

Department of Legislative Services  
 Maryland General Assembly  
 2014 Session

FISCAL AND POLICY NOTE

House Bill 1149 (Delegate Barnes, *et al.*)  
 Economic Matters

Public Utilities - Renewable Energy Portfolio Standards

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 2017. Percentage requirements for 2025 and later are 40% for Tier 1, 4% of which must be Tier 1 Solar. 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 the 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 \$0.4 million FY 2017, \$1.0 million in FY 2018, and \$1.5 million in FY 2019 due to higher electricity prices. Under the same assumptions, State expenditures increase by more than \$2.7 million annually beginning in FY 2020. Strategic Energy Investment Fund (SEIF) revenues increase beginning in FY 2018 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 2015	FY 2016	FY 2017	FY 2018	FY 2019
SF Revenue	\$0	\$0	\$0	-	-
GF/SF Exp.	\$0	\$0	\$0.4	\$1.0	\$1.5
Net Effect	\$0	\$0	(\$0.4)	(\$1.0)	(\$1.5)

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

**Local Effect:** Local expenditures increase beginning in FY 2017 due to higher electricity prices. Revenues are not materially affected.

**Small Business Effect:** Meaningful.

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## Analysis

**Bill Summary:** RPS percentage obligations are increased for Tier 1 and Tier 1 Solar resources beginning in 2017. **Exhibit 1** summarizes the RPS percentage requirements under the bill.

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### Exhibit 1 Thermal Energy Requirements – Annual Specifications Under the Bill

<u>Compliance Year</u>	<u>Percentage of Retail Sales</u>	
	<u>Tier 1 Total*</u>	<u>Tier 1 Solar</u>
2017	15.65%	1.05%
2018	20.80%	1.50%
2019	23.75%	2.00%
2020	25.00%	2.55%
2021	28.00%	3.20%
2022	31.00%	4.00%
2023	34.00%	4.00%
2024	37.00%	4.00%
2025+	40.00%	4.00%

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

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**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 to support new renewable energy sources. **Exhibit 2** details the requirements and associated ACPs.

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**Exhibit 2**  
**Marland’s Renewable Energy Portfolio Standard – Annual Specifications**  
**Current Law**

<b>Compliance Year</b>	<b><u>Percentage of Retail Sales</u></b>				<b><u>Alternative Compliance Payments</u></b>		
	<b><u>Tier 1 Total*</u></b>	<b><u>Tier 1 Solar*</u></b>	<b><u>Tier 1 Offshore Wind*</u></b>	<b><u>Tier 2</u></b>	<b><u>Tier 1</u></b>	<b><u>Tier 1 Solar</u></b>	<b><u>Tier 2</u></b>
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

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

*Solar RPS Cost Cap*

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.

**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% in 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 will be 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 \$0.4 million in fiscal 2017, by about \$1.0 million in fiscal 2018, and by about \$1.5 million in fiscal 2019. Under the same assumptions, State expenditures increase by more than \$2.7 million annually beginning in fiscal 2020. The potential effect on electricity prices, borne by all customers, is discussed below.

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.

*For illustrative purposes only*, the incremental cost of RPS compliance under the bill for compliance years 2017 through 2025 and later is shown below in **Exhibit 2**. The costs reflect the following assumptions: (1) PSC does *not* waive solar compliance costs beyond 1% 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 \$16.7 million to \$50.0 million in 2017, increasing to between \$141.5 million and \$424.7 million in 2025 and later. When averaged out over anticipated State energy sales in each year, this equates to an increase of between \$0.26/MWh to \$0.78/MWh in 2017, increasing to between \$2.05/MWh and \$6.15/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.

**Exhibit 2**  
**Annual Compliance Cost, by REC and SREC Prices as Percent of ACP**  
**Calendar 2017-2025+**

<u>Year</u>	<u>Retail Electric Sales (MWh)</u>	<u>New SRECs</u>	<u>New RECs</u>	<u>25% of ACP</u>		<u>REC Price</u>		<u>75% of ACP</u>	
				<u>Total Cost (\$)</u>	<u>\$/MWh</u>	<u>50% of ACP</u>	<u>75% of ACP</u>	<u>Total Cost (\$)</u>	<u>\$/MWh</u>
2017	64,064,804	96,097	1,185,199	\$16,656,849	<b>\$0.26</b>	\$33,313,698	<b>\$0.52</b>	\$49,970,547	<b>\$0.78</b>
2018	64,885,180	64,885	1,687,015	\$20,114,406	<b>\$0.31</b>	\$40,228,811	<b>\$0.62</b>	\$60,343,217	<b>\$0.93</b>
2019	65,453,309	98,180	2,847,219	\$32,153,938	<b>\$0.49</b>	\$64,307,876	<b>\$0.98</b>	\$96,461,813	<b>\$1.47</b>
2020	65,997,240	263,989	4,619,807	\$56,097,654	<b>\$0.85</b>	\$112,195,309	<b>\$1.70</b>	\$168,292,963	<b>\$2.55</b>
2021	66,519,872	598,679	5,853,749	\$73,504,459	<b>\$1.11</b>	\$147,008,917	<b>\$2.21</b>	\$220,513,376	<b>\$3.32</b>
2022	67,122,963	939,721	6,712,296	\$90,616,000	<b>\$1.35</b>	\$181,231,999	<b>\$2.70</b>	\$271,847,999	<b>\$4.05</b>
2023	67,829,337	1,356,587	8,478,667	\$101,744,006	<b>\$1.50</b>	\$203,488,011	<b>\$3.00</b>	\$305,232,017	<b>\$4.50</b>
2024	68,438,884	1,368,778	10,265,833	\$119,768,047	<b>\$1.75</b>	\$239,536,094	<b>\$3.50</b>	\$359,304,140	<b>\$5.25</b>
2025+	69,048,573	1,380,971	12,428,743	\$141,549,575	<b>\$2.05</b>	\$283,099,150	<b>\$4.10</b>	\$424,648,725	<b>\$6.15</b>

MWh = Megawatt-hour

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

Source: Maryland Energy Administration, 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, and install solar energy systems under the bill.

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### **Additional Information**

**Prior Introductions:** None.

**Cross File:** SB 733 (Senator Pinsky, *et al.*) - Finance.

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

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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. 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. It requires that Tier 1 renewable sources generate specified percentages of the State’s electricity supply each year, gradually increasing 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 2014, RPS requirements are 10.3% for Tier 1 renewable sources, including at least 0.35% from solar energy, and 2.5% from Tier 2 renewable sources. Electric companies (utilities) and other electricity suppliers must submit RECs equal to the percentage specified in statute each year or pay an alternative compliance payment (ACP) equivalent to their shortfall. The Maryland Energy Administration must use ACPs to support new renewable energy 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 a Tier 1 renewable source; 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. Tier 2 now includes only large hydroelectric power plants.

### *RPS Compliance*

For the 2012 compliance year, electricity suppliers retired approximately 5.5 million RECs at a cost of \$24.4 million, with ACPs accounting for only \$5,450 of the total. In general, electricity suppliers have been able to meet all of their Tier 1 nonsolar and Tier 2 REC requirements. The predominant source of ACPs (when required) has been from the Tier 1 Solar requirement.