SB 373

Department of Legislative Services

Maryland General Assembly
2015 Session

FISCAL AND POLICY NOTE

Senate Bill 373 (Senator Feldman, *et al.*)
Finance

Renewable Energy Portfolio Standard - Revisions (Maryland Clean Energy Advancement Act of 2015)

This bill increases the annual percentage requirements for Tier 1 and Tier 1 Solar resources to meet the State's Renewable Energy Portfolio Standard (RPS) beginning in 2018. Total RPS percentage requirements increase from 20% by 2022 to 40% by 2025. The solar requirement doubles from 2% by 2022 to 4% by 2025. The bill does not affect the percentage requirements for offshore wind. The bill applies only prospectively and must not be applied or interpreted to have any effect on or application to any contract existing before the effective date of the bill.

Fiscal Summary

State Effect: The Public Service Commission (PSC) can handle the bill's requirements with existing budgeted resources. Under one set of assumptions, State expenditures (all funds) increase by $0.3 million FY 2018, $1.3 million in FY 2019, and $2.4 million in FY 2020 due to higher electricity prices. Under the same assumptions, State expenditures increase by more than $3.2 million annually beginning in FY 2021. Strategic Energy Investment Fund (SEIF) revenues increase beginning in FY 2019 to the extent that electricity suppliers are unable to meet the bill's enhanced RPS percentage requirements for Tier 1 and Tier 1 Solar; however, the amount cannot be reliably estimated at this time.

($ in millions)	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
SF Revenue	$0	$0	$0	-	-
GF/SF/FF Exp.	$0	$0	$0.3	$1.3	$2.4
Net Effect	$0	$0	($0.3)	($1.3)	($2.4)

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

Local Effect: Local expenditures increase beginning in FY 2018 due to higher electricity prices. Revenues are not materially affected.

Small Business Effect: Meaningful.

Analysis

Bill Summary: RPS percentage obligations are increased for Tier 1 and Tier 1 Solar resources beginning in 2018. **Exhibit 1** summarizes the RPS percentages under the bill.

Exhibit 1
Annual RPS Specifications
Under the Bill

	Percentage of Retail Sales	
Compliance Year	**Tier 1 Total***	**Tier 1 Solar**
2018	17.1%	1.50%
2019	21.0%	1.90%
2020	25.0%	2.25%
2021	28.0%	2.60%
2022	31.0%	2.95%
2023	34.0%	3.30%
2024	37.0%	3.65%
2025+	40.0%	4.00%

Note: Tier 1 Total percentage requirements include Tier 1 Solar percentage requirements. Percentage requirements for offshore wind are not affected.

Optional Solar RPS Cost Containment

PSC may delay the scheduled percentages for Tier 1 Solar by one year and allow the Tier 1 Solar percentage requirement for that year to continue to apply to an electricity supplier for the following year if the actual or projected dollar-for-dollar cost incurred by an electricity supplier to comply with the Tier 1 Solar requirement in any one year is greater than or equal to, or is anticipated to be greater than or equal to, 2% of the electricity supplier's total annual electricity sales revenues in Maryland. If PSC allows a delay, then it continues for each subsequent consecutive year that the cost is more than, or anticipated to be more than, the 2% cost threshold. If the cost is less than, or anticipated to be less than, the 2% cost threshold then the delayed requirement is

increased to the next scheduled percentage increase. Under current law, the cost threshold is 1%.

Current Law: Maryland's RPS requires that renewable sources generate specified percentages of Maryland's electricity supply each year, increasing to 20% by 2022, including 2% from solar energy. Maryland's RPS operates on a two-tiered system with carve-outs for solar energy and offshore wind energy and corresponding renewable energy credits (RECs) for each tier. Electricity suppliers must submit RECs equal to the percentage specified in statute each year or pay an alternative compliance payment (ACP) equivalent to the supplier's shortfall. Any ACPs made are paid into SEIF and used by the Maryland Energy Administration (MEA) to support new renewable energy sources. **Exhibit 2** details the requirements and associated ACPs.

Exhibit 2
Maryland's Renewable Energy Portfolio Standard – Annual Specifications
Current Law

	Percentage of Retail Sales				Alternative Compliance Payments		
Compliance Year	Tier 1 Total*	Tier 1 Solar*	Tier 1 Offshore Wind*	Tier 2	Tier 1	Tier 1 Solar	Tier 2
2010	3.025%	0.025%		2.50%	$20	$400	$15
2011	5.00%	0.05%		2.50%	40	400	15
2012	6.50%	0.10%		2.50%	40	400	15
2013	8.20%	0.25%		2.50%	40	400	15
2014	10.30%	0.35%		2.50%	40	400	15
2015	10.50%	0.50%		2.50%	40	350	15
2016	12.70%	0.70%		2.50%	40	350	15
2017	13.10%	0.95%	≤2.50%	2.50%	40	200	15
2018	15.80%	1.40%	≤2.50%	2.50%	40	200	15
2019	17.40%	1.75%	≤2.50%	-	40	150	-
2020	18.00%	2.00%	≤2.50%	-	40	150	-
2021	18.70%	2.00%	≤2.50%	-	40	100	-
2022	20.00%	2.00%	≤2.50%	-	40	100	-
2023+	20.00%	2.00%	≤2.50%	-	40	50	-

*Note: Tier 1 Solar and Offshore Wind requirements are part of the Tier 1 Total percentage requirement. ACPs are expressed as $/megawatt-hour, or $/REC, equivalents.

Source: Department of Legislative Services

For additional information on Maryland's RPS, see the **Appendix – Maryland's Renewable Energy Portfolio Standard**.

Optional Solar RPS Cost Containment

PSC may delay the scheduled percentages for Tier 1 Solar by one year and allow the Tier 1 Solar percentage requirement for that year to continue to apply to an electricity supplier for the following year if the actual or projected dollar-for-dollar cost incurred by an electricity supplier to comply with the Tier 1 Solar requirement in any one year is greater than or equal to, or is anticipated to be greater than or equal to, 1% of the electricity supplier's total annual electricity sales revenues in Maryland.

If PSC allows a delay, then it continues for each subsequent consecutive year that the cost is more than, or anticipated to be more than, the 1% cost threshold. If the cost is less than, or anticipated to be less than, the 1% cost threshold then the delayed requirement is increased to the next scheduled percentage increase.

Background: Chapter 120 of 2007 modified Maryland's RPS to include a solar carve-out, requiring that at least 0.005% of electricity in 2008 be from solar generation, increasing to at least 2.0% by 2022. Chapter 494 of 2010 increased the solar requirement for each year between 2011 and 2016. Chapter 583 of 2012 again increased the solar requirement for each year between 2013 and 2021.

State Fiscal Effect: The incremental cost associated with the bill is absorbed by all electric customers in the State. As an electric customer, State agencies and the University System of Maryland used approximately 1.56 million megawatt-hours (MWh) of electricity in 2012, at a cost of $138.5 million. Under the assumptions discussed below, including that RECs and solar RECs (SRECs) cost 50% of ACP, the bill increases State expenditures (all funds) by about $0.3 million in fiscal 2018, by about $1.3 million in fiscal 2019, and by about $2.4 million in fiscal 2020. Under the same assumptions, State expenditures increase by more than $3.2 million annually beginning in fiscal 2021. The potential effect on electricity prices, borne by all customers, is discussed below.

Range of Electricity Price Effect

Generally, the bill doubles the RPS percentage requirements by 2025. The incremental cost of the bill is (1) the cost of additional RECs and SRECs required to meet the enhanced requirements plus (2) the cost of any ACPs paid by electricity suppliers if the enhanced percentage requirements are physically not able to be met.

MEA advises, and the Department of Legislative Services concurs, that forecasting REC and SREC prices is difficult, as the markets for them are influenced by multiple factors, including technology costs, labor costs, permitting costs, electricity costs, capacity market prices, potential future environmental regulations, and federal and state tax policies.

Given these uncertainties, *for illustrative purposes only*, the incremental cost of RPS compliance under the bill for compliance years 2018 through 2025 and later for a range of REC and SREC prices is shown in **Exhibit 3**. The costs reflect the following assumptions: (1) PSC does *not* waive solar compliance costs beyond 2% of retail sales; (2) sufficient RECs and SRECs are available in each year affected by the bill; and (3) the average REC or SREC price in each year is the specified percentage of the applicable ACP in that year.

Under these assumptions, the additional costs of RPS compliance due to the bill range from $11.0 million to $44.1 million in 2018, increasing to between $141.5 million and $566.2 million in 2025 and later. When averaged out over anticipated State energy sales in each year, this equates to an increase of between $0.17/MWh to $0.68/MWh in 2018, increasing to between $2.05/MWh and $8.20/MWh in 2025. As the average residential customer uses approximately one MWh per month, these price increases are an estimate of the average monthly bill increase for a residential customer, as shown in **Exhibit 4**.

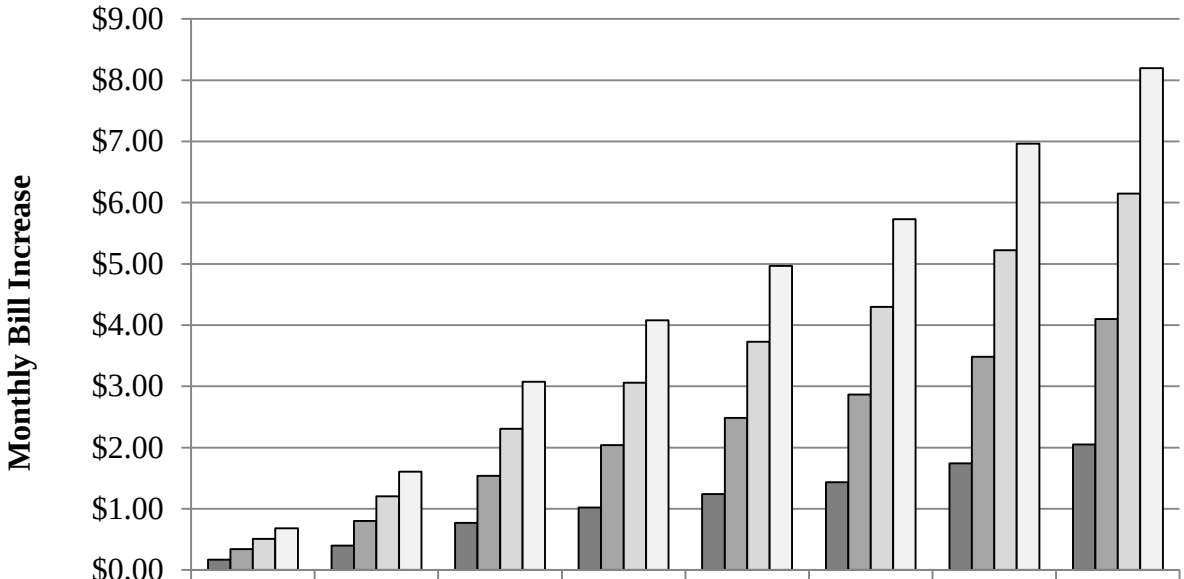
Exhibit 3
Annual Compliance Cost, by REC and SREC Prices as Percent of ACP
Calendar 2018-2025+
($ Millions)

Year	Retail Electric Sales (MWh)	New SRECs	New RECs	REC Price: 25% of ACP Annual Cost	REC Price: 50% of ACP Annual Cost	REC Price: 75% of ACP Annual Cost	REC Price: 100% of ACP Annual Cost
2018	64,885,180	64,885	778,622	$11.0	$22.1	$33.1	$44.1
2019	65,453,309	98,180	2,258,139	$26.3	$52.5	$78.8	$105.1
2020	65,997,240	164,993	4,454,814	$50.7	$101.5	$152.2	$202.9
2021	66,519,872	399,119	5,787,229	$67.9	$135.7	$203.6	$271.4
2022	67,122,963	637,668	6,745,858	$83.4	$166.8	$250.2	$333.6
2023	67,829,337	881,781	8,614,326	$97.2	$194.3	$291.5	$388.7
2024	68,438,884	1,129,242	10,505,369	$119.2	$238.3	$357.5	$476.7
2025+	69,048,573	1,380,971	12,428,743	$141.5	$283.1	$424.6	$566.2

MWh = Megawatt-hour

Source: Department of Legislative Services

Exhibit 4
Average Residential Customer Monthly Bill Increase by REC and SREC Prices as Percent of ACP
Calendar 2018-2025+



	2018	2019	2020	2021	2022	2023	2024	2025+
25% ACP	$0.17	$0.40	$0.77	$1.02	$1.24	$1.43	$1.74	$2.05
50% ACP	$0.34	$0.80	$1.54	$2.04	$2.49	$2.87	$3.48	$4.10
75% ACP	$0.51	$1.20	$2.31	$3.06	$3.73	$4.30	$5.22	$6.15
100% ACP	$0.68	$1.61	$3.08	$4.08	$4.97	$5.73	$6.97	$8.20

Note: The average residential customer uses 1,000 kilowatt-hours, or 1 megawatt-hour, per month.

ACP = Alternative Compliance Payment

Source: Department of Legislative Services

Small Business Effect: Small businesses incur higher electricity prices under the bill. However, the bill also creates demand for solar and other renewable energy technology installations. Small businesses in this industry benefit from increased demand to design, build, install, and maintain renewable energy systems under the bill.

Additional Information

Prior Introductions: SB 733 of 2014, a similar bill, received a hearing in the Senate Finance Committee but no further action was taken. Its cross file, HB 1149, received a hearing in the House Economic Matters committee, but no further action was taken.

Cross File: HB 377 (Delegate Frick, *et al.*) - Economic Matters.

Information Source(s): Public Service Commission, Maryland Energy Administration, Office of People's Counsel, Department of Legislative Services

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min/lgc

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Appendix – Maryland's 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. Maryland's RPS operates on a two-tiered system with carve-outs for solar energy and offshore wind energy and corresponding renewable energy credits (RECs) for each tier. Electric companies (utilities) and other electricity suppliers must submit RECs equal to a percentage specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Over the past few years, the requirements have been met almost entirely through RECs, with negligible reliance on ACPs. For example, the combined ACPs over 2012 and 2013 were less than $8,000 out of a total compliance cost of $81.3 million. The Maryland Energy Administration must use ACPs to support new renewable energy sources.

The percentage requirements gradually increase to a minimum of 20%, including 2% from solar sources, by 2022. The Tier 2 requirement remains constant at 2.5% each year until ending after 2018. In 2015, the requirements are 10.5% for Tier 1 renewable sources, including at least 0.5% from solar energy, and 2.5% from Tier 2 renewable sources.

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. RECs are classified as Tier 1 or Tier 2, depending on the energy source. Solar and offshore wind are accounted for separately but are considered part of Tier 1. 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 Tier 1 renewable 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. Tier 1 Solar sources include photovoltaic cells and residential solar water heating systems commissioned in fiscal 2012 or later. Following the transfer of several sources to Tier 1, Tier 2 includes only large hydroelectric power plants.

RPS Compliance

For the 2013 compliance year, (the most recent for which data is available) electricity suppliers retired approximately 6.5 million RECs at a cost of $56.8 million. Of that amount, the Tier 1 Nonsolar cost was $32.7 million, the Tier 1 Solar cost was $21.4 million, and the Tier 2 cost was $2.8 million. The total cost of RPS compliance has increased steadily since 2009, as shown in **Exhibit 1**.

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

	2009	**2010**	**2011**	**2012**	**2013**
Tier 1 Nonsolar	$1.3	$1.9	$6.2	$12.5	$32.7
Tier 1 Solar	1.1	5.1	7.8	11.3	21.4
Tier 2	0.6	0.6	0.6	0.7	2.8
Total	**$3.1**	**$7.6**	**$14.7**	**$24.5**	**$56.8**

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

Source: Public Service Commission