SB 810

Department of Legislative Services

Maryland General Assembly
2021 Session

FISCAL AND POLICY NOTE
Third Reader - Revised

Senate Bill 810 (Senator Feldman)

Finance Rules and Executive Nominations

Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems

This bill creates a carve-out for post-2022 geothermal systems in Tier 1 of the State's Renewable Energy Portfolio Standard (RPS), beginning in 2023 at 0.05% and increasing each year until reaching 1.0% in 2028 and later, subject to specified requirements and alternative compliance payments (ACPs). The Maryland Energy Administration (MEA) must staff a related workgroup created by the bill and complete a related technical study. A presently existing obligation or contract right may not be impaired by the bill.

Fiscal Summary

State Effect: Strategic Energy Investment Fund (SEIF) expenditures increase by up to $250,000 in FY 2022, and those funds are no longer available to be expended for other purposes. Public Service Commission (PSC) special fund expenditures increase by $234,100 in FY 2023; PSC special fund revenues increase correspondingly. Maryland Department of Labor (MDL) general fund expenditures increase by $465,300 in FY 2023. Future years reflect the elimination of one-time costs. SEIF revenues and expenditures may increase from ACPs beginning in FY 2024 (not reflected in chart below). The potential effect on electricity prices is discussed separately below.

(in dollars)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
SF Revenue	$0	$234,100	$225,100	$232,900	$241,000
GF Expenditure	$0	$465,300	$365,800	$376,000	$386,500
SF Expenditure	$250,000	$234,100	$225,100	$232,900	$241,000
Net Effect	($250,000)	($465,300)	($365,800)	($376,000)	($386,500)

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

Local Effect: The bill does not materially affect local government finances or operations.

Small Business Effect: Meaningful.

Analysis

Bill Summary:

Definitions and Eligibility

The definition of "geothermal heating and cooling system" is modified to expand eligibility by no longer requiring that the system replace certain inefficient heating or cooling systems. Additional definitions are created to distinguish between geothermal heating and cooling systems placed in service before and on or after January 1, 2023, and the scope of system ownership as it pertains to third-party eligibility to receive renewable energy credits (RECs) is modified.

Low- and Moderate-income Installations

At least 25% of the required post-2022 geothermal percentage required under the bill's carve-out each year must be derived from post-2022 systems installed at (1) single or multifamily housing units that qualified as low- or moderate-income housing, as defined, on the date the system was installed on the property or (2) institutions that primarily serve low- and moderate-income individuals and families.

ACPs for the geothermal carve-out must be accounted for separately in SEIF and may only be used to make loans and grants to promote increased opportunities for the growth and development of small, minority, women-owned, and veteran-owned businesses in the State that install geothermal systems in the State.

Large Geothermal System Eligibility

A post-2022 geothermal system with a 360,000 British Thermal Unit capacity is eligible for inclusion in meeting the RPS only if the company installing the system provides the following for its employees: (1) family sustaining wages; (2) employer-provided health care with affordable deductibles and co-pays; (3) career advancement training, as specified; (4) fair scheduling; (5) employer-paid workers' compensation and unemployment insurance; (6) a retirement plan; (7) paid time off; and (8) the right to bargain collectively for wages and benefits. Compliance with these requirements must be regulated and enforced by MDL.

Maryland Energy Administration Study and Reporting Requirement

MEA must conduct a comprehensive technical study on the status of geothermal heating and cooling systems in the State and the potential impact of expanding and incentivizing

the use of geothermal heating and cooling systems in the State. The study must include assessments of various aspects of geothermal systems and their use, including:

- the cost and feasibility of increasing the use of geothermal heating and cooling systems in the State;
- national and international best practices designed to incentivize the use of geothermal heating and cooling systems;
- the potential for geothermal heating and cooling systems to reduce peak electricity demand;
- the potential reduction to all Maryland ratepayers in electricity costs associated with the increased use of geothermal heating and cooling systems, including savings from reduced peak electricity demand;
- the economic benefits of increasing the use of geothermal heating and cooling systems to the State;
- the potential to aggregate geothermal RECs;
- the potential greenhouse gas reductions resulting from the use of geothermal heating and cooling systems;
- the impact of geothermal heating and cooling systems on indoor air quality and localized pollution; and
- the potential to build neighborhood-scale district geothermal systems or convert existing utility infrastructure so that it can provide geothermal heating and cooling to an entire community.

MEA may contract with a third party to conduct the study. MEA must submit the results of the study to the Geothermal Energy Workgroup, described below, by October 1, 2021.

Geothermal Energy Workgroup

The Geothermal Energy Workgroup is established consisting of various stakeholders and chaired by the Director of MEA or the director's designee. MEA must staff the workgroup. A member of the workgroup may not receive compensation as a member of the workgroup but is entitled to reimbursement for travel expenses. The workgroup must:

- study the status and impact of increasing the use of geothermal heating and cooling systems in the State;
- examine methods for growing the geothermal industry in the State, with a focus on increasing the use of geothermal heating and cooling systems in environmental justice communities;
- examine methods for ensuring that any jobs created in the geothermal industry offer benefits and family-sustaining wages;

- examine methods for MDL to require geothermal installers to adhere to the labor and apprenticeship requirements for large-scale geothermal projects required under the bill;
- examine methods to promote increased opportunities for the growth and development of small, minority, women-owned, and veteran-owned businesses in the State that will install geothermal systems in the State and will promote career training opportunities in the geothermal industry for local residents, minorities, women, and veterans, including developing a baseline survey of the current levels of participation of these businesses and workers in the State; and
- develop recommendations for legislation that will encourage and incentivize the use of geothermal heating and cooling systems in the State.

MEA, in consultation with the workgroup, must develop recommendations for an incentive structure that will increase the deployment of geothermal heating and cooling systems in Maryland, as specified.

By December 1, 2021, the Director of MEA, or the director's designee, must report to the General Assembly on the results of the MEA technical study, the workgroup's findings and recommendations, and the incentive recommendations developed pursuant to the bill.

Current Law: Geothermal, including energy from a geothermal heating and cooling system, is eligible for inclusion in the State's RPS under the general Tier 1 requirement, subject to general Tier 1 ACPs and specified requirements. There are only two carve-outs: solar and offshore wind. The bill creates a carve-out that is roughly analogous to the solar carve-out, although smaller. For more information, see the **Appendix – Renewable Energy Portfolio Standard**.

State Fiscal Effect:

Public Service Commission

PSC advises that it requires ongoing technical staff expertise to handle the significant anticipated increase in REC applications for residential and commercial geothermal systems under the bill – up to several thousand residential systems and up to 100 commercial systems annually as the carve-out phases in. Accordingly, special fund expenditures for PSC increase by $234,092 in fiscal 2023, which accounts for the geothermal carve-out not beginning until 2023, despite the bill's October 1, 2021 effective date. This estimate reflects the cost of hiring one public service engineer and two regulatory economists to handle the applications and related responsibilities. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	3.0
Salaries and Fringe Benefits	$209,357
Other Operating Expenses	24,735
Total FY 2023 PSC Expenditures	**$234,092**

Future year expenditures reflect annual salary increases and employee turnover and ongoing operating expenses. Special fund revenues increase correspondingly from assessments imposed on public service companies.

Maryland Energy Administration

MEA advises that the required technical study is estimated to cost approximately $250,000 for a consultant to complete. While it is possible that MEA could complete the study with existing budgeted resources, it would be at the expense of other existing responsibilities. Therefore, this estimate assumes that special fund expenditures for SEIF increase by up to $250,000 in fiscal 2021 and/or 2022 for consultant expenses. In either case, amounts spent on the study are unavailable for other purposes. Costs are assumed to be incurred prior to the bill's October 1, 2021 effective date because the report is due that same day. MEA can staff the workgroup with existing budgeted resources.

Special fund revenues for SEIF increase beginning in fiscal 2024 to the extent that insufficient geothermal RECs are available and electricity suppliers pay ACPs instead. SEIF expenditures increase correspondingly for the purposes authorized by the bill.

Maryland Department of Labor

MDL must regulate and enforce compliance with the labor standards for large geothermal systems in the bill. MDL has no expertise in this area; moreover, many of the standards are subjective and/or not precisely defined. For example, it is unclear what would constitute family-sustaining wages, fair scheduling, and affordable healthcare deductibles. There is also no clear enforcement mechanism or investigative authority. For these reasons, MDL requires several staff and information technology (IT) expenses to attempt to implement the bill. Even so, these provisions are difficult to implement in their current form. MDL's Division of Workforce Development and Adult Learning (DWDAL) also incurs IT costs related to career advancement training and apprenticeship requirements.

Accordingly, general fund expenditures for MDL increase by $465,276 in fiscal 2023, which accounts for the geothermal carve-out not beginning until 2023, despite the bill's October 1, 2021 effective date. This estimate reflects the cost of hiring one assistant Attorney General, one investigator, and two administrative staff. It includes salaries, fringe benefits, one-time start-up costs, IT expenses, and ongoing operating expenses.

Positions	4.0
Salaries and Fringe Benefits	270,735
Labor and Industry IT Costs	52,061
DWDAL IT Costs	110,000
Other Operating Expenses	32,480
Total FY 2023 MDL Expenditures	**$465,276**

Future year expenditures reflect annual salary increases and employee turnover, ongoing operating expenses, and ongoing IT expenses.

Small Business Effect: Small geothermal installation companies benefit from significant financial incentives (geothermal RECs) available for such systems. That income stream can be used as an incentive for purchasers of such systems, or, if the company adopts a leasing model, it could provide direct revenue to the company. In either case, more expensive RECs make the projects more financially viable.

Additional Comments: While the effect on electricity prices due to the bill is unknown, based on the size of the carve-out and the associated ACPs, the bill has a maximum compliance cost of $0.05 per megawatt-hour in 2023 ($3.0 million), which escalates over time to $0.65 per megawatt-hour by 2028 ($39.0 million). These estimates are based on the ACP being paid for all geothermal RECs in that year. The Department of Legislative Services cannot advise on the likelihood, or not, of geothermal REC prices approaching ACP amounts or what portion of the carve-out would be met with ACPs.

Additional Information

Prior Introductions: None.

Designated Cross File: HB 1007 (Delegate Charkoudian) - Economic Matters.

Information Source(s): Public Service Commission; Maryland Energy Administration; Maryland Department of Labor; Maryland Department of the Environment; Department of Housing and Community Development; Office of People's Counsel; Harford and Montgomery counties; City of Bowie; Department of Legislative Services

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Appendix – 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. There are specified eligible ("Tier 1" or "Tier 2") sources as well as carve-outs for solar and offshore wind. Electric companies (utilities) and other electricity suppliers must submit renewable energy credits (RECs) equal to a percentage specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Historically, the requirements have been met almost entirely through RECs, with negligible reliance on ACPs. The Maryland Energy Administration must use ACPs to support new renewable energy sources.

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. In 2021, the requirements are 30.8% for Tier 1 sources, including at least 7.5% from solar. Tier 2, which has been extended several times, terminated after 2020.

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.

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, when it was in effect, eventually included only large hydroelectric power plants.

RPS Compliance

According to the most recent RPS compliance report on PSC's website, electricity suppliers retired 11.4 million RECs at a cost of $134.5 million in 2019, as average REC prices rose from their 2018 levels, as shown in **Exhibit 1**.

Exhibit 1
RPS Compliance Costs and REC Prices
2015-2019

	2015	2016	2017	2018	2019
Compliance Costs ($ Millions)					
Tier 1 Nonsolar	$85.1	$88.2	$50.0	$56.4	$79.3
Tier 1 Solar	39.1	45.6	21.3	27.4	55.2
Tier 2	2.6	1.4	0.7	1.0	.06
Total	**$126.7**	**$135.2**	**$72.0**	**$84.8**	**$134.5**
Average REC Price ($)					
Tier 1 Nonsolar	$13.87	$12.22	$7.14	$6.54	$7.77
Tier 1 Solar	$130.39	$110.63	$38.18	$31.91	$47.26
Tier 2	$1.71	$0.96	$0.47	$0.66	$1.05

REC: renewable energy credit
RPS: Renewable Energy Portfolio Standard

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

Source: Public Service Commission

In 2019, wind (43%), black liquor (23%), small hydroelectric (11%), municipal solid waste (11%), and wood and waste solids (7%) were the primary energy sources used for Tier 1 RPS compliance. Maryland facilities generated 4.7 million RECs in 2019: approximately 2.5 million Tier 1 RECs and 2.2 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.

Pursuant to Chapter 393 of 2017, the Power Plant Research Program in the Department of Natural Resources has released its final report on a comprehensive study of the RPS. The report contains historical data but also looks at future scenarios. The report can be found here or on the department's website.