

Department of Legislative Services  
 Maryland General Assembly  
 2019 Session

FISCAL AND POLICY NOTE  
 Third Reader - Revised

House Bill 600  
 Economic Matters

(Delegate M. Fisher, *et al.*)

Finance

Study on the Future of Nuclear Energy in Maryland

This bill requires the Power Plant Research Program (PPRP) in the Department of Natural Resources to conduct a study of nuclear energy and its role as a renewable energy resource that can effectively combat climate change in the State. By January 1, 2020, PPRP must report its findings and recommendations to the Governor and the General Assembly. **The bill terminates September 30, 2022.**

Fiscal Summary

**State Effect:** Special fund expenditures increase by up to \$150,000 in FY 2020 only. Revenues are not affected.

(in dollars)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Revenues	\$0	\$0	\$0	\$0	\$0
SF Expenditure	150,000	0	0	0	0
Net Effect	(\$150,000)	\$0	\$0	\$0	\$0

*Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate increase; (-) = indeterminate decrease*

**Local Effect:** None.

**Small Business Effect:** None.

Analysis

**Bill Summary:** The study must include:

- an evaluation and summary of the current state of nuclear energy in Maryland;
- an identification of the benefits of nuclear energy usage in Maryland and the environmental benefits that may help to combat climate change;

- an assessment of emerging nuclear energy technologies, including traveling-wave reactors, that may enhance the potential of nuclear energy as a viable renewable energy resource;
- an assessment of countries and other states in which nuclear energy makes up more than 50% of total energy production that (1) includes an analysis of the carbon emission reductions undertaken by these countries or states and (2) examines how these countries or states have paired nuclear energy with other alternative renewable energy resources;
- an identification of the potential for a new nuclear power initiative to be deployed within the State using one or more nuclear technologies that includes (1) major barriers to deploying a successful nuclear power initiative and (2) a timeframe for deploying a successful nuclear power initiative;
- an assessment of the practicality of adding nuclear energy to Maryland’s Renewable Energy Portfolio Standard (RPS); and
- recommendations regarding initiatives for the State and the General Assembly to responsibly and efficiently grow the nuclear energy industry in the State, support new emerging nuclear energy technologies that may improve nuclear energy as a viable renewable energy resource, and utilize nuclear energy as a resource to help the State combat climate change.

**Current Law/Background:** As of June 2018, there were nearly 34,000 megawatts of nuclear capacity in the [PJM region](#) – the primary geographic eligibility area for the RPS. Maryland has approximately 1,800 megawatts of nuclear capacity at the Calvert Cliffs nuclear facility, which is about 13% of the total capacity statewide. However, nuclear facilities produce electricity nearly constantly; Calvert Cliffs is responsible for about 44% of the electricity generated in the State. According to PPRP’s 2018 interim RPS report, Calvert Cliffs is responsible for 84% of the State’s emission-free electricity generation.

Maryland’s RPS requires that renewable sources, which does not include nuclear, generate specified percentages of Maryland’s electricity supply each year, increasing to 25% by 2020, including 2.5% from solar energy. For additional information on Maryland’s RPS, see the **Appendix – Maryland’s Renewable Energy Portfolio Standard**.

### *Power Plant Research Program*

PPRP was created in 1971 to conduct research on the impacts of existing and proposed power plants in each county. PPRP is required to undertake a continuing research program for electric power plant site evaluation and related environmental and land use considerations. PPRP is funded through an assessment on electricity used in the State, which accrues to the Environmental Trust Fund.

**State Expenditures:** PPRP advises that it intends to contract with its engineering and economic consultants to conduct the study, at an estimated cost of \$150,000. The Department of Legislative Services cannot independently verify this amount, but advises that this appears to be in the upper range of reasonable potential costs, based on other estimates provided for other studies.

Based on this information, special fund expenditures for PPRP increase by up to \$150,000 in fiscal 2020 for contractual services to conduct the required study. Although the bill does not take effect until October 1, 2020, PPRP may need to begin implementation prior to that date in order to meet the January 1, 2020, reporting deadline. PPRP advises that because the study is not incorporated into its existing contracts with its consultants, other projects may be delayed or cancelled; costs associated with that possibility are not reflected in the above estimate. Alternatively, additional general funds could be provided for the study.

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### **Additional Information**

**Prior Introductions:** None.

**Cross File:** None.

**Information Source(s):** Public Service Commission; Department of Natural Resources; Federal Energy Regulatory Commission; PJM Interconnection, LLC; U.S. Energy Administration; Department of Legislative Services

**Fiscal Note History:** First Reader - February 12, 2019  
mm/lgc Third Reader - March 29, 2019  
Revised - Amendment(s) - March 29, 2019  
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## **Appendix – Maryland’s Renewable Energy Portfolio Standard**

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Maryland’s Renewable Energy Portfolio Standard (RPS) was enacted in 2004 to facilitate a gradual transition to renewable sources of energy. There are specified eligible (“Tier 1”) sources as well as carve-outs for solar and offshore wind. Electric companies (utilities) and other electricity suppliers must submit renewable energy credits (RECs) equal to a percentage specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Historically, the requirements have been met almost entirely through RECs, with negligible reliance on ACPs. The Maryland Energy Administration must use ACPs to support new renewable energy sources.

The percentage requirements gradually increase to a minimum of 25%, including 2.5% from solar sources, by 2020. In 2019, the requirements are 20.4%, including at least 1.95% from solar energy.

Generally, a REC is a tradable commodity equal to one megawatt-hour of electricity generated or obtained from a renewable energy generation resource. In other words, a REC represents the “generation attributes” of renewable energy – the lack of carbon emissions, its renewable nature, etc. A REC has a three-year life during which it may be transferred, sold, or redeemed. REC generators and electricity suppliers are allowed to trade RECs using a Public Service Commission-approved system known as the Generation Attributes Tracking System, a trading platform designed and operated by PJM Environmental Information Services, Inc. that tracks the ownership and trading of RECs.

Tier 1 sources include wind (onshore and offshore); qualifying biomass; methane from anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; geothermal; ocean, including energy from waves, tides, currents, and thermal differences; a fuel cell that produces electricity from specified sources; a small hydroelectric plant of less than 30 megawatts; poultry litter-to-energy; waste-to-energy; refuse-derived fuel; and thermal energy from a thermal biomass system. Eligible solar sources include photovoltaic cells and residential solar water-heating systems commissioned in fiscal 2012 or later.

Prior to 2019, there was also a Tier 2 in the RPS, with separate percentage requirements (2.5% annually). Tier 2, which eventually included only large hydroelectric power plants, provided a smaller monetary incentive than Tier 1 and terminated at the end of 2018.

## RPS Compliance

According to the most recent RPS compliance [report](#) on PSC’s website, electricity suppliers retired approximately 9.0 million RECs at a cost of \$72.0 million in 2017. This is a significant decrease in costs and a deviation from the previous trend, as shown in **Exhibit 1**. Costs in 2016 and 2017 were based on a comparable total number of RECs; the decrease in compliance cost was due to REC prices. The price of nonsolar RECs used for compliance decreased from \$12.22 to \$7.14 during those years. Solar RECs prices decreased even more substantially, from \$110.63 to \$38.18.

In 2017, wind (43%), black liquor (24%), small hydroelectric (13%), municipal solid waste (10%), and wood and waste solids (7%) were the primary energy sources used for RPS compliance. Maryland facilities generated about 4.3 million RECs in 2017, which were used for compliance in Maryland and also in several other states; likewise, Maryland electricity suppliers used RECs from other states for compliance with Maryland’s RPS.

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### Exhibit 1 Cost of RECs for RPS Compliance (\$ in Millions)

	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Tier 1 Nonsolar	\$12.5	\$32.7	\$70.6	\$85.1	\$88.2	\$50.0
Tier 1 Solar	11.3	21.4	29.4	39.1	45.6	21.3
Tier 2	<u>0.7</u>	<u>2.8</u>	<u>4.0</u>	<u>2.6</u>	<u>1.4</u>	<u>0.7</u>
<b>Total</b>	<b>\$24.5</b>	<b>\$56.8</b>	<b>\$104.0</b>	<b>\$126.7</b>	<b>\$135.2</b>	<b>\$72.0</b>

Note: Numbers may not sum to total due to rounding. Tier 2 terminated at the end of 2018.

REC: renewable energy credits

RPS: Renewable Energy Portfolio Standard

Source: Public Service Commission

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Pursuant to Chapter 393 of 2017, the Power Plant Research Program in the Department of Natural Resources has released its December 2018 interim report on a comprehensive study of the RPS. The report contains historical data but also looks at future scenarios. The report can be found [here](#) or on the department’s website.