

Department of Legislative Services
Maryland General Assembly
2013 Session

FISCAL AND POLICY NOTE
Revised

Senate Bill 684

(Senator Garagiola, *et al.*)

Finance

Rules and Executive Nominations

Renewable Energy Portfolio Standard - Qualifying Biomass

This bill alters the definition of a “Tier 1 renewable source” eligible for inclusion in the State’s Renewable Portfolio Standard (RPS) to allow energy produced from “qualifying biomass” only if specified operation date and efficiency conditions are met. Beginning in the first fiscal year in which final data is available for the calendar 2018 RPS compliance, and annually thereafter, if specified conditions are met, the Governor must appropriate funds in the State budget based on specified calculations to the Maryland Energy Administration (MEA). MEA must issue a grant to the owner of a specified facility located in Western Maryland in the amount of any appropriation made by the Governor. The bill applies only prospectively and may not be applied or interpreted to have any effect on (1) specified existing renewable energy credits (RECs); (2) contracts entered into for the purchase of RECs before January 1, 2013; and (3) specified facilities that start commercial operation by January 1, 2014, and meet other requirements.

Fiscal Summary

State Effect: Under one set of assumptions, Strategic Energy Investment Fund (SEIF) and/or other special fund or general fund expenditures increase by approximately \$1.9 million in FY 2021, and significantly thereafter, from appropriations made to MEA under the bill; MEA expenditures increase correspondingly to issue grants under the bill. The Public Service Commission (PSC) can implement the bill with existing budgeted resources. REC prices, and thus State expenditures on electricity, are not anticipated to be materially affected. The bill is not anticipated to materially affect SEIF revenue from Alternative Compliance Payments (ACPs). **This bill establishes a mandated appropriation beginning in FY 2021.**

Local Effect: Minimal or none.

Small Business Effect: Minimal or none.

Analysis

Bill Summary: Qualifying biomass used at a generation unit that (1) started commercial operation on or after January 1, 2005, and (2) achieves a total system efficiency of 65% or more is eligible as a Tier 1 renewable source. Conversely, qualifying biomass used at a generation unit that (1) started commercial operation before January 1, 2005, or (2) achieves a total system efficiency of up to 65% is eligible as a Tier 2 renewable source only.

Before January 1, 2018, qualifying biomass used at a generation unit that (1) started commercial operation before January 1, 2005, and (2) achieved certification with PSC before January 1, 2006, is eligible as a Tier 1 renewable source. Beginning January 1, 2018, qualifying biomass used at these facilities is only eligible as a Tier 2 renewable source.

“Total system efficiency” means the sum of the net useful electric energy output measured in British Thermal Units (BTUs) and the net useful thermal energy output measured in BTUs divided by the total fuel input. “Useful thermal energy output” means energy (1) in the form of direct heat, steam, hot water, or other thermal form that is used in production and beneficial measures for heating, cooling, humidity control, process use, or other valid thermal end use energy requirements and (2) for which fuel or electricity would otherwise be consumed. It does not include thermal energy used to dry or refine biomass fuel.

Annual “Make Whole” Appropriation

Beginning in the first fiscal year in which final data is available for the calendar 2018 RPS compliance, and annually thereafter, the Governor must appropriate funds in the State budget from SEIF or other funding sources based on specified calculations to MEA, which must then issue a grant to the owner of a specified facility located in Western Maryland in the amount of any appropriation made by the Governor. The amount is calculated by:

- *multiplying:* the average annual quantity of the sum of Tier 1 and Tier 2 RECs produced by the facility from January 2013 through December 2018 by the average annual selling price of nonsolar Tier 1 RECs retired for Maryland RPS compliance in the most recent calendar year in which final data is available; and then

- *subtracting*: any revenues received in that same calendar year from the sale of Tier 1 or Tier 2 RECs produced by the facility, as verified by PSC.

The owner of the facility must make all reasonable efforts to maximize the revenue received for the sale of Tier 1 and Tier 2 RECs in any markets in which the RECs are eligible for sale. The appropriation must only be made in a fiscal year in which the facility manufactures at least 25% of the final tonnage of paper products produced in calendar 2012.

The bill applies only prospectively and may not be applied or interpreted to have any effect on (1) contracts entered into for the purchase of RECs before January 1, 2013; (2) facilities that start commercial operation on or after January 1, 2014, and enter into contracts of at least 10 years before the effective date of the bill for the purchase of at least 50% of the anticipated RECs that will be generated by the facility; and (3) RECs included in the PJM Generation Attributes Tracking System that were generated by a facility that qualified as a Tier 1 energy source before the effective date of the bill.

Current Law: A REC is a tradable commodity equal to one megawatt-hour of electricity generated or obtained from a renewable energy generation resource. 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 PSC-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 RECs.

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 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, or Tier 2. Generally, energy from a Tier 1 source is eligible for inclusion in meeting the State RPS regardless of when the generating system or facility was placed in service.

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 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. Any ACPs are used by MEA to support new renewable energy sources.

Biomass

“Qualifying biomass” for Tier 1 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 or crate;
- agricultural and silvicultural sources, including tree crops, vineyard materials, grain, legumes, sugar, and other crop by-products or residue;
- 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, or invasive exotic plant species. An electricity supplier receives credit toward meeting RPS for electricity derived from the biomass fraction of biomass co-fired with other fuels. A net metered customer generator may operate a biomass generating facility.

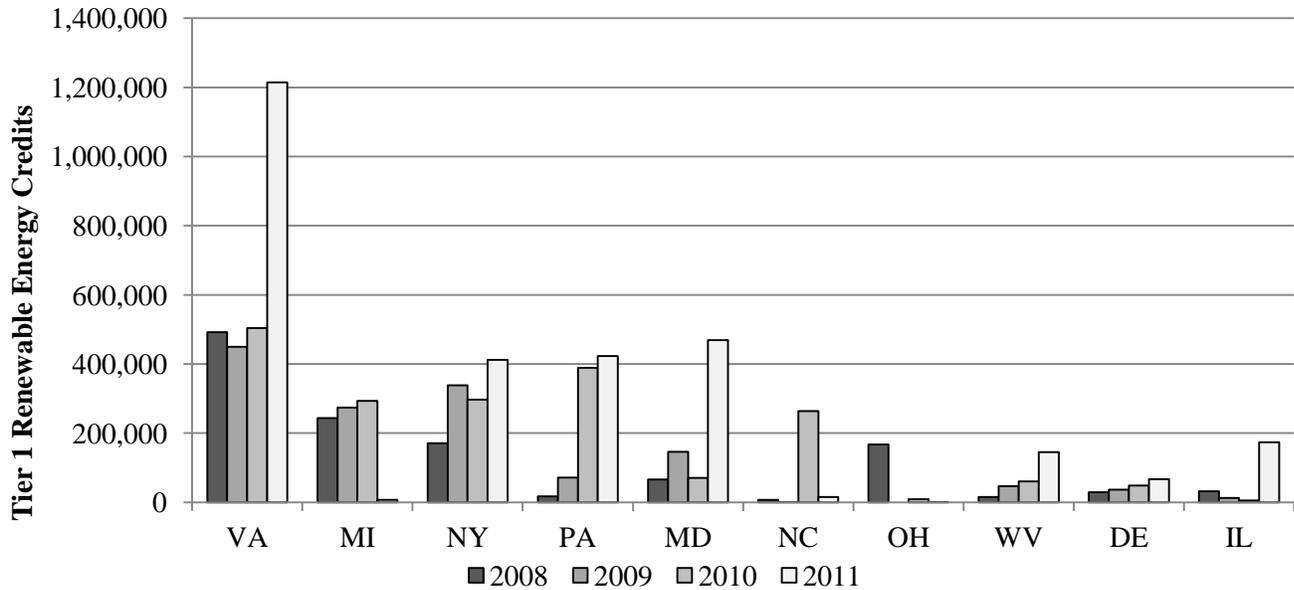
Background: The bill tightens the qualifications of facilities that use qualifying biomass to produce Tier 1 RECs. Under current law, any facility that is registered with PSC as a certified generator earns Tier 1 RECs for each megawatt-hour of electricity generation using qualifying biomass, regardless of when the facility went into operation or what level of thermal efficiency it has. The Tier 2 RPS obligation ends December 31, 2018.

As discussed below, a large portion of Maryland’s Tier 1 RPS obligation has been met with qualifying biomass – primarily in the form of black liquor and wood waste. MEA advises that the bill removes all but two of the currently qualified black liquor facilities that have generated RECs in the past for Maryland’s RPS compliance. However, MEA advises, and the Department of Legislative Services (DLS) concurs, that removing these sources from the supply of available Tier 1 RECs is unlikely to have a sizeable or lasting impact on REC prices paid by Maryland electricity suppliers.

As shown below in **Exhibit 1**, for the 2011 compliance year (the most recent year for which data is available) Maryland electricity suppliers sourced the majority of Tier 1 RECs from surrounding states. The exhibit includes both Tier 1 and Tier 1 Solar RECs. Virginia, Pennsylvania, and New York were among the largest sources of RECs submitted for 2011 – a continuation of a general trend. In 2011, Maryland-located

sources supplied 14.0% of Tier 1 RECs used for compliance. For Tier 2 compliance, the vast majority of RECs were sourced from Pennsylvania, Virginia, New York, and Maryland, which accounted for over 98% of all Tier 2 RECs retired in 2011.

Exhibit 1
State Origin of Tier 1 RECs Retired for Maryland RPS Compliance



Source: Public Service Commission, Department of Legislative Services

While the term “renewable energy” generally brings to mind energy sources such as wind, solar, or geothermal, in practice, Maryland’s Tier 1 RPS obligations have been met largely by black liquor, hydroelectric, landfill gas, and wood and waste solids. For Tier 2 sources, hydroelectric continues to be the dominant source of RECs. **Exhibit 2** below tracks the energy sources of both Tier 1 and Tier 2 RECs used for Maryland RPS compliance for the most recent five years of available data. General trends include an increasing reliance on black liquor and hydroelectric sources, with a corresponding decrease in reliance on landfill gas and wood and waste solids.

Exhibit 2
Energy Sources of RECs Retired for Maryland RPS Compliance

	<u>Tier 1 Sources</u>				
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Black Liquor	37.7%	37.6%	28.3%	42.8%	33.3%
Hydroelectric	6.0%	17.1%	33.8%	32.7%	25.5%
Landfill Gas	21.4%	14.9%	11.4%	5.8%	9.0%
Solar	0.0%	0.0%	0.2%	0.8%	0.9%
Wind	0.0%	0.5%	1.4%	0.9%	14.2%
Wood and Waste Solids	35.0%	29.9%	24.8%	17.0%	12.4%
Municipal Solid Waste	-	-	-	-	4.0%
Blast Furnace Gas	-	-	-	-	0.7%
Total	100%	100%	100%	100%	100%

	<u>Tier 2 Sources</u>				
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Blast Furnace Gas	0.0%	0.0%	0.0%	1.5%	3.9%
Hydroelectric	50.3%	85.3%	80.8%	73.4%	83.1%
Municipal Solid Waste	49.7%	14.7%	19.2%	25.1%	13.0%
Total	100%	100%	100%	100%	100%

Notes: Municipal solid waste and blast furnace gas were moved to Tier 1 effective October 1, 2011. Numbers may not sum to total due to rounding.

Source: Public Service Commission

RPS Compliance

For the 2011 compliance year, electricity suppliers retired 4.7 million RECs at a cost of \$14.5 million. The *total* cost of compliance with the 2011 RPS was \$14.6 million, with ACPs accounting for \$98,520 of the total. **Exhibit 3** below summarizes the results of the annual compliance reports filed by electricity suppliers with PSC for the years 2007 through 2011. In general, electricity suppliers have been able to meet all of their Tier 1 and Tier 2 REC requirements; therefore, the predominant source of ACPs is from the Tier 1 Solar requirement.

Exhibit 3
Results of RPS Compliance Reports
2007-2011

<u>Compliance Year</u>	<u>Tier 1</u>	<u>Tier 1 Solar</u>	<u>Tier 2</u>	<u>Total</u>
2007				
RPS Obligation	553,600	-	1,384,000	1,937,600
Retired RECs	553,400	-	1,382,900	1,936,200
ACP Required	\$12,600	-	\$23,800	\$36,400
2008				
RPS Obligation	1,183,400	2,900	1,479,300	2,665,700
Retired RECs	1,184,200	200	1,500,400	2,684,800
ACP Required	\$9,000	\$1,218,700	\$8,200	\$1,235,900
2009				
RPS Obligation	1,228,500	6,100	1,535,700	2,770,300
Retired RECs	1,280,900	3,300	1,509,300	2,793,500
ACP Required	\$400	\$1,147,600	\$300	\$1,148,300
2010				
RPS Obligation	1,922,100	16,000	1,601,700	3,539,800
Retired RECs	1,931,400	15,500	1,622,800	3,569,600
ACP Required	\$20	\$217,600	-	\$217,600
2011				
RPS Obligation	3,079,900	28,000	1,553,900	4,661,800
Retired RECs	3,083,100	28,000	1,565,900	4,677,100
ACP Required	\$48,200	\$41,200	\$9,100	\$98,500

Notes: Some electricity suppliers retired more RECs than required. Numbers may not sum to total due to rounding.

Source: Public Service Commission

State Fiscal Effect: Practically, the bill removes from the Tier 1 RPS and designates as Tier 2 all black liquor facilities except for Luke Mill (located in Western Maryland), and Convington (located in Virginia). These facilities were certified by PSC before January 1, 2006, and therefore remain eligible as a Tier 1 source until January 1, 2018. At that time, both are designated as a Tier 2 renewable source along with all other currently operational black liquor facilities eligible for Maryland's RPS. The Tier 2 RPS terminates at the end of 2018. Combined, these two facilities produced over 18% of the Tier 1 RECs retired for compliance in 2011. However, these changes in designation are

not anticipated to affect REC prices, which are determined in a multistate market, and therefore, State expenditures on electricity are not materially affected.

The bill effectively specifies that the Governor must appropriate an amount necessary to make whole the Luke Mill facility beginning in the first fiscal year in which final data is available for calendar 2018 RPS compliance. Annual compliance reports are due April 1 of the following year. For example, the 2018 compliance report is due April 1, 2019. Therefore, DLS assumes annual appropriations are included in the budget beginning in fiscal 2021.

The annual appropriation to MEA – which is then passed through to Luke Mill in the form of a grant – is calculated by multiplying the average annual REC output by Luke Mill over 2013 through 2018 by the average REC price in a particular compliance year. REC prices are determined in a market and are volatile over time. As such, a reliable estimate of REC prices for compliance year 2018 cannot be made at this time. However, **Exhibit 4** below illustrates a range of possible appropriations under various REC prices. DLS notes that the ACP beginning in compliance year 2018 is \$40 per REC, which effectively caps the REC price. The estimates assume Luke Mill continues to produce RECs at its 2009 through 2011 average annual rate of 125,704.

Exhibit 4
Potential “Make Whole” Payment by Average REC Price
Compliance Year 2018/Fiscal 2021

Average REC Price	<u>\$5</u>	<u>\$10</u>	<u>\$15</u>	<u>\$20</u>
Appropriation	\$628,500	\$1,257,000	\$1,885,600	\$2,514,100

Note: The appropriation does not reflect any revenue from the sale of RECs by Luke Mill into other eligible markets, which would reduce the appropriation.

Source: Department of Legislative Services

DLS notes that the Power Plant Research Program’s preliminary estimate of REC prices for compliance year 2018 is \$15.40. Absent any revenue from the sale of RECs in other markets, this requires a fiscal 2021 appropriation of \$1.9 million. Therefore, under these assumptions, SEIF and/or other special fund or general fund expenditures increase by approximately \$1.9 million in fiscal 2021, and significantly thereafter to provide the appropriation to MEA; MEA expenditures increase correspondingly to issue grants under the bill.

Small Business Effect: MEA advises that there are no small businesses in the State who operate a renewable energy facility registered with PSC that would be impacted by the bill.

Additional Information

Prior Introductions: None.

Cross File: HB 1102 (Delegate Olszewski, *et al.*) - Economic Matters.

Information Source(s): Public Service Commission, Maryland Energy Administration, Department of Natural Resources, Maryland Department of the Environment, Washington Suburban Sanitary Commission, Department of Legislative Services

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Analysis by: Stephen M. Ross

Direct Inquiries to:
(410) 946-5510
(301) 970-5510