SB 791

Department of Legislative Services

Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

Senate Bill 791 (Senator Garagiola)
Finance Economic Matters

Renewable Energy Portfolio Standard - Solar Energy and Solar Water Heating Systems

This bill increases the percentage requirements of the Renewable Energy Portfolio Standard (RPS) that must be purchased from Tier 1 solar energy sources each year between 2013 and 2021. The bill only applies prospectively and has no effect on contracts for energy before the bill's effective date. The bill also authorizes the Public Service Commission (PSC) to approve, in consultation with the Maryland Energy Administration (MEA), an equivalent measuring certification related to solar water heating systems.

Fiscal Summary

State Effect: Special fund revenues to the Strategic Energy Investment Fund could increase beginning in FY 2014 from alternative compliance payments (ACPs) if electricity suppliers cannot meet the increased solar RPS requirements. PSC and MEA can implement the bill with existing budgeted resources. Under one set of assumptions, State expenditures (all funds) increase by $150,000 in FY 2014 and by $600,000 by FY 2017 due to higher electricity prices.

(in dollars)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
SF Revenue	$0	-	-	-	-
GF/SF/FF Exp.	$0	$150,000	$262,500	$525,000	$600,000
Net Effect	$0	($150,000)	($262,500)	($525,000)	($600,000)

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

Local Effect: Local government expenditures increase minimally beginning in FY 2014 due to higher electricity prices. Revenues are not directly affected.

Small Business Effect: Potential meaningful impact for small businesses involved in the installation of solar energy facilities to the extent the bill results in an increase in the demand for their services. Expenditures for all small businesses increase minimally beginning in FY 2014 due to higher electricity prices.

Analysis

Bill Summary: The amount of energy in the State that must be supplied from Tier 1 solar sources is increased between 2013 and 2021 as shown in **Exhibit 1**. In 2022 and beyond, the solar portion of RPS remains at 2% under current law and the bill. The bill's requirements apply only prospectively and do not affect current contracts for solar energy.

Exhibit 1
Renewable Energy Portfolio Standard and Alternative Compliance Payments (ACPs)
Current Law vs. the Bill

Calendar Year	Tier 1 Solar Under Current Law	Tier 1 Solar Under the Bill	ACP Per Megawatt-Hour
2013	0.20%	0.25%	$400
2014	0.30%	0.35%	400
2015	0.40%	0.50%	350
2016	0.50%	0.70%	350
2017	0.55%	0.95%	200
2018	0.90%	1.40%	200
2019	1.20%	1.75%	150
2020	1.50%	2.00%	150
2021	1.85%	2.00%	100

Note: ACP is unchanged by the bill.
Source: Department of Legislative Services

Current Law:

Maryland's Renewable Energy Portfolio Standard

Maryland's RPS requires that renewable sources generate specified percentages of Maryland's electricity supply each year, increasing to 20%, including 2% from solar

power, by 2022. Electricity suppliers must submit Renewable Energy Credits (RECs) equal to the percentage mandated by statute each year, or pay an ACP equivalent to the supplier's shortfall. RECs are classified as Tier 1, Tier 2, or solar. 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; a small hydroelectric plant of less than 30 megawatts (MW); poultry litter-to-energy; and waste-to-energy. Examples of Tier 2 sources include a hydroelectric plant of greater than 30 MW. Solar RECs (SRECs) may be generated from photovoltaic cells and residential solar water heating systems commissioned in fiscal 2012 or later.

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. Chapter 494 of 2010 increased the solar requirement for each year between 2011 and 2016. It also increased ACP for a shortfall in solar RPS requirements by $0.05 per kilowatt-hour (kWh) in 2011 and 2012, and by $0.10 per kWh between 2013 and 2016.

Solar RPS Cost Cap

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.

Strategic Energy Investment Fund

Chapters 127 and 128 of 2008 created the Maryland Strategic Energy Investment Program, and the implementing Strategic Energy Investment Fund within MEA, to decrease energy demand and increase energy supply to promote affordable, reliable, and clean energy. Currently, the fund's primary source of revenue is proceeds from the sale of carbon dioxide (CO_2) allowances under the Regional Greenhouse Gas Initiative. Money received from the CO_2 auctions is required by statute to be allocated among various programs, including renewable energy programs. The fund also receives revenue from ACPs, but those revenues are accounted for separately and are used to make loans and grants to support the creation of new Tier 1 or Tier 1 solar renewable sources in the State.

Solar Water Heating Systems

For a nonresidential or commercial solar water system, the amount of electricity generated and consumed by a system must be measured by an on-site meter that meets specified standards. Energy savings by a residential solar water heating system must be measured by a meter that meets specified criteria or measured by the Solar Ratings and Certification Corporation's OG-300 thermal performance rating for the system and certified by the corporation. Residential systems may not generate more than five SRECs per year, and must be installed in accordance with State and local plumbing codes.

Background:

Solar RPS and RPS Compliance

Solar RPS works to encourage the development of solar electric generation in two ways – through the use of ACP and through 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 reseller. The price of an SREC is effectively capped by the applicable ACP – what a supplier pays for a solar RPS shortfall. For compliance years 2008 through 2010, SREC prices averaged between 76% and 86% of ACP. However, SREC prices declined sharply in 2011 (for compliance year 2012) and are currently trading at approximately 50% of ACP.

Electricity suppliers have generally been able to meet their Tier 1 nonsolar RPS requirements. Solar ACPs have comprised the dominant portion of RPS compliance payments for the most recent years data is available. There was a shortfall of 2,707 megawatt-hours (MWh) in 2008 and 2,865 MWh in 2009 for the Tier 1 solar requirement, which represents approximately 99% of the total ACPs (including Tier 1 nonsolar and Tier 2) made in those years. ACPs for Tier 1 solar were $1.2 million in 2008 and $1.4 million in 2009.

State Fiscal Effect:

Strategic Energy Investment Fund

Special fund revenues to the Strategic Energy Investment Fund increase to the extent that the industry is not able to produce enough SRECs to meet the bill's requirements, and utilities must pay the full ACP. Legislative Services advises that it is difficult to make an estimate of special fund revenues that might be generated under the bill, given that SREC supply is market driven, and given the regulatory uncertainty of the RPS cost cap.

Pursuant to current law, any additional revenues from solar ACPs could be used by MEA to provide loans and grants to support the creation of new solar energy sources in the State.

State Electricity Expenditures

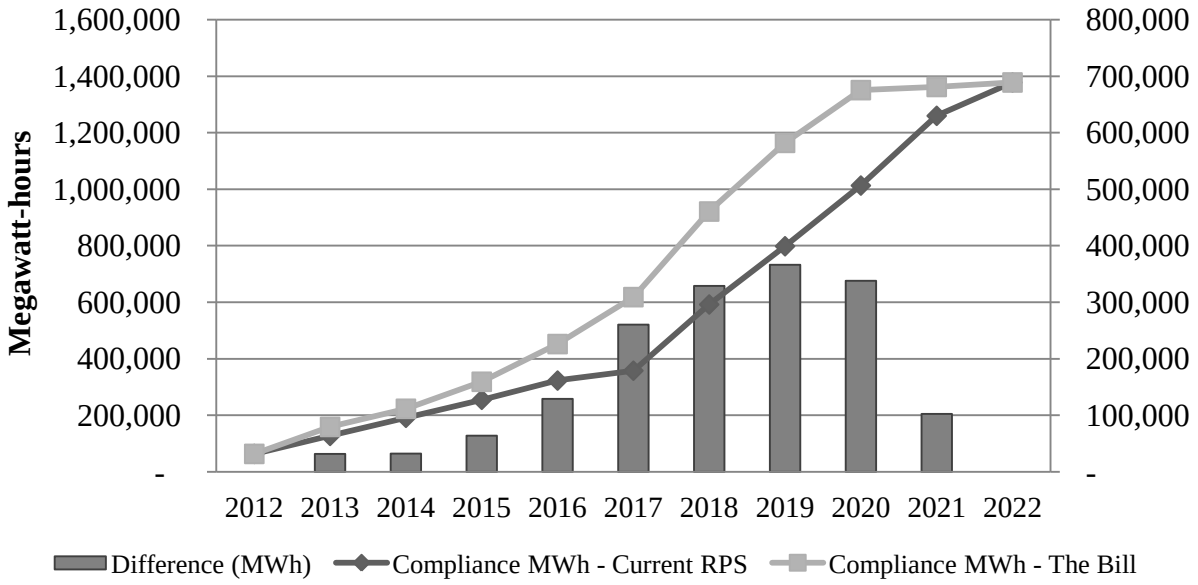
The incremental cost associated with the bill will be absorbed by all electric customers and allocated to different rate classes by PSC. As an electric customer, State agencies and the University System of Maryland used approximately 1.5 million MWh of electricity in fiscal 2010. Assuming an SREC price of 50% of ACP, and no PSC cost cap, electricity rates increase by $.10/MWh in 2013, and more in future years, which yields a total annual increase of $150,000 across all State agencies and USM in fiscal 2014. Under the same assumptions, State expenditures increase by a total of $3.7 million from fiscal 2013 through 2021. Any change in SREC prices or PSC policy will alter the bill's incremental effect on rates, and thus the effect on the State.

Additional Comments: Legislative Services advises that the incremental cost of compliance with the bill is highly sensitive to two factors: future SREC prices; and whether or not PSC chooses to delay the scheduled percentages for solar RPS 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 the State. Neither is certain; however, the following exhibits display the range of possible costs under various SREC prices, with and without a 1% cap.

Exhibit 2 shows the compliance MWh for the current RPS and RPS under the bill. The bill increases the compliance percentages for the years 2013 through 2021. The annual difference is shown on the secondary axis, which is the additional number of SRECs electricity suppliers would need to purchase, if PSC does not cap the RPS cost.

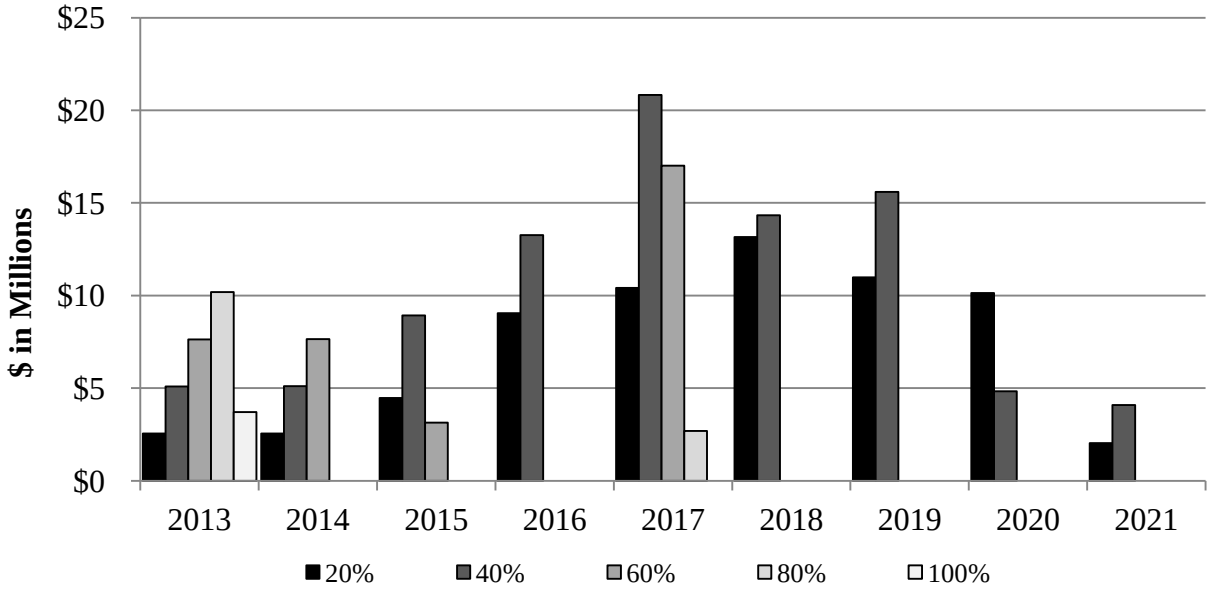
Legislative Services advises that, as shown in **Exhibit 3**, given a 1% cost cap, the annual incremental cost of the bill is highly sensitive to SREC prices in a given year. For example, in 2017, if SREC prices are 80% of ACP, the incremental cost is under $2.5 million, but if SREC prices are 40% of ACP, then the incremental cost is over $20 million.

Exhibit 2
Compliance Megawatt-hours – Current RPS vs. the Bill, Difference



Source: Department of Legislative Services

Exhibit 3
Incremental Cost of the Bill – 1% Cost Cap, SREC Prices as a Percentage of ACP Nominal Dollars



Source: Department of Legislative Services

Further, as shown in **Exhibit 4**, total incremental costs range from $3.7 million (SREC price equal to 100% of ACP, PSC cap) to about $327 million depending on the SREC price and whether or not PSC caps costs at 1%. The reason the 1% cap is so effective in reducing the incremental cost of the bill is that future SREC prices above 80% of ACP combined with the current solar RPS will reach the 1% cap, even in the absence of the bill. Thus, increasing the solar requirement further would not increase compliance payments, as they would already be capped.

Exhibit 4
Total Incremental Cost of the Bill – Future SREC Prices as a Percentage of ACP
Nominal Dollars

SREC % of ACP	1% Cost Cap	No Cost Cap
20%	$65,347,846	$65,347,846
30%	98,021,769	98,021,769
40%	92,068,240	130,695,693
50%	60,485,026	163,369,616
60%	35,451,098	196,043,539
75%	15,817,954	245,054,424
80%	12,873,514	261,391,385
90%	8,811,024	294,065,308
100%	3,719,338	326,739,231

Source: Department of Legislative Services

Finally, **Exhibit 5** and **Exhibit 6** show the residential bill impacts with a range of SREC prices and an assumption as to whether or not PSC decides to exercise its option to limit SREC compliance costs to 1%. Residential bill impacts are calculated by first calculating the average rate increase across all rate classes, given the incremental cost, and then applying that rate increase to an average household energy use of 1,000 kWh per month.

Exhibit 5
Monthly Residential Bill Impact – 1% Cost Cap
Nominal Dollars

	SREC % of ACP				
Calendar Year	**20%**	**40%**	**60%**	**80%**	**100%**
2013	$0.040	$0.080	$0.120	$0.160	$0.058
2014	0.040	0.080	0.120	0.000	0.000
2015	0.070	0.140	0.049	0.000	0.000
2016	0.140	0.205	0.000	0.000	0.000
2017	0.160	0.320	0.261	0.041	0.000
2018	0.200	0.218	0.000	0.000	0.000
2019	0.165	0.234	0.000	0.000	0.000
2020	0.150	0.071	0.000	0.000	0.000
2021	0.030	0.060	0.000	0.000	0.000

Source: Department of Legislative Services

Exhibit 6
Monthly Residential Bill Impact – No Cost Cap
Nominal Dollars

	SREC % of ACP				
Calendar Year	**20%**	**40%**	**60%**	**80%**	**100%**
2013	$0.040	$0.080	$0.120	$0.160	$0.200
2014	0.040	0.080	0.120	0.160	0.200
2015	0.070	0.140	0.210	0.280	0.350
2016	0.140	0.280	0.420	0.560	0.700
2017	0.160	0.320	0.480	0.640	0.800
2018	0.200	0.400	0.600	0.800	1.000
2019	0.165	0.330	0.495	0.660	0.825
2020	0.150	0.300	0.450	0.600	0.750
2021	0.030	0.060	0.090	0.120	0.150

Source: Department of Legislative Services

Additional Information

Prior Introductions: None.

Cross File: None.

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

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