Department of Legislative Services

Maryland General Assembly
2022 Session

FISCAL AND POLICY NOTE
First Reader

Senate Bill 903 (Senators Hershey and Edwards)
Finance

Renewable Energy Portfolio Standard - Qualifying Biomass and Thermal Biomass Systems

This bill alters the definition of "qualifying biomass," for purposes of the State's Renewable Energy Portfolio Standard (RPS), by removing mill residue (except sawdust and wood shavings), slash, and brush from the definition; the bill also includes specified silvicultural products and natural wood waste in the definition. The bill also authorizes thermal biomass systems to use food waste, qualifying biomass, or animal manure as a source of fuel, regardless of the relative mix of those fuel sources. Other eligible sources of qualifying biomass and other eligibility requirements related to thermal biomass systems and their fuel components are unchanged. The bill's changes apply to all RPS compliance years beginning January 1, 2022.

Fiscal Summary

State Effect: The Public Service Commission (PSC) can implement the bill with existing budgeted resources. The bill does not otherwise materially affect State finances or operations.

Local Effect: Minimal.

Small Business Effect: Potential meaningful.

Analysis

Current Law: "Silvicultural products" or forest products are any raw material yielded by a forest, including timber, timber products, and any other forest materials, such as lumber, poles, pulpwood, firewood, and pine straw. Department of Natural Resources regulations

define “natural wood waste” as tree and other vegetative refuse including tree stumps, brush and limbs, root mats, logs, leaves, grass clippings, unadulterated wood wastes, and other natural vegetative materials.

Qualifying Biomass

“Qualifying biomass” (for RPS compliance) means a nonhazardous, organic material that is available on a renewable or recurring basis, and is waste material that is segregated from inorganic waste material and is derived from sources including:

- mill residue, except sawdust and wood shavings;
- precommercial soft wood thinning, slash, brush, or yard waste;
- a pallet, crate, or dunnage;
- agricultural and silvicultural sources, including tree crops, vineyard materials, grain, legumes, sugar, and other crop by-products or residues;
- gas produced from the anaerobic decomposition of animal waste or poultry waste; or
- a plant cultivated exclusively for the purpose of being used as a renewable source to produce electricity.

Qualifying biomass does not include old growth timber, unsegregated solid waste or postconsumer wastepaper, black liquor, or any product derived from black liquor, or invasive exotic plant species.

Thermal Biomass System

A “thermal biomass system” means a system that uses (1) primarily animal manure, including poultry litter and associated bedding, to generate thermal energy, and food waste or qualifying biomass for the remainder of the feedstock; (2) is used in the State; and (3) complies with all applicable State and federal statutes and regulations as determined by the appropriate regulatory authority.

Energy from a thermal biomass system is an eligible Tier 1 resource under the State’s RPS, subject to additional specified requirements for a system that uses a thermochemical process. Energy is converted from British Thermal Units to megawatt-hours for purposes of allocating renewable energy credits.

“Food waste” is not a defined term in the Public Utilities Article.

An electricity supplier receives credit toward meeting RPS requirements for electricity derived from the biomass fraction of biomass co-fired with other fuels.

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

Small Business Effect: According to the most recent RPS annual report from PSC, as of 2020, there were no thermal biomass systems in Maryland. However, the bill may lead to the construction, operation, and eventual supply chain support of such facilities by small businesses.

Additional Information

Prior Introductions: SB 549 of 2021, a similar bill, received a hearing in the Senate Finance Committee, but no further action was taken. Its cross file, HB 682, received a hearing in the House Economic Matters Committee and was referred to interim study.

Designated Cross File: HB 1085 (Delegate Buckel) - Economic Matters.

Information Source(s): Maryland Environmental Service; Howard and Prince George's counties; Northeast Maryland Waste Disposal Authority; Maryland Department of Agriculture; Maryland Department of the Environment; Department of Natural Resources; Public Service Commission; Department of Legislative Services

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Appendix – Renewable Energy Portfolio Standard

General Overview

Maryland's Renewable Energy Portfolio Standard (RPS) was enacted in 2004 to facilitate a gradual transition to renewable sources of energy. There are specified eligible ("Tier 1" or "Tier 2") sources as well as carve-outs for solar, offshore wind, and, beginning in 2023, new geothermal systems. Electric companies (utilities) and other electricity suppliers must submit renewable energy credits (RECs) equal to a percentage of their retail electricity sales specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Historically, RPS requirements have been met almost entirely through RECs, with negligible reliance on ACPs. The Maryland Energy Administration (MEA) must use ACPs for purposes related to renewable energy, as specified.

In 2022, the requirements are 30.1% from Tier 1 sources, including at least 5.5% from solar, and 2.5% from Tier 2 sources.

Recent Significant Changes to Overall Percentage Requirements

- Chapter 757 of 2019 significantly increased the percentage requirements, which now escalate over time to a minimum of 50% from Tier 1 sources, including 14.5% from solar, by 2030.

- Chapter 673 of 2021 reduced the amount of solar energy required under the RPS each year from 2022 through 2029, while leaving the nonsolar requirement generally unchanged, before realigning with the previous requirements beginning in 2030. The Act also extended Tier 2 in perpetuity at 2.5%.

- Chapter 164 of 2021 created an additional carve-out for post-2022 geothermal systems in Tier 1 beginning in 2023.

Limited Applicability to Municipal Electric Utilities and Electric Cooperatives

As RPS percentage requirements have grown over time, legislation has been enacted to limit the effect on municipal electric utilities and electric cooperatives. Tier 1 percentage requirements for municipal electric utilities are limited to 20.4% in total beginning in 2021, including at least 1.95% from solar energy and up to 2.5% from offshore wind. Municipal electric utilities are also exempt from Tier 2 after 2021. Electric cooperatives are exempt from future increases to the solar carve-out beyond 2.5%, and the RPS does not apply to Choptank Electric Cooperative.

Renewable Energy Credits

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. REC generators and electricity suppliers are allowed to trade RECs using a Public Service Commission (PSC) 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.

Eligible Sources

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 specified sources; 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. Eligible solar sources include photovoltaic cells and residential solar water-heating systems commissioned in fiscal 2012 or later. Tier 2 includes only large hydroelectric power plants.

Chapter 673 of 2021 excluded black liquor, or any product derived from black liquor, from Tier 1 beginning in 2022. Chapter 691 of 2021 included raw or treated wastewater used as a heat source or sink for heating or cooling in Tier 1 beginning in 2021.

Trends in Compliance Costs, Renewable Energy Credit Prices, and Resources Used

Electricity suppliers retired 14.3 million RECs at a cost of $223.2 million in 2020, as shown in **Exhibit 1**. This continues a multi-year trend of increasing compliance costs and, generally, average REC prices. Notably, the solar carve-out ($122.9 million) cost was higher than the remaining Tier 1 requirement ($99.8 million) – the first time since 2011.

In 2020, wind (56.7%), municipal solid waste (11.8%), black liquor (11.5%), and small hydroelectric (8.5%) were the primary energy sources used for Tier 1 RPS compliance. This continues a multi-year trend of increasing reliance on wind energy. Maryland facilities generated 4.3 million RECs in 2019: approximately 2.7 million Tier 1 RECs and 1.7 million Tier 2 RECs. Many RECs can be used for compliance in both Maryland and other surrounding states, although there are geographic and energy source restrictions.

Exhibit 1
RPS Compliance Costs and REC Prices
2016-2020

	2016	2017	2018	2019	2020
Compliance Costs ($ Millions)					
Tier 1 Nonsolar	$88.2	$50.0	$56.4	$79.3	$99.8
Tier 1 Solar	45.6	21.3	27.4	55.2	122.9
Tier 2	1.4	0.7	1.0	0.06	0.4
Total	**$135.2**	**$72.0**	**$84.8**	**$134.5**	**$223.2**
Average REC Price ($)					
Tier 1 Nonsolar	$12.22	$7.14	$6.54	$7.77	$8.24
Tier 1 Solar	110.63	38.18	31.91	47.26	66.10
Tier 2	0.96	0.47	0.66	1.05	1.06

REC: renewable energy credit
RPS: Renewable Energy Portfolio Standard

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

Source: Public Service Commission

Related Studies Reports

PSC must submit an RPS compliance report to the General Assembly each year. The most recent report, which contains historical data through 2020, can be found here.

The Power Plant Research Program (PPRP) in the Department of Natural Resources has frequently been required to conduct RPS studies. PPRP submitted a final report on a comprehensive RPS study in December 2019, which can be found here. PPRP also submitted a related required study on nuclear energy at that time, which can be found here. A supplemental study on the overall costs and benefits of increasing the RPS to a goal of 100% by 2040 is due by January 1, 2024.

Chapter 164 of 2021 required MEA to staff a new Geothermal Energy Workgroup and complete a technical study on the potential impact of expanding and incentivizing the use of geothermal heating and cooling systems in the State. The Act required a related report to be submitted to the General Assembly by December 1, 2021.