (namely, Exelon, which generates nearly \$34 billion dollars in annual revenue) are not named in the draft CWIP nor the financing statement. Finally, because no feasible funding source was identified for the CWIP, the nitrogen, phosphorus, and sediment loads at the Dam will need to be allocated among the other states if this plan falls through. In terms of both funding and additional loads, [officials from Bay Partner states have already sounded](#)

[concerns](#) over the inequity of this approach. SB 540 would keep Maryland from having to rely on vague cleanup plans and inequitable offsets.

We urge a favorable report.

Respectfully submitted,

Morgan Johnson, Esq.
Staff Attorney
Waterkeepers Chesapeake

Monica O'Connor
Legislative Liaison
WISE

Nina Beth Cardin
Director
MD Campaign for Environmental Human Rights

Cecilia Plante
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MD Legislative Coalition

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Director of Advocacy
Preservation Maryland

Mark Posner
MD Legislative Chair
Sierra Club

Alexandra Leigh DySard
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MOM's Organic Market

Emily Ranson
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Clean Water Action

Paulette Hammond
President
Maryland Conservation Council

Phil Webster
Chair, Climate Change Task Force
Unitarian Universalist Legislative Ministry of MD

Zack Kelleher
Sassafras Riverkeeper
ShoreRivers

ShoreRivers Testimony_SB540.pdf

Uploaded by: Kelleher, Zack

Position: FAV



**Testimony in SUPPORT of Senate Bill 540: Environment –
Federal Clean Water Act -Authority of State**

February 24, 2021

Dear Chairman Pinsky and Members of the Committee,

Thank you for this opportunity to submit testimony in support of SB0540 -Federal Clean Water Act -Authority of State - on behalf of ShoreRivers. ShoreRivers is a river protection group on Maryland's Eastern Shore with more than 3,500 members. Our mission is to protect and restore Eastern Shore waterways through science-based advocacy, restoration, and education.

SB0540 will improve Maryland's process for reviewing and deciding upon projects that trigger the need for a Clean Water Act Section 401 Water Quality Certification. This review requires the state to assess the risks to water quality presented by proposed projects, and ensures that Marylanders' right to swimmable and fishable waters are protected.

The Eastern Shore is currently facing serious threats from proposed pipeline infrastructure and the downstream impacts from what flows through the Conowingo Dam. While these projects are federally licensed, they impact the health of the State's waterways tremendously. The 401 Water Quality Certification is one of the State's most enforceable ways to adequately protect its waterways. If the State chooses to waive their right to conduct a full water quality review – as is permissible under current law, our land and water resources will experience irreversible damage that will have a lasting impact on the economy and quality of life on the Eastern Shore. It is unacceptable that the State is attempting to waive its right to issue a 401 Water Quality Certification for the operation of Conowingo Dam and thus forfeiting billions of dollars that would go towards addressing this major threat to our Bay restoration efforts.

ShoreRivers believes that it's our responsibility as a community led by our state leaders to ensure that the State uses every resource at its disposal to properly protect its waterways and provide a transparent and fair process. For these reasons and the health of our waterways, **ShoreRivers urges the committee for a favorable report on Senate Bill 540.**

Sincerely,
Zack Kelleher
Sassafras Riverkeeper
on behalf of:

ShoreRivers

Isabel Hardesty, Executive Director
Annie Richards, Chester Riverkeeper | Matt Pluta, Choptank Riverkeeper
Elle Bassett, Miles-Wye Riverkeeper | Zack Kelleher, Sassafras Riverkeeper

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SB 540 - CCC Testimony - Support (with Exhibits).p

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Senate Education, Health, and Environmental Affairs Committee

Testimony in SUPPORT Senate Bill 540

Federal Clean Water Act – Authority of State

Wednesday, February 24, 2021

The Clean Chesapeake Coalition supports SB 540 to the extent such an enactment by the General Assembly will gain leverage for the State of Maryland and the Hogan Administration (and subsequent administrations) in addressing the Conowingo Dam factor¹ in the context of Bay TMDL water quality improvement goals, in litigation and/or negotiations with the Dam's owner (Exelon Corporation), in asserting the State's environmental protection authority in the Federal Energy Regulatory Commission (FERC) arena, or otherwise.

While such legislation may raise separation of powers issues between the Executive and Legislative branches of State government, and the timing may be off, SB 540 brings much warranted attention to the single largest source of pollution loading to Chesapeake Bay (the Susquehanna River). Conowingo Dam relicensing is still pending in the hands of FERC and is indeed a once-in-a-generation opportunity to measurably and cost-effectively improve the Maryland portion of the Bay by tackling the accumulated pollution in Conowingo reservoir so Maryland's downstream restoration efforts and expenditures, especially in the upper Bay, are not in vain.

Since 2012, after a clarion call from Dorchester County elected officials, the following Maryland county governments have participated in the Coalition since inception or for a portion of that time to raise awareness and pursue improvement to the water quality of Chesapeake Bay in the most prudent and fiscally responsible manner – through research, coordination and advocacy: Allegany, Caroline, Carroll, Cecil, Dorchester, Frederick, Harford, Kent, Queen Anne's and Wicomico. After the U.S. Geological Survey (USGS) issued a report in August 2012 ([SIR 2012-5185](#)) confirming the exponential loss of trapping capacity in the Conowingo Dam reservoir and associated threats to downstream water quality, the Coalition adopted as its calling card the striking NASA satellite image on page 2 of the report. (see copy attached)

Since inception, Coalition counties have submitted substantive and well-sourced testimony whenever legislation or joint resolutions have been introduced dealing with Conowingo Dam in the context of Bay restoration and protection. To date, there has been no enactment by the General Assembly whatsoever on this most important issue related to Bay health – sad and curious amidst all we in Maryland are doing and spending to improve Bay water quality.

¹ The Emmy Award winning documentary video "[The Conowingo Factor](https://www.youtube.com/watch?v=LvK86Ripmc4&feature=youtu.be)" summarizes the Dam's history and the water quality issues posed by both the Dam and sediment, nutrients and debris coming down the Susquehanna River. <https://www.youtube.com/watch?v=LvK86Ripmc4&feature=youtu.be>

We share the collective disappointment in Exelon's refusal to embrace the mantle of Bay stewardship as we've been monitoring their legal filings against the State and before FERC to deflect attention and shirk responsibility for the adverse downstream environmental impacts attributable to Conowingo Dam operations and maintenance (or lack thereof in the reservoir).

For better or for worse, the proposed Settlement Agreement between the State and Exelon related to Conowingo Dam relicensing as negotiated by the Hogan Administration has indeed moved the needle, as evidenced by the sudden popularity in the General Assembly and among NGOs and the media regarding Conowingo Dam relicensing and the significance of the 50-year relicense request now in the hands of FERC. We also understand the context in which the State felt pressured to concede its WQC authority for a settlement (or sorts) with Exelon as multiple federal policy, regulatory and FERC related case law stars lined up nicely for big energy.

To see or support this legislation as a means to vilify the Hogan Administration for their efforts to address the Conowingo factor is misguided and counterproductive. Had the General Assembly, the Maryland Congressional Delegation, UMCES, EPA Chesapeake Bay Program, CBF and other large, wheel-healed and entrenched NGOs, USACE, etc. taken this issue more seriously (instead of denying, downplaying or distracting from the Conowingo Factor) there would have been considerably more leverage for the Administration in addressing this vexing issue.

The greatest concern about the current state of the Conowingo reservoir is the inevitability of storm events (more frequent and intense due to climate change) that propel vast amounts of the accumulated nutrients, sediment and other contaminants through and over the Dam in catastrophic surges that far exceed the Bay's ability to adequately assimilate such loadings. As a result, the sediment settles to the Bay bottom and smothers the Bay's oyster beds and submerged aquatic vegetation – Mother Nature's most efficient filters.

Agencies and NGOs may quibble about degrees of impact while citing estimated percentages of pollution attributable to scour during storms; but so much pollution loading to the Bay comes from the Susquehanna River and so much pollution has accumulated in the upstream reservoirs that any percentage of scour is still an enormous amount of pollution being delivered in shock loadings in a few days. See exhibit images of the 2020 Year End Flush that occurred thanks to Exelon after the Susquehanna River flow exceeded 300,000 cfs on December 26, 2020.

Simply put, the Coalition counties cannot accept as the new normal for the Maryland portion of the Bay that all of the reservoirs in the lower Susquehanna River are full, that enormous amounts of Susquehanna River pollution are no longer being trapped, that more storms and harmful scour are inevitable and that dredging Conowingo reservoir is off the table. Nor should any Marylander who cares about the Bay. With predictions for more frequent and intense storms comes the scouring of enormous amounts of nutrient-laden sediments and other contaminants from the Conowingo reservoir, which has lost its trapping capacity. Denial and downplaying risk widespread taxpayer fatigue watching the government ignore the elephant in the room.



All things considered, the Bay is declining, in spite of billions of dollars spent to restore it (and glossy colored reports reminding us just how little progress we've made). By bringing as much attention as possible to the single largest source of pollution to the Bay and the greatest threat to Bay restoration effects at every level, all the while pointing out that today nobody is responsible for dredging or otherwise addressing the accumulated nutrients and sediments above the Conowingo Dam and that our upstream neighbors are doing very little in comparison to the collective efforts of Marylanders, the Coalition has been stoking an overdue and deserving public policy discussion about the smartest, most cost-effective ways to save the Bay and help local economies in the process. It is time to take a step back and look again at the big Chesapeake Bay watershed picture, and to recognize the perfect storm of political, economic, governmental, regulatory, environmental and special interest forces – including Mother Nature herself. It is time to reprioritize what we do and spend to meaningfully improve the water quality of the Bay.

Keeping it simple: the 14-mile reservoir above Conowingo Dam is the largest stormwater management pond in the Bay watershed and it is full. It must be dredged and properly maintained in order to trap some of the sediment and other pollutants that flow down the Susquehanna River before entering the Bay. We support stopping all pollution from ever entering the Susquehanna River; however, we are realistic about how long that will take and at what costs (see widespread and justified criticism of the Draft Conowingo WIP and Pennsylvania's Phase III WIP). In the meantime, by dredging and maintaining Conowingo reservoir (and the other dam reservoirs in the lower Susquehanna River), the Maryland portion of the Bay will get the ecological breathing room that it needs to recover and thrive. The Administration's "Conowingo Sediment Characterization and Innovative Reuse and Beneficial Use Pilot Project" will show positive economic opportunities and commercial benefits related to dredging the Conowingo reservoir, in addition to the environmental benefits downstream. With the sediment characterization component of that project underway we look forward to the scientific information about the accumulated sedimentation in Conowingo reservoir that is so critical to assessments and decisions being made regarding the Conowingo Factor.

Like many other stakeholders, we are disappointed in the direction, scope and feasibility of the Draft Conowingo WIP and filed written comments in January 2021 accordingly. We understand how really tackling the Conowingo factor will test the fortitude of the watershed states' partnership and Exelon Corporation; but a healthier Chesapeake Bay is well worth the effort. We also understand that without addressing the Conowingo factor the Bay TMDL goals and WIPs for downstream jurisdictions are unachievable and unaffordable.

For these reasons, the Coalition urges a FAVORABLE report on SB 540.

CONTACT: Chip MacLeod at 410-810-1381 or cmacleod@mlg-lawyers.com

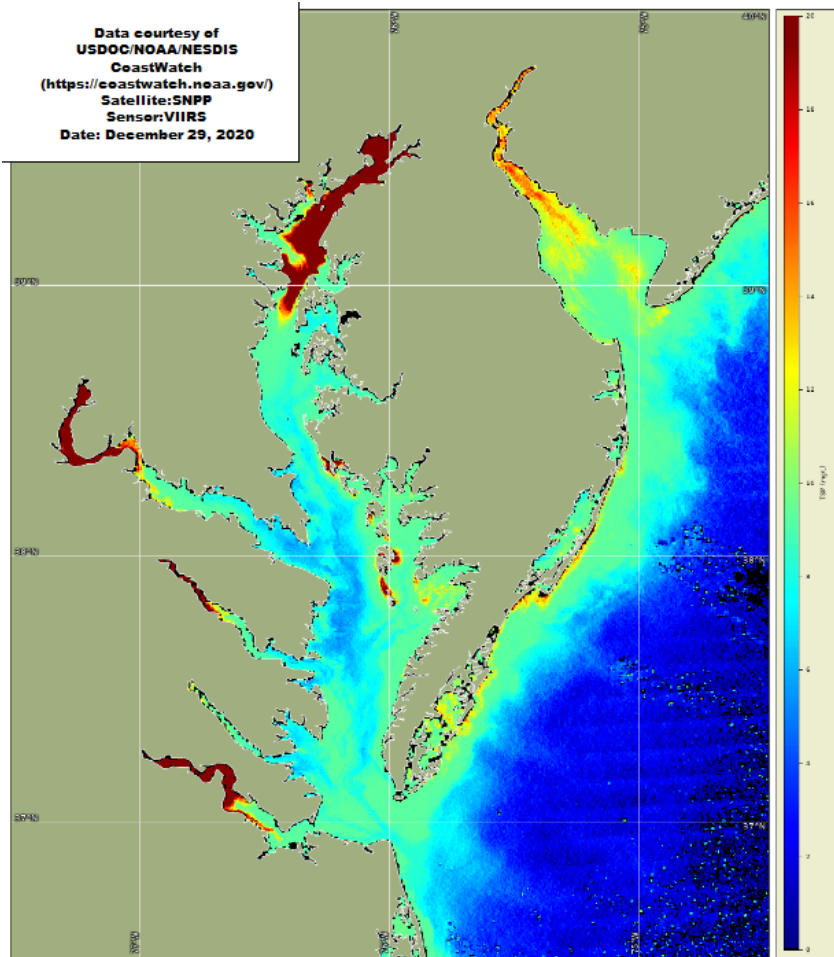
Exhibits



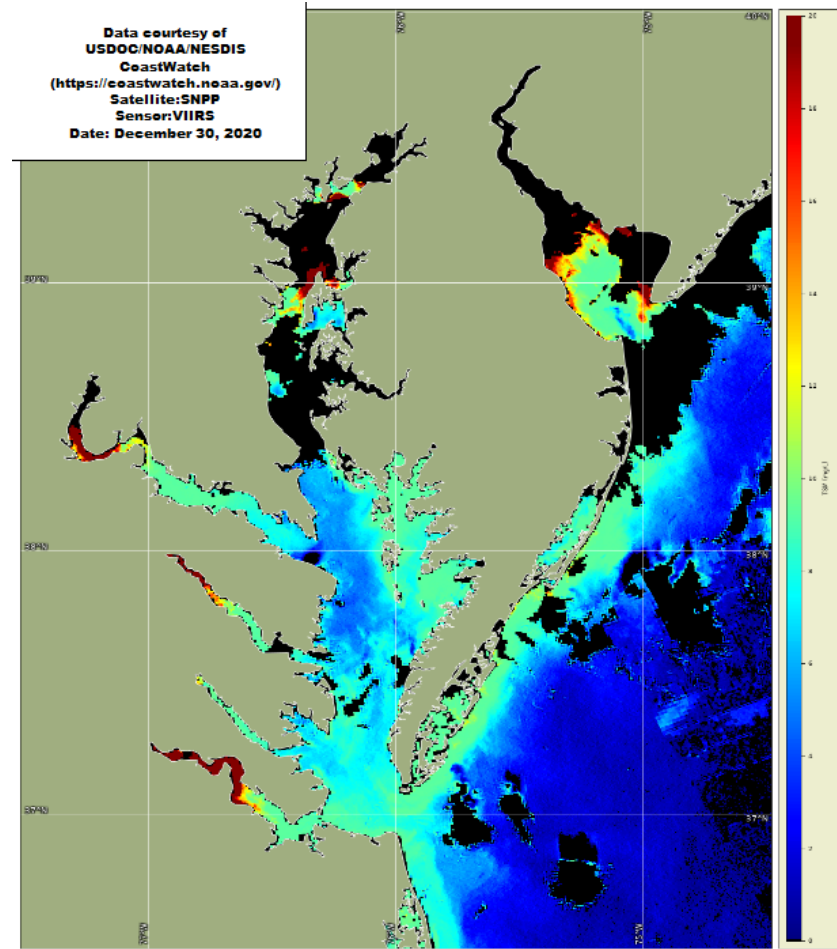
2020 Year End Flush - Conowingo Dam Sediment Plume (December 29-30, 2020)
Per [USGS](#), Susquehanna River flow at Conowingo exceeded 310,000 cfs on 12/26/20; the gage height exceeded 24 ft.



2020 Year End Flush - Conowingo Dam Sediment Plume (December 29-30, 2020)
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12/29/20



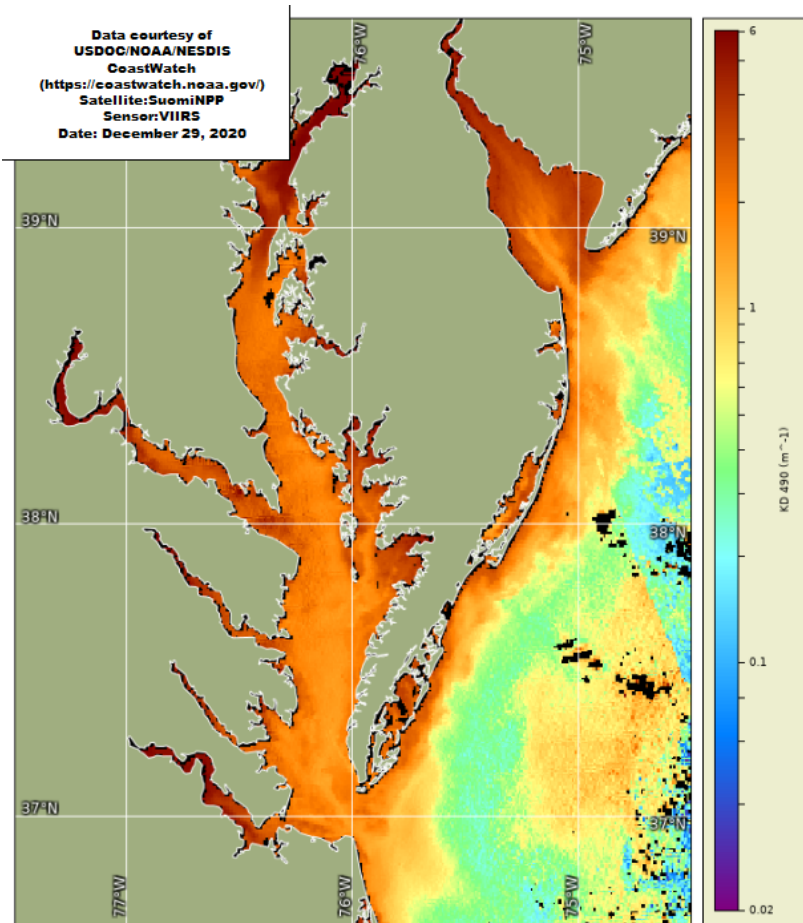
12/30/20

Suspended Matter images per MD DNR Eyes on the Bay [website](https://eyesonthebay.org/).

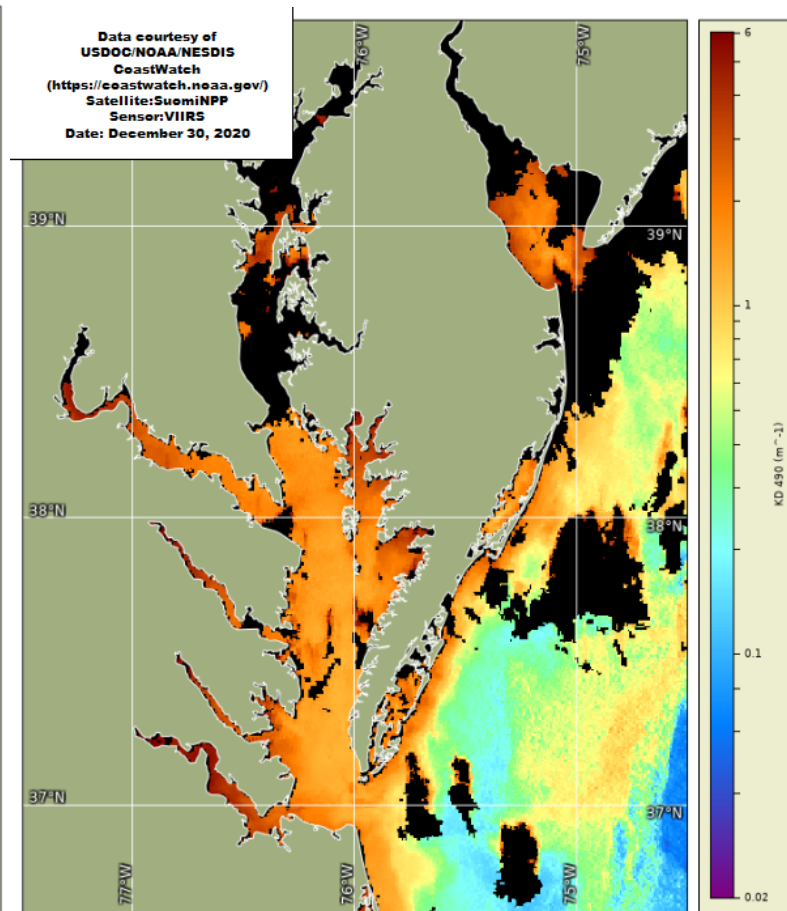


2020 Year End Flush - Conowingo Dam Sediment Plume (December 29-30, 2020)

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12/29/20



12/30/20

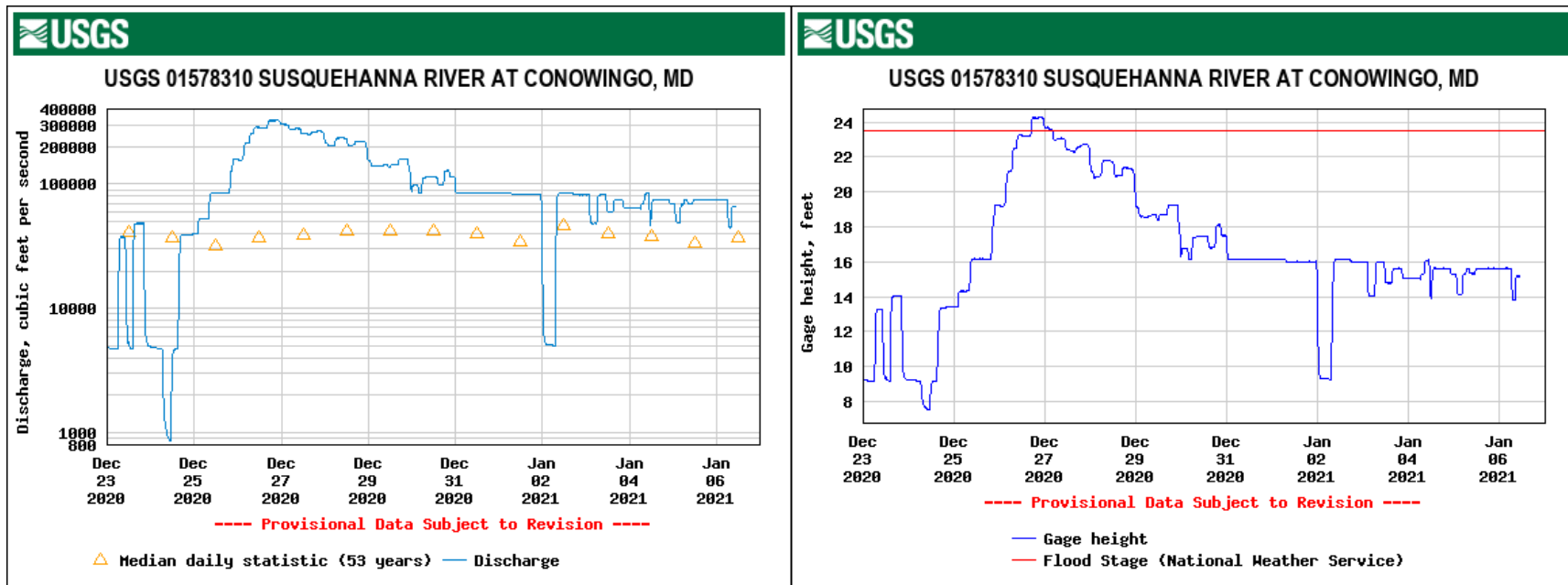
Turbidity images per MD DNR Eyes on the Bay [website](#).

Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates. The more total suspended solids in the water, the murkier it seems and the higher the **turbidity**. **Turbidity** is considered as a good measure of the quality of water.



2020 Year End Flush - Conowingo Dam Sediment Plume (December 29-30, 2020)

Per [USGS](#), Susquehanna River flow at Conowingo exceeded 310,000 cfs on 12/26/20; the gage height exceeded 24 ft.



River Flow / Discharge

Gage Height (“Flood Stage” is 23.5 ft.)

Notes:

It has been determined that scour occurs at discharges greater than 175,000 ft³/s (cubic feet per second or cfs) with concentrations of discharges rising steeply when discharges are above that amount. (see Hirsch, R.M., 2012, *Flux of nitrogen, phosphorus, and suspended sediment from the Susquehanna River Basin to the Chesapeake Bay during Tropical Storm Lee, September 2011, as an indicator of the effects of reservoir sedimentation on water quality*: U.S. Geological Survey Scientific Investigations Report 2012–5185, 17 p.

According to the Lower Susquehanna River Watershed Assessment ([LSRWA](#); May 2015), the predicted sediment load to Chesapeake Bay from Conowingo at a river flow rate of 300,000 to 400,000 cfs is 0.5 to 1.5 million tons. The average annual sediment load to Conowingo reservoir from Susquehanna River is est. 3.5 million tons. With the loss of trapping capacity, much of that load now flows freely into upper Bay. So, in a matter of days during the final week of 2020, the Bay was loaded with nearly one-half of the annual nutrient-laden sediment loading from Susquehanna River.



CLEAN CHESAPEAKE COALITION



NASA photograph from the Terra satellite, September 13, 2011 (a few days after Tropical Storm Lee) showing sediment plume extending about 100 miles to the mouth of the Potomac River.



The objective of the Clean Chesapeake Coalition is to pursue improvement to the water quality of the Chesapeake Bay in a prudent and fiscally responsible manner.

A picture is worth a 1,000 words...

This NASA satellite image appeared in the August 2012 U.S. Geological Survey report that confirmed the exponential loss of trapping capacity in the Conowingo Dam reservoir, and has since served as a calling card for the Coalition. We added the county jurisdictional boundaries.

Here are the staggering numbers behind the photograph of the 100-mile long sediment plume emanating from the Conowingo Dam a few days after Tropical Storm Lee in September 2011.

Estimated amounts transported into the Bay during this single storm event (over 9 days), According to the <i>U.S. Geological Survey</i> :		
42,000 tons nitrogen		10,600 tons phosphorus
19 million tons sediment		**4 million tons scoured (at least)
According to the <i>UMCES - Horn Point (Cambridge, MD) Survey</i> :		
115,910 tons nitrogen		14,070 tons phosphorus
By comparison (yearly Susquehanna River pollutant loading averages 1978-2011):		
71,000 tons nitrogen		3,300 tons phosphorus 2.5 million tons sediment

Pollution reduction targets per EPA Bay TMDL and Maryland WIP (through 2025):

	<u>State WIP Costs (billions)</u>	<u>State WIP Results (tons/year)</u>
<i>Stormwater</i>	\$ 7.38	Nitrogen – 1,100 Phosphorus – 116 Sediment – 102,370
<i>Septics</i>	\$ 3.71	Nitrogen – 620 Phosphorus – 0 Sediment – 0
<i>WWTP</i>	\$ 2.36	Nitrogen – 1,909 Phosphorus – 46 Sediment – 0
<i>Agriculture</i>	\$.928	Nitrogen – 2,372 Phosphorus – 187 Sediment – 37,108
<u>TOTAL</u>	\$ 14.4	Nitrogen – 6,001 Phosphorus – 349 Sediment – 139,478

Learn more at CleanChesapeakeCoalition.com and follow us on Facebook.

Clean Chesapeake Coalition Advocates for Conowingo Pond Dredging

The Conowingo Dam (the “Dam”) converted the lower Susquehanna River into a large stormwater management pond that Exelon, the Dam’s owner, calls the “Conowingo Pond.” The Dam widened the natural course of the river and increased the depth of the river. Widening and deepening the river slowed the rate of flow of water in the river, which allowed suspended solids in the river to settle (fall out of suspension) on the bottom of the reservoir and become “trapped” in the same manner that a stormwater management pond “traps” sediments.

Like all stormwater management ponds, the Dam has altered the otherwise normal or natural flow of water in the Susquehanna River. Like all stormwater management ponds that have not been maintained (*i.e.*, periodically dredged of the sediments that accumulate in the artificially created reservoir), during significant storm events, accumulated sediments have been scoured from the bottom of the pond and dumped in mass below the Dam, shocking the Maryland portion of the Chesapeake Bay with a blanket of deadly sediments.

Sediment Scoured From The Conowingo Reservoir During Significant Storm Events¹				
<u>Storm</u>	<u>Year</u>	<u>Month</u>	<u>Peak Flow Cu³/sec</u>	<u>Volume of Sediment Scoured into Bay (Million Tons)</u>
Hurricane Agnes	1972	June	1,130,000	20
Hurricane Eloise	1975	September	710,000	5
Unnamed	1993	April	442,000	2
Unnamed	1996	January	909,000	12
Hurricane Ivan	2004	September	620,000	3
Unnamed	2011	March	487,000	2
Hurricane Irene	2011	July	Unmeasured	Unmeasured
Tropical Storm Lee	2011	September	778,000	4
Hurricane Sandy	2012	October	Unreported	Unreported

¹ Jeffrey Brainard, *Big Year for Bay Storms, Bad Year for Bay Sediment?*, Chesapeake Quarterly Vol. 10 No. 4, Dec. 2011. See link: <http://www.mdsg.umd.edu/CO/V10N4/main1/>. See also *The Impact of Sediment on the Chesapeake Bay and its Watershed*: U.S. Geological Survey, June 3, 2005. See link: <http://chesapeake.usgs.gov/SedimentBay605.pdf>.



Billions of taxpayer dollars have been spent to dredge the navigable shipping channels in the upper Bay and the channels into local marinas that have been clogged with sediments. The largest source, if not the sole source, of those sediments is the Susquehanna River, including scour from the bottom of the Conowingo Pond. Economically and environmentally, those sediments should be dredged from the pond behind the Dam where they have accumulated (approximately 9,000 acres or 3,600 hectares), not after they are dumped into the Bay and spread across approximately 4,479 square miles.

Exelon, a company with over \$30 billion in annual revenues, receives at least two benefits from the Dam: (1) it produces 572 megawatts of electricity, which is enough electricity to power an average of 572,000 or more homes; and (2) it receives renewable energy credits that may be used or sold to offset air emissions from power plants that burn fossil fuels.

Sediment Loading From Storm Event Scour In Comparison to Average Annual Sediment Loading from Susquehanna River				
<u>Storm</u>	<u>Year</u>	<u>Avg. Annual Sed. Load from Susquehanna River (Million Tons)</u>	<u>Sed. Load From Scour (Million Tons)</u>	<u>% of Avg. Annual Load from Scour</u>
Hurricane Agnes	1972	1.5	20	1,333%
Hurricane Eloise	1975	1.5	5	333%
Unnamed	1993	1.5	2	133%
Unnamed	1996	1.5	12	800%
Hurricane Ivan	2004	1.5	3	200%
Unnamed	2011	1.5	2	133%
Tropical Storm Lee	2011	1.5	4	266%
Hurricane Sandy	2012	1.5	Undetermined	Undetermined



The photographs below were taken within 2-4 days after Tropical Storm Lee in September 2011.



Scour during significant storm events occurs in less than one week. Thus, in a matter of days, scour from the Conowingo Pond during a significant storm has added anywhere from 133% to 1,333% more than the average annual sediment loading from the Susquehanna River. Such loading results in a big die-off of oysters and underwater grasses in the Bay north of the Choptank River. In 1972, up to a meter of sediments was added to the floor of the upper Bay; two-thirds of that sediment was attributed to scour from the floor of the lakes and reservoirs behind the three dams in the lower Susquehanna River. During Tropical Storm Lee, over two inches of sediments were deposited on the floor of the upper Bay. In short, the shock effect of this rapid loading of scoured sediments is devastating to all fauna that cannot flee (swim) to the lower Bay and to all SAV in the upper Bay. The oysters and SAV in the upper Bay and the upper Bay tributaries have never recovered from the devastation caused by the scour from Hurricane Agnes. SAV in the Susquehanna Flats was killed to pre-1985 levels (thousands of acres of SAV were killed) as a result of the two storm events in 2011.

The Dam traps the best sediment - sand - and releases the most damaging sediments - clay and silt - into the Bay. The Bay has thus been deprived of sand that is necessary: (1) to hold the roots of SAV during storm events; (2) to support the shell beds of oysters; (3) to fortify shorelines and thus reduce erosion; and (4) to cover and suppress the clays and silts that are washed into the Bay so that those clays and silts (a) do not continue to emit phosphorus and nitrogen bound to them in the Susquehanna estuary, (b) do not continue to agitate into suspension and cloud the Bay waters; and (c) do not deprive Bay flora and fauna of needed sunlight and habitat.

If the Conowingo Pond is not dredged and maintained, the Bay will never recover. Coalition members have intervened in the relicensing of the Dam to urge the Federal Energy Regulatory Commission (FERC) to place conditions on the license to be issued that will require Exelon to dredge and maintain the stormwater management pond created by the Dam so that a blanket of deadly sediments cannot be scoured from the bottom of the reservoir and deposited in the Bay now with regularity and in devastating proportions during significant storm events.

The Coalition observes that the science underpinning the points being made all comes from federal agencies and institutions funded by federal agencies and federal tax dollars. The Coalition hopes that FERC will act consistently with federally conducted and federally funded studies, unless it is able to offer a scientifically based rationale for why such studies are invalid or unreliable and undeserving of due consideration in the relicensing of the Dam.

The Coalition observes that significant federal financial resources have been devoted to dredging below the Dam. Federal resources should be directed to the capture of sediments above the Dam before such sediments are widely dispersed over the Bay. It would be more cost effective to capture sediments above the Dam than below. To the extent that dredging of the Conowingo Pond will reduce the federal funds required to dredge the upper Bay in order to keep the Port of Baltimore and the stream of marine commerce viable, a portion of such savings could equitably be directed to assist Exelon with the cost of dredging and maintaining the Conowingo Pond.



WKC Conowingo Testimony SB540.docx.pdf

Uploaded by: Nicholas, Elizabeth

Position: FAV

**Testimony in Support of House Bill 427 – Federal Clean Water Act – Authority of State
(‘Emergency Conowingo Dam Legislation’) – Delegate Jacobs**

February 20, 2021

Dear Chairman Pinsky and Members the Committee:

Thank you for this opportunity to submit testimony in support of Senate Bill 540 on behalf of Waterkeepers Chesapeake. Waterkeepers Chesapeake is committed to ensuring a healthy Chesapeake Bay watershed, which includes the rivers and streams that feed into the Bay. You can also find an organizational sign-on letter and a watermen sign-on letter in support of this bill.

Maryland Waterkeepers work on measures that safeguard our waterways, protect drinking water sources, and ensure aquatic habitat health of the Chesapeake Bay—and this means ensuring that owner of Conowingo Dam, Exelon Corporation, plays its fair share in the cleanup efforts around the dam’s reservoir. The state does not have enough resources to tackle this problem on its own, and the health of the Chesapeake Bay depends upon it.

1. Background & Need for Emergency Legislation

a. Background

Conowingo Dam requires a federal license that needs to be renewed every 50 years. The Dam’s license was up for renewal in 2014. As a part of the federal re-licensing process, Maryland had the opportunity to issue a Water Quality Certification (WQC) for the Dam—with new conditions that would put the owner, Exelon Corporation, on the hook for a number of clean up requirements. Exelon applied for a WQC from Maryland in 2014. The application was deficient and the state notified Exelon that the application would be denied, if it was not withdrawn. This happened three more times - when finally in 2018 MDE issued the final WQC for Conowingo Dam, with robust conditions that would require Exelon to play a fair share in the clean up around the Dam. It held Exelon responsible for the removal of 6 million pounds of nitrogen and 260,000 pounds of phosphorus every year for the next 50 years. Exelon subsequently sued the state. After the lawsuit was filed, Maryland proposed to settle with Exelon. The Proposed Settlement agreement was submitted to FERC on October 31, 2019, and the comment period ended on January 19, 2020. FERC has not approved this settlement despite having it in front of them for more than one year. MDE has the ability to withdraw the Proposed Settlement agreement before FERC makes a final determination on it.

The Proposed Settlement agreement between Maryland & Exelon on Conowingo Dam would require Maryland to waive its clean water rights over the next 50 years. The agreement would only require Exelon to pay \$1.2 million a year, whereas the Maryland-issued Water Quality Certification would have required \$172 million a year in cleanup costs. **This would forfeit over \$8.5 billion from Exelon over the next fifty years.** Meaning, the state and the public would have absolutely no opportunity to put any new obligations on Exelon until the year 2070; and the clean-up burden of Conowingo Dam will be placed on taxpayers. The Proposed Settlement is currently under consideration by the Federal Energy Regulatory Commission (FERC), but the state has the ability to withdraw the Proposed Settlement prior to FERC's determination.

b. Why Senate Bill 540 is Needed

By preventing Maryland from waiving the Water Quality Certification it issued to Exelon for Conowingo Dam in 2018, the state would have to withdraw the settlement agreement to remove the waiver of the WQC. If the state moves forward on the settlement agreement without this change, Maryland will be losing out on billions of dollars of cleanup support from Exelon over the next 50 years and there will be no public accountability measures to ensure Exelon meets the clean up terms under the settlement.

Millions of pounds of sediment & nutrient pollution (including nitrogen & phosphorus), along with trash and debris, will continue to flow down the Susquehanna River from Conowingo Dam, into the Chesapeake Bay and local rivers and streams. Many of the impacted waterways are drinking water sources for Maryland residents, including the City of Baltimore. The nutrients and sediments from the Dam kill off aquatic species, such as crabs, fish and oysters, that are an essential part of Maryland's seafood economy.

2. Water Quality Impacts of the Conowingo Dam

The Conowingo Hydroelectric Project is a 100-foot concrete dam and integrated power plant that traverses the Susquehanna River in Maryland, approximately 10 miles north of its confluence with the Chesapeake Bay. It has been in operation for almost 100 years and brings 40% of the nitrogen, 25% of the phosphorus, and 27% of the sediment load to the Chesapeake Bay.

Exelon incorrectly claims that the Conowingo Dam Project has functioned as a "best management practice" for the Chesapeake Bay, but this is an overly simplistic portrayal of the Project's effects. While the dam historically trapped an average of 50-67% of the annual sediment load (1.5 to 2 million tons, with nitrogen and phosphorus attached to it), the close to 14-mile long reservoir is now full after close to a century in operation, with no adequate action taken to remedy the hundreds of millions of pounds of trapped debris and sediment. If not for the Conowingo Dam,

this load would have been delivered to the Lower Susquehanna River and Chesapeake Bay at normal rates.

Indeed, the Conowingo Dam has profoundly altered the Lower Susquehanna River system. The reservoir has produced an enormous artificial repository of sediment and associated nutrients that can be scoured by high flow events, re-mobilized, and delivered downstream by large storm-induced flows. The process of “scouring” the sediment and debris in the reservoir occurs when there are high flow conditions (caused by storms or when snow melts). When reservoir is scoured, all the debris and sediment are dumped all at once into the Lower Susquehanna River, the Susquehanna Flats (the shallow underwater delta of the Susquehanna River), and the upper Chesapeake Bay.¹ These scoured loads add pollutant loads at times when the downstream receiving waters are already vulnerable, receiving their heaviest loads of suspended pollution from the Susquehanna River Watershed. What this all means is that **scoured loads deliver much greater quantities of sediment and nutrients to the Lower Susquehanna River and Chesapeake Bay than the natural loading that would have occurred during the same flow events had the Dam not been in place.** The resulting excessive concentrations of sediment and nutrients impair aquatic wildlife habitat by fueling excessive algae growth, blocking light penetration that is critical to underwater life, and physically smothering sensitive aquatic life, including underwater vegetation and oyster beds.² Particularly in the case of very large storms, scouring of the Dam’s sediment accumulation could overwhelm pollution reduction efforts undertaken upstream in the Lower Susquehanna River watershed, and set water quality and the growth of underwater grasses in the Susquehanna Flats and Chesapeake Bay back for decades. This is particularly true during very large storms, such as 25-year, 50-year, 75-year, and 100-year return interval flow events, for which there is a substantial likelihood of repeated occurrence during the requested license period. This risk only increases as we continue to face greater storm frequency and intensity. Indeed, the effects of climate change will likely lead to more frequent and severe scouring events at Conowingo.

3. The 2018 Water Quality Certification for Conowingo Dam

Clean Water Act § 401 requires Exelon to obtain a certification from MDE that “any discharge” from the Conowingo Dam “will comply with the applicable provisions of” Clean Water Act §§ 301, 302, 303, 306, and 307. 33 U.S.C. § 1341(a)(1). It requires that all conditions “necessary to assure” compliance with these provisions become conditions on the Conowingo Dam’s license. *Id.* § 1341(d). On April 27, 2018, MDE issued a § 401 Certification for the Conowingo Dam. Clean Water Act Certification for the Conowingo Hydroelectric Project. That certification was

¹ Lower Susquehanna Riverkeeper *et al.*, *Comments Re: Conowingo Hydroelectric Project, Application for Water Quality Certification, Application # 17-WQC-02* at 7-8 (Sept. 11, 2017), Ex. B hereto.

² *Id.*; Ex. B at 12-13, ¶ 6.G-J.

opened for public comments and the public comment period was then extended to allow more stakeholder input as well as a public hearing, as there were many concerns expressed about the Project.

In its Certification, Maryland found that operations of Conowingo Dam had the following impacts on water quality:

- Significant and adverse impacts on biota and fish due to both dam operations, restricting necessary water flow, and blocking fish passage;
- Decimated the previously vibrant Shad and Herring fisheries;
- Stopped the reproduction of mussels (by blocking eel passage), and loss of the important filtration of sediment and nutrient pollution;
- Loss of 14 miles of healthy flowing natural river;
- Loss of all trapping capacity for sediment and nutrients, resulting in pollution moving downstream, and significant releases of pollution during storm events;
- Reduction of dissolved oxygen (DO) levels and harm to aquatic life
- Increased velocity of water and unfavorable substrate conditions resulting in additional scour and movement of pollution downstream;
- Accumulation of trash and debris, which is then released in mass during storm events, adversely impacting recreation, water supply and aquatic life downstream; and
- Prevents the natural attenuation of sediment and nutrients and prevents growth of submersed aquatic vegetation (SAV).

To address this wide array of water quality impacts, Maryland's Certification imposed a number of conditions intended to implement water quality criteria for dissolved oxygen and to support the related designated uses. The Certification states expressly: **"The Department hereby certifies that the Project's operations and discharge into navigable waters will comply with applicable effluent limitations, other limitations, and water quality standards and requirements issued or approved under Sections 301, 302, 303, 306, and 307 of the Clean Water Act or applicable State Law, provided that Licensee complies with all of the provisions, requirements, and conditions in this Certification."** (emphasis added). Thus, it confirms that "compli[ance] with all of the provisions, requirements and conditions" in the Certification is necessary to assure the Dam's compliance with the state's legally-binding water quality standards. The Certification states plainly that it is MDE's "final decision."³

One of the most significant provisions in the Certification relates to the sediment and nutrient pollution, requiring Exelon to “**annually reduce the amount of nitrogen included in the Project’s discharges by six million (6,000,000) pounds and the amount of phosphorus in**

³Certification at 27.

the Project’s discharges by two hundred sixty thousand (260,000) pounds (or such different amounts of phosphorus and nitrogen reductions as may be approved by [the Maryland Department of the Environment], provided that such different amounts of nitrogen and phosphorus reductions provide the equivalent protection of [dissolved oxygen] levels...) (emphasis added).”⁴

The Certification allows Exelon to propose to meet these reduction requirements through “any combination” of reduction strategies, including: payment of an in-lieu fee annually per pound of nitrogen and phosphorus removed; installation of a combination of best management practices and ecosystem restoration; or dredging the reservoir. If payment in-lieu were the sole strategy to meet this requirement, the payment schedule in the certification would result in a cost of \$172 million per year. Over the life of the 50 year license period, this would amount to payment of \$8.6 billion for nutrient reduction in the Susquehanna River and the Chesapeake Bay, with an adjusted present value of \$4,977,295,606.00.

4. The Proposed Settlement between MDE and Exelon

On October 29, 2019, Maryland proposed to waive their authority under § 401 of the Clean Water Act in the Joint Offer of Settlement (“Proposed Settlement”), that was negotiated between MDE and Exelon, while excluding any other stakeholders, such as Waterkeepers, other environmental organizations, municipalities, and watermen who have all been involved in this process for many years. More specifically, the Proposed Settlement agreement would require Maryland to waive its clean water rights over the next 50 years, along with the billions of dollars in clean up that the Water Quality Certification would have had Exelon on the hook for. **The settlement states that MDE would “waive[] any and all rights it had or has to issue a water quality certification under Section 401 of the Clean Water Act” for the relicensing of the Conowingo Dam.** MDE fails to provide *any* explanation for how this incredibly weak Proposed Settlement can protect Maryland’s water quality. It’s also unclear how Maryland can simply wish away an already issued final Water Quality Certification.

While there is sparse information in the Proposed Settlement, it is clear that it rests on a payment in-lieu scheme for its substance. The total of *all* payments under the Proposed Settlement would yield only \$107 million over the entire 50 year term of the permit. The

Proposed Settlement failed to adjust for the present value of the payments, as the environmental remediation is gauged at the present time. Adjusted for present value, **the total payments would yield only \$61.6 million over the entire 50 year term.** Divided over the license term, that equals an average of only \$1.2 million per year, as opposed to the \$172 million per year that was *required* in order to protect Maryland's water quality.

⁴*Id.* at 15, ¶ 7.D.ii.

More specifically, the Proposed Settlement is flawed in a number of ways:

- A. The Proposed Settlement provides grossly insufficient funds to deal with the risks that Conowingo operations pose to the Susquehanna River and Chesapeake Bay — primarily from the next large storm that will scour the millions of tons of sediment, nutrients, and debris currently trapped behind the Dam. **A mere \$500,000 was dedicated to finding solutions for the hundreds of millions of tons of sediment in the Dam's reservoir, which will be wholly inadequate to addressing that problem and remains the biggest threat to the health of the Chesapeake Bay.**
- B. The settlement includes statements of intent without assurances that the initiatives and actions under the agreement will actually be fulfilled by Exelon; there are no stipulated timelines for completion of some of the work to be done by Exelon.
- C. The settlement gives the public no enforcement power to make sure the terms of the settlement are fulfilled in a sufficient manner. It leaves oversight entirely up to the State of Maryland, giving no other parties standing to hold MDE or Exelon accountable.
- D. The settlement requires payments made by Exelon to go to the State's Clean Water Fund, which can be reallocated or raided by the Governor at any time over the next 50 years. As an example of how the funds can be used, in fiscal year 2017, salaries and wages accounted for roughly 78 percent of the Clean Water Fund's budget.
- E. The settlement does not mention any appropriation of funding for upstream water quality improvements to combat sediment and nutrient load to the Dam's reservoir. Significant improvements must be made upstream, and those communities need support now as a part of this settlement.
- F. The Proposed Settlement does away with the **Conowingo Dam Watershed Implementation Plan (WIP), threatening the viability of the Chesapeake Bay Total Maximum Daily Load (TMDL).** WIPs are plans for how states will achieve the TMDL, or the "pollution diet" determined by the EPA for any given waterway. WIPs are meant to be comprehensive efforts among private, local, state, and federal entities. Exelon has gone on the record to claim that any contribution to the clean-up of the Conowingo Dam would be an "unfair burden," even though they have profited off of the Dam's operation in the past and will continue to profit from it for the next 50 years.

5. MDE Did Not Waive It's WQC Rights in 2015, As Some Have Argued

Lastly, we'd like to address the issue of whether Maryland waived its rights to issue a WQC back in 2015. §401 of the Clean Water Act provides that a state may issue a WQC on a project that requires a federal license within one year after receiving the initial application; if the state does not act upon the WQC within a year, it thereby waives any right to issue a WQC. This is to ensure that states decide upon WQC applications within a timely manner. In 2019, the U.S. D.C. Circuit Court (*Hoopa Valley Tribe v. FERC*) found that a state had waived its authority to issue a WQC when an applicant submitted the same exact 401 WQC application for more than a decade, and the state failed to take any action on it. The D.C. Circuit Court expressly declined to rule on whether a State could waive its rights to issue a § 401 certification where an applicant withdraws its request and submits one that is either "wholly new" or substantially different, which is what happened with Exelon's application several times. Exelon's application was glaringly incomplete when it was submitted in 2014, and remained so until Exelon finally provided the Sediment Study in 2017. After the final 2017 application was submitted – the only application that was accompanied the Sediment Study and the only application that MDE deemed complete – MDE issued a final WQC for the Dam within a year in 2018.

Likewise, MDE has vigorously defended the fact that it did not waive its 2018 certification rights under the Clean Water Act:

"Seizing on a recent D.C. Circuit ruling [*Hoopa Valley Tribe v. FERC*, 913 F.3d 1099 (D.C. Cir. 2019)] **that has nothing to do with the instant facts, Exelon asks the Commission to find that Maryland waived its right to issue the Conowingo water quality certification. The basis for this claim is that the State did not act on Exelon's certification application until 2018, even though that application was first filed in January 2014. **What Exelon ignores is that in late 2014—and on three separate occasions thereafter—Exelon voluntarily withdrew and resubmitted its certification application to MDE.**⁸ Through its decision to withdraw, Exelon left Maryland with no certification "request" to address, and, as such, no one-year deadline against which to measure the State's fealty to its CWA obligation...Exelon disagrees."—MDE Protest and Answer, p.3, *emphasis added*.**

"In its [Exelon's] view, once a request is made, the State must act within a year apparently even if the request has been withdrawn. **If Exelon is right, it means that a licensee that suspects its certification request is going to be denied (on any basis) can preemptively withdraw its application, wait out the one-year clock, and claim that certification has been waived. An applicant could even submit a certification request on**

one day, withdraw it (on any basis) a day later, wait a year, and then announce that the certifying state has waived its rights. Exelon says this vision of how Section 401 is intended to operate "promotes the public interest," Petition at 18, **but it cannot be the law that a state waives its certification right where, as here, it fails to act on an incomplete and voluntarily withdrawn certification application...**" -- MDE Protest and Answer, p.3-4, *emphasis added*.

6. Conclusion

We urge the Committee to adopt a favorable report on this legislation to ensure that Exelon pays a fair share in the cleanup around the Dam. Watermen -- whose livelihoods are already being affected by Chesapeake Bay pollution -- and Maryland taxpayers should not have to bear the financial responsibility for pollution from Conowingo Dam.

Sincerely,
Betsy Nicholas
Executive Director

Waterkeepers Chesapeake

Betsy Nicholas
Executive Director
Waterkeepers Chesapeake
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SB 540 Exelon Testimony OPPOSE.pdf

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TESTIMONY OF KATHLEEN BARRÓN OF EXELON CORPORATION
BEFORE THE ENVIRONMENT AND TRANSPORTATION COMMITTEE OF THE MARYLAND HOUSE OF DELEGATES

ANNAPOLIS, MARYLAND

SENATE BILL 540 – OPPOSED

FEBRUARY 22, 2021

Chairman Pinsky, Vice Chair Kagan, and Members of the Committee: As Exelon Corporation’s Senior Vice President of Governmental and Regulatory Affairs and Public Policy, I want to thank you for the opportunity to submit written testimony about Senate Bill 540, the Conowingo Hydroelectric Project, and the historic settlement agreement that the Project’s owner and operator, Exelon Generation Company LLC, executed in October 2019 with the Maryland Department of the Environment. MDE’s and Exelon’s October 2019 agreement, which settled substantial disputes under Section 401 of the federal Clean Water Act that would have remained in litigation for years with no benefits to the Bay, will both protect the long-term health of the Chesapeake Bay and preserve Maryland’s largest source of clean, renewable energy.

Through Exelon Generation and its utility subsidiaries, Exelon generates and delivers electricity to a majority of Maryland homes and businesses. Our company is committed to supporting the environmental goals of all our customers. Foremost among those goals in Maryland is to restore clean water in the Chesapeake Bay. The Chesapeake Bay is one of the world’s largest and most biologically productive estuaries, an American treasure, and essential to Maryland’s identity. Exelon has been, and remains, committed to operating the Conowingo Hydroelectric Project in a manner that is environmentally responsible in all respects. Exelon Generation agreed to settle its disputes with MDE in October 2019 because we believe settling, as opposed to pursuing litigated outcomes, is not only in our best interest but is in the best interest of the Bay, in the best interest of the people of Maryland, and— at a time when the existential threat of climate change must be met with carbon-free sources of energy—in the best interest of our planet.

SB 540, the bill under consideration, purports to prohibit Maryland from entering into any agreement that waives the State’s authority under Section 401 of the federal Clean Water Act to place conditions on the Federal Energy Regulatory Commission (FERC) relicensing of the Conowingo Hydroelectric Project. We strongly urge you to reject this bill because it could jeopardize three sets of benefits that the Chesapeake Bay and the people of Maryland would otherwise enjoy as a result of this settlement for decades to come. Those three sets of benefits flow, first, from the Dam’s continued operations as Maryland’s largest source of clean, renewable energy; second, from the proposed license conditions that MDE and Exelon agreed to in October 2019 when we settled our dispute under Section 401 of the Clean Water Act; and third, from additional, off-license commitments that Exelon made as part of that settlement agreement. In my testimony today, I will briefly summarize all three sets of benefits.

Benefits from Conowingo's Continued Generation of Clean, Renewable Energy

The Conowingo Project has been and remains Maryland's largest source of clean, carbon-free, renewable energy. The Project is a 573-megawatt hydroelectric power plant located on the lower Susquehanna River in Cecil and Harford Counties, about ten miles upstream from the River's confluence with the Chesapeake Bay. Conowingo generates safe, reliable power for about 165,000 homes in the region.

As a source of renewable electricity, Conowingo's operation does not produce any air pollution and contributes significantly to our collective struggle against climate change. Compared to a coal facility of similar size, the Conowingo Project avoids the release of 6.5 million tons of greenhouse-gas emissions annually. Indeed, the Project is a larger source of renewable energy than all other sources in Maryland combined. By keeping Conowingo in operation, the settlement agreement between MDE and Exelon (if approved by FERC) will allow the Project to continue supporting the State's long-term renewable and clean electricity goals, while minimizing air pollution.

The Conowingo Project also benefits marine and wildlife habitats. It provides breeding, nesting, and foraging grounds for the American Bald Eagle and helps migratory and native fish travel over the Dam for spawning in the Susquehanna River, using multimillion-dollar fish lifts. These benefits will be further enhanced under the settlement agreement, as I will explain shortly.

In addition to its positive impacts on climate change, air pollution, and fish and wildlife habitats, the Conowingo Project delivers economic, recreational, tourism, and community benefits. Specifically, it generates about \$273 million in annual economic benefits to Maryland and its local communities by supporting 265 full-time-equivalent jobs, attracting 365,000 recreational tourist visits per year, and contributing more than \$20 million to Cecil and Harford Counties' annual tax revenues. For nearby residents as well as visitors, the Conowingo Project provides opportunities for educational programs and for recreation, including boating, hiking, fishing, and birdwatching. It provides 15 recreational facilities and public-access areas, including boat launches, marinas, and scenic overlooks.

One of the Project's most important benefits is too often misunderstood or mischaracterized: Conowingo has been for nearly a century and remains today a positive influence on downstream water quality in the lower Susquehanna River and the Chesapeake Bay. Since its construction in 1928, the Dam has benefitted the Bay by trapping harmful pollutants (such as nitrogen, phosphorus, and sediment) discharged into the Susquehanna River by others, largely in Pennsylvania and New York, and preventing these pollutants from reaching the Bay. Conowingo Dam continues to do so, but its ability to trap pollutants is not unlimited, and the Reservoir behind the Dam is essentially full. More of what comes downstream in the River therefore passes into the Bay. But the Dam has never been the source of these pollutants, and no resolution of Conowingo's federal relicensing could hold the Dam responsible for a problem it did not cause and cannot control.

In a recent peer-reviewed paper, a team of scientists from the University of Maryland Center for Environmental Science (UMCES) referred to Conowingo's presence as "an unintended watershed BMP [best management practice]." Their study found that the Conowingo Dam slows the River's flow and thereby increases "denitrification" (the escape of dissolved nitrogen into the air). As a result, the amount of dissolved nitrogen flowing away from the Dam and toward the Bay is usually less than the amount flowing toward the Dam from Pennsylvania. This net decrease in dissolved nitrogen is why a

joint study by MDE and the U.S. Army Corps of Engineers found that the Bay's dissolved-oxygen level—a key positive indicator of the Bay's health, attributable to reductions in dissolved nitrogen flowing downstream—is “uniformly higher” with the Conowingo Dam and Reservoir in place than it would be without them. And even with regard to the phenomenon known as “scour,” the recent UMCES study found that because the particulate (non-dissolved) nutrients that rest on the bottom of the Conowingo Reservoir and that may get “scoured” during large storms are relatively biologically inert (and thus not readily bioavailable for algal consumption), “scouring” has only a negligible impact on the Bay's dissolved-oxygen levels. Furthermore, although the region has seen serious storms in recent years, none has resulted in a “scour” event at Conowingo since Tropical Storm Lee in 2011.

Benefits from the New License Conditions that Maryland Negotiated with Exelon

As a major part of the settlement with MDE, Exelon agreed to significant changes in the Conowingo Project's flow regime, far beyond what was found to be necessary in FERC's environmental impact statement. The changes represent a significant portion of the changes to the flow regime that MDE had sought to impose in the original Section 401 certification that MDE issued in 2018. Though they will reduce the company's ability to generate electricity and reduce revenue over the license period, these changes will enhance habitat for aquatic species like American shad and river herring, which reside downstream of the Dam, and submerged aquatic vegetation, which trap sediment, remove pollution, and serve as a vital habitat to spawning and rearing fish.

As an example, March is an important month for fish migration and spawning. FERC's environmental impact statement for the Project concluded that requiring Exelon to maintain a minimum river flow of 3,500 cubic feet per second (cfs) throughout the month of March was adequate to protect water quality, fish habitat, and fish migration. Yet Exelon agreed for purposes of the settlement with MDE to maintain minimum river flows of 13,100 cfs from March 1 to 15 (almost four times the FERC rate) and 18,200 cfs from March 16 to 31 (more than five times the FERC rate).

In addition, although the FERC environmental impact statement did not find any upramping rate, downramping rate, or maximum flow restrictions to be necessary to protect water quality and fish habitat, Exelon agreed in the settlement to constraints in each of these areas, which parallel the requirements that The Nature Conservancy sought. These substantial (and, to Exelon, costly) changes in the Project's flow regime were a major focus of MDE in the settlement discussions, as MDE contended they will reduce the potential for fish stranding, improve upstream movement of migratory fish species, and reduce adverse impacts to spawning. The settlement provides that these flow-regime changes must be accepted by FERC and incorporated into the Project's license; if FERC does not do so, MDE retains the right to modify or potentially withdraw from the settlement.

The settlement agreement also has other provisions that MDE required to be accepted by FERC and incorporated into the Project's license (or again MDE has the right to modify or potentially withdraw from the agreement), which again echo provisions that MDE had sought to impose in the original Section 401 certification. For example, freshwater eastern elliptio mussels serve as an important natural “filter” for the river water flowing into the Bay. In addition to substantial off-license investments in a mussel hatchery (which are described further below), Exelon agreed as part of the settlement to include in its FERC license significant changes in the Project's support for the upstream transport of juvenile American eels, which are critical for expanding mussel populations. Specifically, Exelon agreed to three changes beyond other agreements reached with the U.S. Fish and Wildlife Service as part of an earlier

settlement: first, Exelon will extend the operation of an existing eel “fishway” or ladder from September 15 until mid-to-late November, which involves additional operational costs designed to allow passage of more eels above the Dam; second, Exelon will extend a separate upstream eel-passage “trap and truck” program from 2030 to 2035; and third, Exelon will construct and operate a second eel fishway for at least ten years. Exelon valued the cost of these eel-passage improvements, which will help facilitate mussel restoration and thus reduce pollution, at \$11 million. Exelon also has pledged to continue its significant commitments, valued at \$41 million, to address the accumulation in the Conowingo Reservoir of trash and debris that float down from New York and Pennsylvania. These license conditions will improve water-based recreational activities at the Project and enhance aesthetic resources.

Finally, the settlement agreement’s license conditions include shoreline-management and stream-flow-monitoring plans that will enhance water quality, as well as turtle-management and waterfowl-nesting plans that will provide significant benefits to, and scientific data about, natural resources in and near the Project.

Benefits from Exelon’s Off-License Commitments

Exelon’s dedication to the Susquehanna River and the Chesapeake Bay is further reflected in a series of off-license funding commitments that Exelon agreed to during its settlement negotiations with MDE. These commitments will be funded from the Conowingo Project’s earnings and will establish and support ecosystem services and projects to enhance the water quality of the Bay and offset the harmful effects of pollutants deposited in the River by others. Exelon’s commitments include the following:

- **Climate Resiliency:** Exelon will fund more than \$45 million in climate resiliency projects, including submerged aquatic vegetation, aquaculture, clam and oyster restoration projects, and living shoreline creation. These projects will help improve habitat diversity, protect water quality, reduce wave intensity, and make the Susquehanna River and the Chesapeake Bay more resilient to severe weather events.
- **Water-Quality Improvement:** Exelon will fund roughly \$19 million to support water-quality improvement projects, including forest buffers and agricultural projects such as cover crops to reduce runoff pollution. These projects will help absorb nitrogen and trap phosphorus-laden sediment before they can enter the Susquehanna River. And Exelon has committed \$3 million more to chlorophyll-A monitoring and reporting, to prevent impacts on the supply of drinking water drawn from the Conowingo Reservoir. Exelon also has committed more than \$12 million to support MDE and Maryland Department of Natural Resources staff who oversee efforts to protect the Chesapeake Bay.
- **Mussel Restoration and Eel Passage:** As noted earlier, freshwater mussels, carried upstream by American eels, serve as pollution filters in the Susquehanna River. Exelon has committed to contribute acres of land and to fund more than \$25 million to construct, operate, and maintain a 40,000-square-foot mussel hatchery that will significantly increase the River’s mussel population. In addition to the \$15 million worth of eel-passage improvements under the new FERC license (described earlier), Exelon has made an off-license commitment to contribute \$1 million to eel-passage research.

- **Dredging Studies:** Exelon will fund a \$500,000 feasibility study for dredge-material disposal options, which will help determine whether the Reservoir's sediment-trapping capacity can be expanded.
- **Transparency:** Exelon has agreed to maintain a public website containing plans, data, and reports related to the new license conditions that are designed to protect, mitigate damage to, and enhance fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

All these benefits from the Exelon/MDE settlement, both the new license conditions and the off-license commitments, are in addition to changes Exelon agreed to make to Project operations in a 2016 settlement with the United States Fish and Wildlife Service (FWS), as part of this same Project re-licensing process. That earlier settlement also covered the same water-quality and fish-protection issues that are important to MDE and the State of Maryland. In its 2016 settlement with FWS, Exelon agreed to make major physical modifications to its fish and eel lifts and to take other actions to significantly expand fish and eel passage above the Dam. The total cost to Exelon of these settlement provisions with FWS over the term of the license was up to \$300 million. Although MDE shared the same interests as FWS, MDE chose not to participate in the Exelon/FWS settlement. And MDE now has negotiated yet further license changes and off-license commitments that are valued at an additional roughly \$225 million over the term of the license. In addition to these settlement benefits, FERC's Final Environmental Impact Statement recommended that the final license include roughly \$175 million of other obligations relating to recreational facilities and rare, threatened, and endangered species. In total, Exelon thus will undertake up to \$700 million worth of improvements that will directly benefit citizens, water quality, and aquatic life in the state of Maryland, none of which will occur if the Exelon/MDE settlement does not proceed. The Exelon/MDE settlement agreement, if approved by FERC, will launch a critical and concrete step forward for Chesapeake Bay restoration efforts and will contribute significantly to improving water quality, fish and eel passage, aquatic habitat, and debris removal. And the settlement agreement will preserve Maryland's largest source of clean, renewable energy, which generates safe, reliable power for tens of thousands of Maryland families. In short, the settlement agreement robustly serves the public interest. We therefore urge you to reject SB 540 and any other attempt to thwart or delay this settlement.

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February 24, 2021

The Honorable Paul G. Pinsky, Chair
Education, Health, and Environmental Affairs Committee
2 West, Miller Senate Office Building
Annapolis, Maryland 21401

Re: Senate Bill 540 – Federal Clean Water Act - Authority of State

Dear Chairman Pinsky and Members of the Committee:

The Maryland Department of the Environment (MDE) has reviewed Senate Bill 540, entitled Federal Clean Water Act - Authority of State and would like to offer a letter of information regarding this legislation.

Senate Bill 540 prohibits the State from entering into an agreement that waives the State's authority under § 401 of the federal Clean Water Act as part of exercising the State's authority and carrying out the State's duties under the federal Clean Water Act and State law, including the State's authority and duties related to the federal relicensing of the Conowingo Dam.

SB 540 attempts to block the State of Maryland's efforts to resolve expensive and protracted litigation, amidst an uncertain and changing federal regulatory landscape. In recent years, Federal courts and FERC have expressed opposition to states' rights under Section 401, with FERC using the reasoning of the D.C. Circuit's decision in *Hoopa Valley Tribe* in several other licensing proceedings leading right up to our settlement in 2018 to find that states had waived their Section 401 authority. In the absence of a settlement agreement such an outcome could occur in the Conowingo relicensing as well, as Exelon had directly petitioned FERC to do so. If FERC were to find waiver, then Maryland would have no ability to impose environmental conditions on the operation of the dam for the next 50-year license term. By agreeing to a conditional waiver through the settlement, on the other hand, MDE has ensured that critically necessary improvements will occur and that environmental benefits will promptly ensue.

Those groups expressing opposition to the settlement have taken the position that the agreement does not go far enough and argue that MDE should have retained its water quality certification authority in order to address the dam's impacts by unilaterally imposing significant environmental mitigation burdens on Exelon. However, that approach most likely would only have resulted in many more years of protracted litigation, during which time the environmental impacts of the dam would go unchecked, without any certain solutions.

By purporting to prohibit MDE from entering into the settlement agreement with Exelon, SB 540 could throw the State back into a hostile litigation environment, without the prospect of resolving the complicated issues posed by Conowingo any time soon. Maryland's citizens and the Chesapeake Bay are better served by the settlement, which allows environmental improvements to begin soon, and not by years of expensive, unnecessary, and highly uncertain litigation. To the extent SB 540 also impacted

future relicensing cases, it would also hamper the State's flexibility to settle complex litigation, when that would best serve the interest of the citizens of the State of Maryland.

MDE is as frustrated as anyone that FERC has not made a decision on the settlement, since we filed it 16 months ago. We will continue to press FERC on the need for a decision immediately to help inform the State, including this Committee, and the many citizens, stakeholders, and agencies on how to make the necessary progress in restoring the Susquehanna River and Chesapeake Bay, while holding Exelon responsible for its fair share.

Thank you for your consideration. We will continue to monitor Senate Bill 540 during the Committee's deliberations, and I am available to answer any questions you may have. Please feel free to contact me at 410-260-6301 or by e-mail at tyler.abbott@maryland.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Tyler Abbott", written over a horizontal line.

Tyler Abbott

cc: The Honorable Stephen S. Hershey, Jr.
The Honorable Jason C. Gallion

SB0540 (HB0427) - LOI.pdf

Uploaded by: Fahrig, Landon

Position: INFO



TO: Members, Senate Education, Health, & Environmental Affairs Committee
FROM: Mary Beth Tung – Director, MEA
SUBJECT: SB0540 (HB0427) - Federal Clean Water Act - Authority of State
DATE: February 24, 2021

MEA POSITION: Letter of Information

The proposed legislation may interfere with or frustrate the settlement agreement between the State and the Conowingo Hydroelectric Generating Station.

MEA supports the continued operation of the Conowingo Hydroelectric Generating Station because it provides large quantities of emissions-free electricity that is both scalable and extremely reliable. The Conowingo dam is also incredibly valuable to Maryland as a generation asset because of its blackstart capability; having the ability to jump-start the electric grid in situations where there is a large blackout.

MEA's mission is to: "promote affordable, reliable and cleaner energy for the benefit of all Marylanders." This bill could negatively affect the affordability, reliability, and clean nature of Maryland's in-State electricity generation, albeit unintentionally. The proposed legislation may also add unnecessary risk to the settlement that was reached between the State and the Conowingo Hydroelectric Generating Station to assist in the remediation of the effects of upstream polluters.

MEA requests you take this information under advisement when considering how to report on Senate Bill 540.