SB 277

Department of Legislative Services

Maryland General Assembly
2010 Session

FISCAL AND POLICY NOTE
Revised

Senate Bill 277 (The President, *et al.*) (By Request - Administration)
Finance Economic Matters

Renewable Energy Portfolio Standard - Solar Energy

This Administration bill increases the percentage requirements of the Renewable Energy Portfolio Standards (RPS) that must be purchased from Tier 1 solar energy sources each year between 2011 and 2016. The bill also increases the alternative compliance payment (ACP) for a shortfall in solar RPS requirements by $0.05 per kilowatt-hour (kWh) over the current amount in 2011 and 2012, and by $0.10 per kWh between 2013 and 2016. The bill also requires the Public Service Commission (PSC) to include specified information in its EmPOWER Maryland reports in 2012 and 2015.

The bill takes effect January 1, 2011.

Fiscal Summary

State Effect: Special fund revenues to the Maryland Strategic Energy Investment Fund (SEIF) increase by $1.9 million in FY 2012 and by $25.1 million in FY 2015 from increased ACP to meet the accelerated solar RPS, depending on the availability of solar generation. PSC expenditures from the Public Utility Regulation Fund increase by $36,500 in FY 2011 to hire two additional employees to certify additional solar facilities. Future year expenditures reflect inflation and annualization. Potential increase in State expenditures (all funds) due to higher electricity prices.

(in dollars)	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
SF Revenue	$0	$1,944,200	$6,247,200	$16,601,500	$25,117,900
SF Expenditure	$36,500	$111,500	$117,100	$122,900	$129,100
GF/SF/FF Exp.	-	-	-	-	-
Net Effect	($36,500)	$1,832,700	$6,130,100	$16,478,600	$24,988,800

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

Local Effect: Potential increase in local government expenditures due to higher electricity prices. Revenues are not affected.

Small Business Effect: The Administration has determined that this bill has a meaningful impact on small business (attached). Legislative Services concurs with this assessment as discussed below. (The attached assessment does not reflect amendments to the bill.)

Analysis

Bill Summary: The amount of electricity in the State that must be supplied from Tier 1 solar sources is increased between 2011 and 2016 as shown in **Exhibit 1**. Also shown in the exhibit are the bill's changes to the ACP. For Tier 1 solar sources, the bill increases the amount charged for solar RPS shortfalls from $0.35 to $0.40 per kWh in 2011 and 2012. ACP increases by $0.10 per kWh over current levels each year between 2013 and 2016.

Exhibit 1
Renewable Energy Portfolio Standards and Alternative Compliance Payments Under Current Law and Under the Bill

Year	Tier 1 Solar Current Law	Tier 1 Solar SB 277	Solar ACP Current Law	Solar ACP SB 277
2011	0.04%	0.05%	$0.35	$0.40
2012	0.06%	0.10%	0.35	0.40
2013	0.10%	0.20%	0.30	0.40
2014	0.15%	0.30%	0.30	0.40
2015	0.25%	0.40%	0.25	0.35
2016	0.35%	0.50%	0.25	0.35

Source: Department of Legislative Services

In its annual reports to the General Assembly on energy conservation and efficiency programs associated with EmPOWER Maryland, due March 1, 2012 and March 1, 2015, PSC must include (1) the effect of this bill on the State's anticipated compliance with per capital peak demand and per capita electricity consumption targets; (2) the effects, if any, of deploying solar electricity generating equipment in compliance with the solar RPS and the use of APC to support Tier 1 solar projects in the State; and (3) recommendations for alterations, if any, to solar RPS.

The bill applies prospectively and may not have an effect on or application to any existing contract.

Current Law: RPS is a policy that requires suppliers of electricity to meet a portion of their energy supply needs with eligible forms of renewable energy. An electricity supplier must meet RPS by accumulating "renewable energy credits" (RECs) created from various renewable energy sources classified as Tier 1 and Tier 2 renewable sources, with a specified portion coming from solar sources.

Examples of Tier 1 sources include solar; wind; 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; and a small hydroelectric plant of less than 30 megawatts and poultry litter-to-energy. Examples of Tier 2 sources include hydroelectric and waste-to-energy.

Currently, energy from a Tier 1 renewable source must be connected with the electric distribution grid serving Maryland unless there are not enough eligible generating facilities connected to the Maryland grid to meet RPS. After December 31, 2011, all Tier 1 solar generating sources must be connected with the distribution grid serving Maryland to be eligible to meet solar RPS.

A REC is a tradable commodity representing the renewable energy generation attributes of one MWh of electricity. An electricity supplier for standard offer service may recover actual dollar-for-dollar costs incurred, including ACP, in meeting a State-mandated RPS. Except for industrial process load, for a shortfall from RPS requirements, the ACP is $0.02 for per kWh for Tier 1 renewable sources and $0.015 per kWh for Tier 2 renewable sources. The ACP for Tier 1 solar starts at $0.45 per kWh in 2008 and decreases by $0.05 every other year to equal $0.05 per kWh in 2023 and thereafter. ACPs are paid into SEIF within the Maryland Energy Administration (MEA).

PSC may delay the scheduled percentages for solar RPS by one year and allow the solar RPS for that year to continue to apply to the electricity supplier for the following year if the actual or projected dollar-for-dollar cost incurred by an electricity supplier to comply with solar RPS 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:

RPS Overview

Maryland's RPS was established in 2004 in order to recognize the economic, environmental, fuel diversity, and security benefits of renewable energy resources; establish a market for electricity from those resources in Maryland; and lower consumers' cost for electricity generated from renewable sources.

Chapter 120 of 2007 revised 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. The Act also increased total Tier 1 requirements as a result of the added solar component. Chapters 125 and 126 of 2008 amended Maryland's RPS by increasing the percentage requirements of the Tier 1 RPS to equal 20% in 2022 and beyond.

The Administration advises that compared to some other states such as New Jersey and Delaware, Maryland's solar requirement increases very slowly in the early years and then increases more rapidly in the last few years. The Administration further advises that the bill is intended to provide long-term support for Maryland's growing solar industry, displace fossil fuel powered generation, and create new green jobs.

Solar RPS works to encourage the development of solar electric generation in two ways – through the use of ACP and through solar RECs (SRECs). Owners of solar generating facilities sell SRECs associated with their facilities and the payment received for those SRECs helps to offset a portion of the installation costs. SRECs can be purchased and traded on an open exchange, allowing electricity suppliers to either purchase SRECs directly from solar generators or through a third-party re-seller. The price of an SREC is effectively capped by the applicable ACP – what a supplier pays for a solar RPS shortfall. In the 2008 compliance year, SREC prices ranged from 75-85% of the ACP. Accordingly, the ACP was $450 per MWh, and Maryland SREC prices traded between $340 and $380. In 2009, the weighted average Maryland SREC price was 80% of the $400 ACP.

RPS Compliance

Electricity suppliers are required to file a 2009 RPS compliance report with PSC by April 1, 2010. These reports have mostly been filed with PSC but have not yet been compiled and reviewed by PSC staff. Based on preliminary estimates of 2009 RPS compliance, electric company filings indicate that approximately 50% of the solar RPS was met through SREC procurement and 50% was met through ACP. Assuming that half of solar RPS was met through SRECs, revenues from ACP paid into SEIF will total $1.3 million for the 2009 compliance year.

The most recent final data available is from compliance year 2008. **Exhibit 2** provides a summary of electricity supplier RPS filings in 2006, 2007, 2008, and 2009 (preliminary data). Calendar 2008 marked the third compliance year for Maryland's RPS Program and the first compliance year of solar RPS. Based on the Supplier Annual Reports filed with PSC, electricity suppliers have generally been able to fulfill RPS requirements by purchasing RECs. However, electricity suppliers were not able to comply with solar RPS.

Exhibit 2
RPS Supplier Annual Report Results
(MWh)

	RPS Obligation			RECs Retired		
Compliance Year	Tier 1 Nonsolar	Tier 1 Solar	Tier 2	Tier 1 Nonsolar	Tier 1 Solar	Tier 2
2006	520,073		1,300,201	552,874		1,322,069
2007	553,612		1,384,029	553,374		1,382,874
2008	1,183,439	2,934	1,479,305	1,184,174	227	1,500,414
2009*	N/A	6,595	N/A	N/A	3,097-3,550	N/A

*Preliminary estimate
N/A: Not available
Source: Public Service Commission, Electricity Suppliers

Exhibit 3 provides additional detail for the 2008 compliance year. Because enough SRECs were not available to meet solar RPS, electricity suppliers paid $1.2 million in compliance fees to SEIF.

Exhibit 3
RPS 2008 Compliance Year – Obligations, Retired RECs, and ACP

	Tier 1 (Nonsolar)	Tier 1 Solar	Tier 2	Total
RPS Obligation (MWh)	1,183,439	2,934	1,479,305	2,665,678
Retired RECs (MWh)	1,184,174	227	1,500,414	2,684,815
Alterative Compliance Payments	$9,020	$1,218,739	$8,175	$1,235,934

Source: Public Service Commission

Future compliance with the solar RPS requirement depends greatly on the amount of SRECs that become available. The Department of Natural Resources' Power Plant Research Program (PPRP) indicates that compliance payments to meet the solar RPS in 2008 were partly due to the lack of SRECs that had made it through PSCs approval process. PPRP notes that several new solar facilities have been approved by PSC recently and the pace of solar development has been increasing in the area, which may increase the availability of SRECs for the 2009 compliance year.

As of January 2010, PSC has approved 2.96 MW of eligible Tier 1 solar generating capacity. This is a significant increase over the 0.03 MW capacity approved at the start of the 2009 RPS compliance year. In fiscal 2009 MEA provided nearly $1.7 million in grants to over 250 small solar installations, further demonstrating the growth in solar generation. In MEA's recent report, the *Maryland Energy Outlook*, MEA indicates that although the growth in solar energy has been robust, capacity is well short of meeting the 2009 solar RPS goal. MEA also notes that several commercial solar projects are in the early development stages, which may significantly increase the amount of solar generation in the State. **Exhibit 4** shows the amount of required generation from solar sources necessary to meet the existing and proposed solar RPS requirements through 2021 and the applicable ACP. In-state solar generation with approved SRECs for the 2009 compliance year is equal to 3,550 MWh, significantly less than the amount required under solar RPS.

Exhibit 4
Solar RPS Needs and ACP Under Current Law and Under the Bill

Compliance Year	Maryland Electricity Sales Forecast in MWh	Solar RPS in MWh Current Law	Solar RPS in MWh SB 277	ACP $ per MWh Current Law	ACP $ per MWh SB 277
2011	64,808,000	25,923	32,404	$350	$400
2012	65,760,000	39,456	65,760	350	400
2013	66,406,000	66,406	132,812	300	400
2014	66,981,000	100,472	200,943	300	400
2015	67,457,000	168,643	269,828	250	350
2016	68,352,000	239,232	341,760	250	350

Source: Public Service Commission, Department of Legislative Services

Impact of Increasing Solar RPS and ACP

Increasing solar RPS and ACP will increase the price of electricity in the near-term due to the added cost of solar RPS compliance. The magnitude of this increase depends greatly on the price of SRECs and how electricity suppliers meet solar RPS in future years. Prices of SRECs will first receive upward pressure from the increase of the ACP in part because the ACP functions as a cap for SREC prices. The price of SRECs will also face upward pressure from an increase in solar RPS which will increase the demand for SRECs. As the price of SRECs increase, so does the amount of payments made to owners of solar generating equipment and the SRECs associated with that generation. In the long-run, payments from SRECs are intended to encourage the additional construction of solar generating facilities. To the extent this occurs, additional SRECs become available placing downward pressure on the price. Additionally, electricity suppliers that are unable to meet solar RPS by purchasing SRECs will instead comply through ACP, which will be used to provide grants for additional solar installations, further increasing the availability of solar generation in the State and eventually reducing the price of SRECs and the cost of solar RPS compliance.

State Revenues: To the extent that increasing solar RPS and ACP result in additional compliance fees being paid by electricity suppliers, revenues to the Maryland Strategic Energy Investment Fund increase. Based on the assumption that 50% of RPS compliance would be met through ACP and 50% would be met through procurement of SRECs, special fund revenues from ACP payments increase by $1.9 million in fiscal 2012, $6.2 million in fiscal 2013, $16.6 million in fiscal 2014, and $25.1 million in fiscal 2015. **Exhibit 5** provides the estimated total cost of solar RPS compliance as a result of increasing the solar RPS and the ACP, through 2016, the last year that solar RPS and ACP increase under the bill.

Exhibit 5
Solar RPS Cost Increase
($ in Millions)

Compliance Year	Increase in ACP Payments	Increase in SREC Cost	Total Increase in Compliance Costs
2011	$1.9	$1.5	$3.4
2012	6.2	4.7	10.9
2013	16.6	12.5	29.1
2014	25.1	18.8	44.0
2015	26.1	19.6	45.7
2016	29.9	22.4	52.3
Total	**$106.0**	**$79.5**	**$185.4**

Note: ACP from a given compliance year assumed to be paid in the following fiscal year.
Source: Public Service Commission, Department of Legislative Services

The above estimates assume that there will not be enough SRECs available in future years to meet increases in solar RPS, as is currently the case. For the 2009 compliance year, 3,550 SRECs were available and 6,595 were required to meet solar RPS. In order to meet solar RPS in 2010, approximately 14,900 SRECs are required. Exhibit 4 shows the number of SRECs (the equivalent of one MWh of electricity) needed to meet solar RPS under current law and under the bill. To the extent additional solar generation is made available at a rate greater than the scheduled increases in solar RPS, the cost of compliance will decrease.

Under current law, PSC is authorized to allow electricity suppliers to delay an increase in the solar RPS requirements if the cost of compliance is expected to exceed 1% of a supplier's total annual electricity sales revenues in the State. Under a low-cost scenario, on an aggregate basis, the total cost of solar RPS compliance may exceed 1% of electricity sales in 2016. Under higher-cost scenarios, RPS compliance costs may exceed 1% of electricity sales as soon as 2014. The additional cost of compliance, and revenues from ACP paid to SEIF, may be lower than the above estimates beginning in fiscal 2014 to the extent PSC grants a delay in the solar RPS requirement to electricity suppliers. Since PSC is only authorized, and not required, to grant such a delay, the extent to which this may occur cannot be predicted. Thus, these estimates assume that electricity suppliers will not be granted a delay from increases in solar RPS.

Finally, Legislative Services advises that without a longer history of RPS compliance data, estimating the many variables affecting the price of SRECs and thus the cost of increasing solar RPS, cannot be predicted with certainty. Regardless of the assumptions made, what can be predicted is that increasing RPS and ACP will have a near-term cost that must be absorbed by all electric customers in the State. Even if 100% of solar RPS is met by electricity suppliers through purchasing SRECs, there will be an additional cost incurred.

State Expenditures:

State Electricity Costs

As described above, increasing the amount of electricity in the State that must be purchased from Tier 1 solar sources increases the cost for electricity suppliers to comply with solar RPS. To the extent compliance increases the cost of electricity in the State, State expenditures increase. In fiscal 2009 State agencies and the University System of Maryland spent approximately $223.0 million on electricity. For each 1% increase in electricity prices, State expenditures increase by $2.2 million.

PSC Administrative Costs

PSC reviews applications from solar generators that apply for SRECs. Under the bill, PSC anticipates an increase in the number of SREC applications to be reviewed and approved and anticipates the need for two additional positions to process those applications. Accordingly, special fund expenditures from the Public Utility Regulation Fund increase by $36,511 in fiscal 2011, which accounts for a 90-day start-up delay. This estimate reflects the cost of hiring an administrative specialist and a public service engineer to certify additional applications for SRECs. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	2
Salaries and Fringe Benefits	$27,114
Operating Expenses	9,397
Total FY 2011 PSC Expenditures	**$36,511**

Future year expenditures reflect full salaries with 4.4% annual increases and 3% employee turnover; and 1% annual increases in ongoing operating expenses.

MEA can handle any increase in workload with existing resources.

Small Business Effect: The small business impact statement provided by the Administration indicates that solar energy installers in the State will benefit from an increase in the solar RPS. Legislative Services concurs with the assessment; however, the small business impact statement does not account for the additional cost to comply with accelerated solar RPS and increased ACP. The additional cost of compliance will be absorbed by all electric customers in the State, including small businesses.

Additional Comments: The potential impact on ratepayers of increasing solar RPS and ACP is shown in **Exhibit 6**. Under a low-cost scenario, 100% of the increased solar RPS is met through procurement of SRECs, and the price of SRECs equals 50% of the ACP. Under a medium-cost scenario, 50% of the increased solar RPS is met through procurement of SRECs and 50% is met through ACP, with the cost of SRECs equaling 75% of the ACP. The high-cost scenario assumes that 80% of solar RPS is met through ACP and that the cost of SRECs equals 80% of the ACP.

Exhibit 6
Monthly Impact on Average Customer Bills

	Low-cost Scenario		Medium-cost Scenario		High-cost Scenario	
Year	Residential	Commercial	Residential	Commercial	Residential	Commercial
2011	$0.03	$0.38	$0.05	$0.66	$0.06	$0.72
2012	0.10	1.19	0.17	2.08	0.18	2.28
2013	0.25	3.13	0.44	5.47	0.48	6.00
2014	0.38	4.69	0.66	8.20	0.72	9.00
2015	0.39	4.84	0.68	8.48	0.74	9.30
2016	0.44	5.47	0.77	9.57	0.84	10.50

Source: Department of Legislative Services

The exhibit allocates RPS compliance costs on a per kWh basis and assumes that the average residential customer uses 1,000 kWh of electricity each month and the average commercial customer uses 12,500 kWh of electricity each month. To the extent consumption varies for individual customers, the increase in electricity costs will also vary. In addition, to the extent PSC grants a delay from the increases in solar RPS to some electricity suppliers, costs may be lower in future years. The increased costs of solar RPS compliance to electric customers represents a 0.4% increase in the monthly electric bill in 2016 under the low-cost scenario, a 0.6% increase under the medium-cost scenario, and a 0.7% increase under the high-cost scenario.

Additional Information

Prior Introductions: None.

Cross File: House Bill 471 (The Speaker, *et al.*) (By Request - Administration) - Economic Matters.

Information Source(s): Department of General Services, Maryland Energy Administration, Department of Natural Resources, Public Service Commission, Department of Legislative Services

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ANALYSIS OF ECONOMIC IMPACT ON SMALL BUSINESSES

TITLE OF BILL: Renewable Energy Portfolio Standard - Solar Energy

BILL NUMBER: SB 277

PREPARED BY:

PART A. ECONOMIC IMPACT RATING

This agency estimates that the proposed bill:

__ __ WILL HAVE MINIMAL OR NO ECONOMIC IMPACT ON MARYLAND SMALL BUSINESS

OR

__X__ WILL HAVE MEANINGFUL ECONOMIC IMPACT ON MARYLAND SMALL BUSINESSES

PART B. ECONOMIC IMPACT ANALYSIS

The proposed legislation will have minimal impact on small business in Maryland. Solar energy installers that are small businesss will directly benefit from the increase in the solar renewable portfolio standards requrements in the bill.