HB 165

Department of Legislative Services

Maryland General Assembly
2020 Session

FISCAL AND POLICY NOTE
First Reader

House Bill 165 (Delegate Miller, *et al.*)
Economic Matters

Solar Photovoltaic Recycling

This bill establishes the Solar Photovoltaic Recycling Fund in the Maryland Department of the Environment (MDE) to provide funding for technologies and processes that assist with the recycling of solar photovoltaic (PV) systems. The bill establishes two primary revenue sources for the fund: (1) a fee of 10% of the cost of installation for new solar PV systems; and (2) a 20% charge on the first sale price of each renewable energy credit (REC) that is sold. Both the Comptroller and MDE are authorized to pay for administrative expenses from these revenues. The bill also prohibits a local government from imposing any tax, fee, or other charge on the installation of a solar electric generating facility.

Fiscal Summary

State Effect: Special fund revenues and expenditures increase by $76.7 million in FY 2021 and by at about $95 million annually thereafter, under the assumptions discussed below. Separately, State expenditures (all funds) increase, potentially significantly, beginning in FY 2021 for related costs.

($ in millions)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
SF Revenue	$76.7	$94.8	$93.7	$91.7	$95.0
SF Expenditure	$76.7	$94.8	$93.7	$91.7	$95.0
GF/SF/FF Exp.	-	-	-	-	-
Net Effect	(-)	(-)	(-)	(-)	(-)

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

Local Effect: Local government revenues decrease beginning in FY 2021 to the extent that they are prohibited from assessing charges or fees that they otherwise would have, mitigated by any revenues received from MDE under the bill. Local government expenditures increase beginning in FY 2021 for any locally owned solar PV projects that must pay the installation fee and higher electricity costs.

Small Business Effect: Meaningful.

Analysis

Bill Summary:

The Solar Photovoltaic Recycling Fund

The Solar PV Recycling Fund is established in MDE to provide funding for technologies and processes that assist with the recycling of solar PV systems and to pay for MDE's administrative costs. Expenditures from the fund may be made only in accordance with the State budget. Money in the fund for the recycling of solar PV technologies is supplemental to and not intended to take the place of funding that would otherwise be appropriated for solar PV recycling.

The bill establishes two primary revenue sources for the fund: (1) a fee of 10% of the cost of installation for new solar PV systems; and (2) a 20% charge on the first sale price of each REC that is sold. Any interest earnings are credited to the fund.

Solar Installation Fee

Beginning October 1, 2020, a person installing a solar electric generating facility in the State must pay a solar PV recycling fee equal to 10% of the cost of the installation. The fees must be paid to the Comptroller, as specified, and timely payments allow a credit of 0.6% of the gross amount of the fees. If the fee is separately stated in the retail sale of a solar facility, it is not taxable.

The Comptroller must administer the fee and may adopt any necessary or appropriate regulations. At the end of each quarter, the Comptroller must forward all solar PV recycling fees, less the costs of administration, to the Solar PV Recycling Fund.

REC Sale Charge

For each REC that is sold, 20% of the first sale price must be deposited into the Solar PV Recycling Fund. The bill does not differentiate between in-state and out-of-state generated RECs or purchases.

Prohibition on Local Government Taxes, Fees, or Other Charges

A county, municipality, or an agency of a county or municipality may not impose any tax, fee, or other charge on the installation of a solar electric generating facility.

Current Law/Background: The bill's installation fees and REC sale charges are not part of existing costs for solar installations or REC transactions. Large solar projects typically

must provide for decommissioning costs as part of the project approval process. Small solar PV systems have no such requirement.

Maryland facilities generated about 2.6 million Tier 1 RECs in 2018, which are generally used for compliance with state renewable energy portfolio standards (RPS). About 1.1 million of those RECs were from solar PV. Maryland-generated RECs are used in several other states; likewise, Maryland electricity suppliers use RECs from other states to meet Maryland's RPS. A REC represents the "generation attributes" of one megawatt-hour of renewable energy. For more general information, see the **Appendix – Renewable Energy Portfolio Standard.**

State Revenues: Special fund revenues increase by $76.7 million in fiscal 2021 and by about $95 million annually from fiscal 2022 through 2025, as shown in **Exhibit 1.** Special fund revenues continue to increase by comparable amounts thereafter. Assumptions for each revenue source are discussed separately below. Actual revenues may vary significantly from this estimate.

Exhibit 1
Solar Photovoltaic Recycling Fund Revenue, by Source
Fiscal 2021-2025
($ in Millions)

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Solar Installation Fee	$36.5	$48.7	$48.7	$48.7	$48.7
REC Sale Charge	40.2	46.1	45.0	42.9	46.3
Total	**$76.7**	**$94.8**	**$93.7**	**$91.7**	**$95.0**

REC: renewable energy credit

Source: Department of Legislative Services

Solar Installation Fee

According to the Solar Energy Industries Association (SEIA), about 1,400 megawatts of solar PV capacity is expected to be built in the State over the next five years. A recent SEIA report also estimates a blended average of installed costs for solar PV at about $1.75 per watt in 2019, an amount that has been largely stable since 2016 and follows several years of significant decreases. The blended average incorporates the range of installed prices for residential and nonresidential projects.

Using the 2019 national blended average cost and evenly distributing projected Maryland capacity additions, adjusting for the 0.6% authorized credit, and accounting for the bill's October 1, 2020 effective date, special fund revenues increase by $36.5 million in fiscal 2021 and by about $48.7 million annually thereafter from the solar installation fees. Actual revenues in any year may vary significantly from this estimate if installation costs or capacity additions change.

REC Sale Charge

Applying the 20% charge to an estimated weighted-average REC price of $35 to $45 (based on a recent comprehensive RPS report completed by the Department of Natural Resources), accounting for in-state growth in renewable energy production and the bill's October 1, 2020 effective date, special fund revenues increase by $40.1 million in fiscal 2021 and by about $45 million annually through fiscal 2025.

This assumes that the 20% charge on the first sale of RECs can only be applied to an estimated 4.1 to 6.9 million Tier 1 RECs generated in-state each year, which is a fraction of the overall number of RECs used for compliance. If the charge is instead applied to all RECs used for compliance in a given year, special fund revenues further increase. This estimate does not include any revenue from Tier 2 sources. Tier 2 terminates at the end of 2020.

Actual revenues in any year may vary significantly from this estimate if REC prices or quantities change from these assumptions.

State Expenditures:

Comptroller Administrative Costs

Special fund expenditures for the Comptroller increase by $373,378 in fiscal 2021, which reflects the bill's October 1, 2020 effective date. This estimate reflects the cost of hiring one revenue field auditor and three revenue administrators to administer and collect the solar installation fee from thousands of installations each year. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses. It also includes a one-time $150,000 programming expense.

Positions	4
Salaries and Fringe Benefits	$201,913
One-time Programming Expense	150,000
Other Operating Expenses	21,465
Total FY 2021 Comptroller Expenditures	**$373,378**

Future year expenditures reflect full salaries with annual increases and employee turnover and ongoing operating expenses.

MDE Administrative Costs and Funding for Solar Recycling

Special fund *administrative* expenditures for MDE increase by $253,098 in fiscal 2021, which reflects the bill's October 1, 2020 effective date. This estimate reflects the cost of hiring four staff to administer the distribution of funds for technologies and processes that assist with the recycling of solar PV systems. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses. The remaining available funds, which are net of all administrative costs, are assumed to be distributed for authorized solar PV recycling initiatives. Combined, *total* MDE expenditures are $76.3 million in fiscal 2021.

Positions	4
Salaries and Fringe Benefits	$224,879
Other Operating Expenses	28,219
Distributions for Solar PV Recycling Initiatives	76,077,303
Total FY 2021 MDE Expenditures	**$76,330,401**

Future year *administrative* expenditures of approximately $300,000 to $330,000 annually reflect full salaries with annual increases and employee turnover and ongoing operating expenses. Administrative expenditures may further increase for more staff, depending on revenues ultimately realized under the bill and the related administrative responsibilities. To the extent that more staff are needed, less funding is available for distribution for solar PV recycling initiatives.

Future year *total* MDE expenditures of about $95 million annually reflect ongoing administrative costs and continuing distributions for solar PV recycling initiatives.

Other Costs

State expenditures (all funds) increase, potentially significantly, beginning in fiscal 2021 for any State-owned solar PV projects that must pay the installation fee and for higher electricity costs due to increased solar PV and REC prices.

The State uses about 1.5 million megawatt-hours of electricity per year, out of a statewide total of about 60 million megawatt-hours. While it is unknown how much the bill will ultimately raise electricity prices, for every $60 million increase in total electric costs in the State ($1 per megawatt-hour), State expenditures for electricity increase by about $1.5 million.

Local Fiscal Effect: Local government revenues decrease beginning in fiscal 2021 to the extent that they are prohibited from assessing taxes, fees, or charges that they otherwise would have, mitigated by any revenues received from MDE under the bill. Local government expenditures increase beginning in fiscal 2021 for any locally owned solar PV projects that must pay the installation fee and higher electricity costs.

Small Business Effect: Small solar installation businesses must pay the installation fee, which raises their costs and may reduce demand for their services. Small businesses are also affected by higher electricity costs.

Additional Information

Prior Introductions: HB 125 of 2019 received an unfavorable report from the House Economic Matters Committee. HB 1242 of 2018, a substantively identical bill, received an unfavorable report from the House Economic Matters Committee.

Cross File: None.

Information Source(s): Maryland Department of the Environment; Comptroller's Office; Public Service Commission; Office of People's Counsel; Department of General Services; Department of Natural Resources; University System of Maryland; Maryland Department of Transportation; Anne Arundel, Charles, Frederick, and Montgomery counties; City of Havre de Grace; Maryland Association of Counties; Maryland Municipal League; Solar Energy Industries Association; Department of Legislative Services

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Appendix – Renewable Energy Portfolio Standard

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" or "Tier 2") 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.

Chapter 757 of 2019 significantly increased the percentage requirements, which now escalate over time to a minimum of 50% from Tier 1 sources, including 14.5% from solar, by 2030. In 2020, the requirements are 28% for Tier 1 sources, including at least 6.0% from solar, plus 2.5% from Tier 2 sources. Tier 2 terminates after 2020.

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 (PSC) 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. Tier 2 includes only large hydroelectric power plants.

RPS Compliance

According to the most recent RPS compliance report on PSC's website, electricity suppliers retired 11.1 million RECs at a cost of $84.8 million in 2018. This is a continuation of the significant REC price reduction first observed in the 2017 compliance data, relative to the previous trend, as shown in **Exhibit 1**.

In 2018, wind (50%), black liquor (15%), small hydroelectric (12%), municipal solid waste (12%), and wood and waste solids (6%) were the primary energy sources used for Tier 1 RPS compliance. Maryland facilities generated 5.4 million RECs in 2018, 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.

Exhibit 1
RPS Compliance Costs and REC Prices
2014-2018

	2014	2015	2016	2017	2018
Compliance Costs ($ Millions)					
Tier 1 Nonsolar	$70.6	$85.1	$88.2	$50.0	$56.4
Tier 1 Solar	29.4	39.1	45.6	21.3	27.4
Tier 2	4.0	2.6	1.4	0.7	1.0
Total	**$104.0**	**$126.7**	**$135.2**	**$72.0**	**$84.8**
Average REC Price ($)					
Tier 1 Nonsolar	$11.64	$13.87	$12.22	$7.14	$6.54
Tier 1 Solar	$144.06	$130.39	$110.63	$38.18	$31.91
Tier 2	$1.81	$1.71	$0.96	$0.47	$0.66

Note: Numbers may not sum to total due to rounding.

REC: renewable energy credit
RPS: Renewable Energy Portfolio Standard

Source: Public Service Commission

Pursuant to Chapter 393 of 2017, the Power Plant Research Program in the Department of Natural Resources has released its final 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.