

Department of Legislative Services
Maryland General Assembly
2013 Session

FISCAL AND POLICY NOTE

Senate Bill 1064

(Senator Middleton)

Finance

Economic Matters

Renewable Energy Portfolio Standard - Solar Water Heating Systems

This emergency bill expands the definition of “solar water heating system” for the purpose of compliance with the State’s Renewable Energy Portfolio Standard (RPS) to include concentrating solar thermal collectors as defined and certified to the OG-100 standard of the Solar Ratings and Certification Corporation (SRCC).

Fiscal Summary

State Effect: The Public Service Commission can handle the bill’s requirements with existing budgeted resources. The bill is not anticipated to materially affect Strategic Energy Investment Fund revenue from alternative compliance payments (ACPs) made under the State’s RPS.

Local Effect: Minimal.

Small Business Effect: Meaningful.

Analysis

Current Law: 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 SRCC. 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, receives solar renewable energy credits (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 RPS. To calculate SRECs generated from a solar water heating system, the amount of electricity saved must be converted from British Thermal Units to kilowatt-hours.

For a nonresidential or commercial system, the amount of electricity generated and consumed by a solar water heating 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 and certified by SRCC's OG-300 thermal performance rating for the system of an equivalent certification. Residential systems may not generate more than five SRECs per year, and must be installed in accordance with State and local plumbing codes.

Maryland's RPS

Maryland's RPS requires that renewable sources generate specified percentages of the State's electricity supply each year, increasing to 20%, including 2% from solar sources, by 2022. Electric companies and other electricity suppliers must submit renewable energy credits equal to the required percentage each year or pay an ACP equivalent to their shortfall. For more information on Maryland's RPS, see the **Appendix – Maryland's Renewable Energy Portfolio Standard**.

As part of the overall requirement, the amount of energy in the State that must be supplied from Tier 1 Solar sources grows between 2013 and 2021 as shown in **Exhibit 1**. In 2022 and beyond, the solar portion of RPS remains at 2%.

Exhibit 1 Solar RPS Requirement and ACP

| <u>Calendar Year</u> | <u>Tier 1 Solar Requirement</u> | <u>ACP Per Megawatt-Hour</u> |
|---------------------------------|--|---|
| 2013 | 0.25% | \$400 |
| 2014 | 0.35% | 400 |
| 2015 | 0.50% | 350 |
| 2016 | 0.70% | 350 |
| 2017 | 0.95% | 200 |
| 2018 | 1.40% | 200 |
| 2019 | 1.75% | 150 |
| 2020 | 2.00% | 150 |
| 2021 | 2.00% | 100 |

Source: Department of Legislative Services

Background: Chapter 120 of 2007 (HB 1016) 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. The carve-out was later modified in 2010 and 2012. Chapters 407 and 408 of 2011 (SB 717/HB 933) established solar water heating systems as a Tier 1 renewable source eligible to meet the Tier 1 Solar portion of Maryland's RPS.

The solar carve-out works to encourage the development of solar generation capacity through the use of ACPs and SRECs. Owners of solar facilities sell credits associated with their energy production to offset a portion of the installation costs. The price of an SREC is effectively capped by the applicable ACP – what a supplier pays for a solar shortfall. The Maryland Energy Administration (MEA) advises that the State currently has approximately 120 megawatts of installed solar capacity.

Concentrating Solar Thermal Collectors

According to MEA, concentrating solar collectors use reflective surfaces such as mirrors, advanced polymers, or polished aluminum to concentrate solar thermal energy (heat) onto tubes circulating water, oil, or another liquid heat transfer medium to create hot water or steam. These collectors work best in areas that get ample direct sunlight and few clouds.

SRCC Solar Rating and Certification

SRCC is an independent third-party certification organization that administers national certification and rating programs for solar energy equipment. SRCC currently operates two major solar programs: collector certification (OG-100) and heating system certification (OG-300). The OG-100 collector certification program applies to the part of a solar energy system that is exposed to the sun and collects the sun's heat. The collectors can be used to heat water, air, or another heat transfer medium. The OG-300 rating and certification program for solar water heating systems integrates results of collector tests with a performance model for the entire system and determines whether a system meets minimum standards for durability, reliability, safety, and operation. Factors affecting total system design, installation, maintenance, and service are also evaluated.

Small Business Effect: MEA indicates that more than 1,000 megawatts of solar capacity is required to meet the full 2% solar carve-out under current law. Thus, small businesses that manufacture or install concentrating solar collectors benefit from increased demand for their product or services due to the revenue provided from the sale of SRECs. Small businesses that elect to have concentrating solar collectors installed may also benefit from reduced electricity usage.

Additional Information

Prior Introductions: None.

Cross File: HB 1534 (Delegate Frush, *et al.*) - Economic Matters.

Information Source(s): Maryland Energy Administration, Public Service Commission, Solar Ratings and Certification Corporation, Department of Legislative Services

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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. It requires that renewable sources generate specified percentages of the State’s electricity supply each year, increasing to 20%, including 2% from solar sources, by 2022. Electric companies (utilities) and other electricity suppliers must submit renewable energy credits (RECs) equal to the percentage specified in statute each year, or pay an alternative compliance payment (ACP) equivalent to their shortfall. Any ACPs are used by the Maryland Energy Administration to support new renewable energy sources.

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, Tier 1 Solar, or Tier 2, depending on the energy source. REC generators and electricity suppliers are allowed to trade RECs using a Public Service Commission-approved system known as the Generation Attributes Tracking System, which is a trading platform designed and operated by PJM Environmental Information Services, Inc, which tracks the ownership and trading of the RECs.

Examples of Tier 1 sources include 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; poultry litter-to-energy; and waste-to-energy. Tier 1 Solar sources include photovoltaic cells and residential solar water heating systems commissioned in fiscal 2012 or later.

RPS Compliance

In 2012, the standard required that 9.0% of retail electric sales come from renewable sources, including 0.1% from solar. In general, electricity suppliers have been able to meet all of their Tier 1 nonsolar and Tier 2 REC requirements, and therefore the predominant source of ACPs is from the Tier 1 solar requirement. For the 2010 compliance year (the most recent year for which data is available), electricity suppliers retired 3.6 million RECs. According to the compliance reports filed with the Public Service Commission, the cost of RECs retired totaled \$7.6 million for the 2010 compliance year. The total cost of compliance with the 2010 RPS was slightly less than \$8 million, with ACPs accounting for \$217,620 of this total.