HB 950

Department of Legislative Services

Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

House Bill 950 (Delegate Barve, *et al.*)
Economic Matters

Renewable Portfolio Standard - Solar - Small Solar On-Site Generators and Solar Water Heating Systems

This bill requires electricity suppliers to purchase a specified percentage of Solar Renewable Energy Credits (SRECs) from "small solar on-site generators" before electricity suppliers may purchase SRECs from other generating facilities, except under specified conditions. The bill also requires electric companies to purchase the electricity generated by small solar on-site generators under specified conditions.

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 solar Renewable Energy Portfolio Standard (RPS) requirements as a result of the bill. Potential increase in special fund expenditures for the Maryland Energy Administration (MEA) to the extent additional resources are needed to develop alternative approaches to meeting the State's RPS goals. State expenditures (all funds) could increase minimally beginning in FY 2014 due to higher electricity prices.

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

Small Business Effect: Meaningful for small solar on-site generator installers. Expenditures for all small businesses could increase minimally beginning in FY 2014 due to higher electricity prices.

Analysis

Bill Summary: "Small solar on-site generator" means a person who owns and operates, leases and operates, or contracts with a third party that owns and operates for the person's or the third party's own use a solar-generating system or solar water heating system that has capacity not exceeding two megawatts (MW).

"Solar water heating system" includes a system that is comprised of specified solar concentrator and photovoltaic or thermal collectors, generates energy using solar radiation for the purpose of heating water or heating water and generating electricity, and may or may not feed electricity back to the electric grid.

At least 65% of the solar RPS requirement in any year must be from small solar on-site generators. **Exhibit 1** below displays the portion of total energy sales this represents, in addition to the solar ACP for each year of RPS. Each year an electricity supplier must purchase SRECs from small solar on-site generators before the electricity supplier may purchase SRECs that are produced from other (large) solar generating facilities. However, an electricity supplier may use SRECs from large solar generating facilities to fulfill the small solar on-site generator SREC requirement of the bill if the electricity supplier provides written documentation to PSC indicating an insufficient supply of SRECs from small solar on-site generators.

Exhibit 1
Solar Renewable Energy Portfolio Standard
Percentage of Total Energy Sales from Each Source
Alternative Compliance Payment (ACP)

Year	Total Tier 1 Solar Under Current Law	Small Tier 1 Solar Under the Bill	Large Tier 1 Solar Under the Bill	ACP Per Megawatt-hour
2012	0.10%	0.065%	0.035%	$400
2013	0.20%	0.130%	0.070%	400
2014	0.30%	0.195%	0.105%	400
2015	0.40%	0.260%	0.140%	350
2016	0.50%	0.325%	0.175%	350
2017	0.55%	0.358%	0.193%	200
2018	0.90%	0.585%	0.315%	200
2019	1.20%	0.780%	0.420%	150
2020	1.50%	0.975%	0.525%	150
2021	1.85%	1.203%	0.648%	100

Source: Department of Legislative Services

An electric company must purchase the electricity generated by a small solar on-site generator if (1) there is an interconnection agreement between the electric company and a small solar on-site generator; and (2) the customer of the small solar on-site generator fails to purchase the electricity produced by the small solar on-site generator. A small solar on-site generator owns and has title to any SREC associated with electricity sold to an electric company under the bill.

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 1 solar, and Tier 2. 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 MW; poultry litter-to-energy; and waste-to-energy. Examples of Tier 2 sources include a hydroelectric plant of greater than 30 MW. SRECs may be generated from photovoltaic cells and residential solar hot water heating systems commissioned in fiscal 2012 or later.

Chapter 120 of 2007 revised Maryland's RPS to include a solar "carve-out" and required 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.

Net Energy Metering

Net energy metering is the measurement of the difference between the electricity that is supplied by an electric company and the electricity that is generated by an eligible customer-generator and fed back to the electric company over the eligible customer-generator's billing period. An "eligible customer-generator" is a customer that owns and operates, or leases and operates, a biomass, solar, fuel cell, wind, or micro-CHP electric generating facility located on the customer's premises or contiguous property; interconnected and operated in parallel with an electric company's transmission and distribution facilities; and intended primarily to offset all or part of the customer's own electricity requirements. The generating capacity of an eligible customer-generator for net metering may not exceed 2 MW.

Solar Water Heating Systems

A "solar water heating system" is a system that generates energy using solar radiation for the purpose of heating water and does not feed electricity back to the electric grid. A solar water heating system must be comprised of glazed liquid-type flat plate or tubular solar collectors as defined and certified to the OG-100 standard of the Solar Ratings and Certification Corporation. A solar water heating system does not include a system for the sole purpose of heating a hot tub or swimming pool.

A person who owns and operates a "solar water heating system" commissioned on or after June 1, 2011, shall receive SRECs equal to the amount of electricity saved by using a solar water heating system. SRECs from a solar water heating system may be transferred and applied to the Tier 1 Solar portion of the State Renewable Energy Portfolio Standard. To calculate SRECs from a solar water heating system, the amount of electricity saved must be converted from British thermal units to kWh.

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 that 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.

Solar Water Heating Systems

The U.S. Department of Energy indicates that solar hot water is one of the most cost-effective ways to include renewable technologies into a building and that a typical residential solar hot water system reduces the need for conventional water heating by about two-thirds. Typical residential systems cost between $2,500 and $7,500 while commercial size installations can cost up to $50,000, depending on the size of the system. Although this is usually more than the cost of a conventional electric, gas, or fuel oil system, solar heating systems are cost competitive when considering total energy costs over the entire life of the system.

State Fiscal Effect:

Strategic Energy Investment Fund

Special fund revenues to the Strategic Energy Investment Fund may increase beginning in fiscal 2014 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 cannot reliably estimate special fund revenues that might be generated under the

bill, given that SREC supply is market driven, given the potential SREC market disruption as discussed below, and given the regulatory uncertainty of the RPS cost cap.

Pursuant to current law, any additional revenue 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.

Administrative Expenses

MEA advises that, due to its concerns that the bill could make it difficult for the State to achieve its solar RPS goals, special fund expenditures for additional technical, communications, regulatory, and legal activities may increase to develop alternative approaches to meeting those goals. PSC advises that although the bill requires a new tracking system to be developed to record SRECs from small solar on-site generators, it could implement the bill using existing budgeted resources.

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. The bill could increase energy rates under certain circumstances, as discussed below, however the exact amount cannot be reliably estimated at this time. Any change in SREC prices, PSC policy, or the solar industry under the bill will alter the bill's incremental effect on rates, and thus the effect on the State.

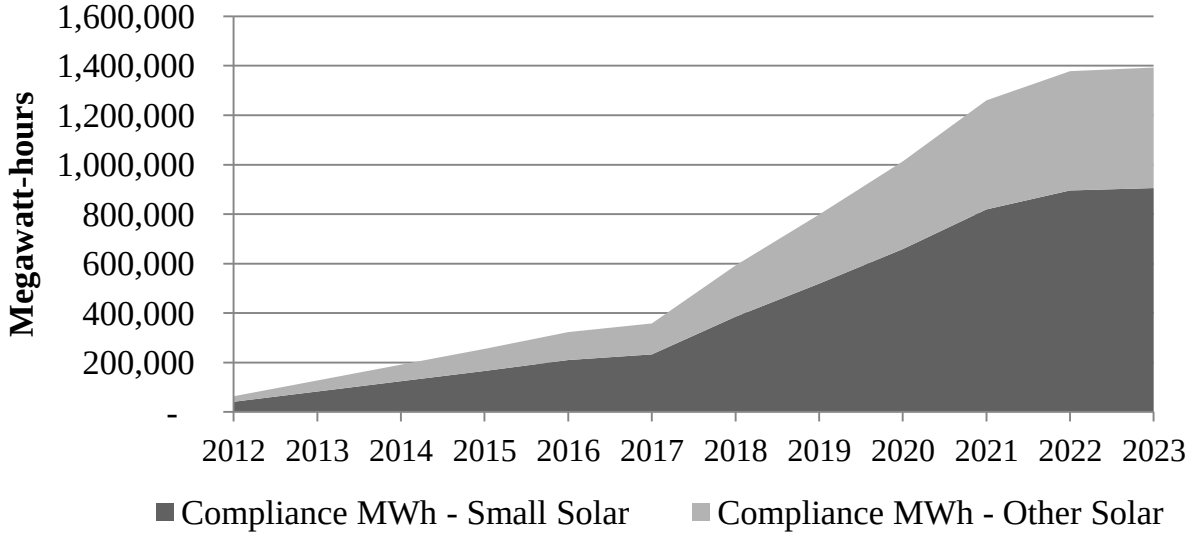
Small Business Effect: Small businesses that install residential solar systems may benefit if the bill creates higher SREC prices for small systems. An increase in SREC prices for these systems makes them more financially viable, which would increase the demand for such installations.

Additional Comments: Legislative Services advises that the bill may destabilize the SREC market as a whole, as discussed below. MEA advises, and Legislative Services concurs, that a stable SREC market is critical to the growth of the State's solar industry and to meeting future RPS requirements.

Solar Industry Structure and Future Trends

The bill proposes that at least 65% of the State's solar energy come from small generators. **Exhibit 2** below shows the composition of the solar RPS compliance under the bill. Energy consumption data used to derive compliance requirements is from the *Maryland Long-Term Energy Report* (LTER).

Exhibit 2
Solar RPS Compliance MWh – Small Solar and Other Solar
LTER Energy Baseline



Source: Department of Legislative Services

At the end of 2011, the State had 40.37 MW of installed solar capacity. A small percentage of that capacity came from large systems over 2 MW – the University of Maryland Eastern Shore's solar system is 2.2 MW. Thus, 38.15 MW (94.6%) of the State's 40.37 MW of installed solar capacity is from small solar on-site generators. However, MEA advises that it has received indications from the solar industry that the percentage of small-scale generation is going to significantly change in the near future. Several large-scale solar photovoltaic systems are scheduled to be completed in 2012, including a 17.4 MW system at Mount St. Mary's University. This one project increases the large generator percentage to 33.9%, and decreases the small generator percentage to 66%. In many circumstances, a single additional large-scale project may exceed the limit established by the bill. This increases the degree of financial risk and uncertainty for all current and future large solar systems in the State.

Electricity Supplier RPS Compliance

Notwithstanding the anticipated financial risk and uncertainty with large solar installations in the coming years, the bill may also have another destabilizing effect relating to ACPs. SRECs may be banked (saved) for up to three years; however, the bill requires electricity suppliers to purchase SRECs from small solar on-site generators to meet the small solar requirement each year *before* they may purchase SRECs from large generators.

There is no explicit provision in the bill addressing the possibility of small generators banking SRECs; therefore, one interpretation of the bill is that it would prohibit electricity suppliers from purchasing SRECs from large generators unless all SRECs produced by small generators in a year are first purchased. This has the potential to raise the SREC price for small solar to ACP, or higher, in a given year. This is because electricity suppliers would be forced to pay the full ACP on the 35% that may be supplied by large solar generators, as the bill would prohibit the electricity suppliers from purchasing those SRECs. The incremental cost of this possibility depends largely on whether or not PSC chooses to implement the 1% cost cap, as, generally, pricing 35% of the solar requirement at full ACP in any one future year exceeds the cost cap by a wide margin.

Additional Information

Prior Introductions: None.

Cross File: SB 796 (Senator Garagiola) - Finance.

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

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