

Department of Legislative Services
Maryland General Assembly
2013 Session

FISCAL AND POLICY NOTE
Revised

Senate Bill 797

(Senator Middleton)

Finance

Economic Matters

Thermal Energy - Task Force and Regulations

This bill establishes a Maryland Thermal Renewable Energy Task Force to study and make recommendations on the incorporation of thermal energy into the State's Renewable Energy Portfolio Standard (RPS). The Maryland Energy Administration (MEA) must staff the task force. The task force must report its findings and recommendations to the Governor and the General Assembly by December 31, 2013. In addition, by October 1, 2013, the Maryland Department of the Environment (MDE) must publish proposed regulations to facilitate the commissioning of small- to medium-scale solid fuel boilers in the State that meet environmental standards as set by the department.

The bill takes effect June 1, 2013.

Fiscal Summary

State Effect: MEA and MDE can implement the bill with existing budgeted resources. Any expense reimbursements for task force members are assumed to be minimal and absorbable within existing budgeted resources.

Local Effect: None.

Small Business Effect: None. However, the regulations proposed by MDE could have an impact on small businesses.

Analysis

Bill Summary: The task force must (1) analyze how to restructure the State's RPS to incorporate thermal energy sources, including energy derived from wood-derived

biomass; (2) determine whether it is appropriate to create a separate compliance tier for thermal energy sources; (3) determine an appropriate method of awarding renewable energy credits (RECs) for thermal energy sources; and (4) determine any other changes to State law that the task force deems appropriate to incorporate thermal energy sources into RPS. The task force must consider the impact of any proposed changes on the State's ability to (1) meet the State's greenhouse gas reduction goal; (2) achieve RPS goals; and (3) use wood-derived biomass to help meet State RPS goals.

Task force members may not receive compensation but are entitled to reimbursement for expenses under the standard State travel regulations, as provided in the State budget.

Current Law:

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 RECs equal to the required percentage each year or pay an alternative compliance payment equivalent to their shortfall. For more information on Maryland's RPS, see the **Appendix – Maryland's Renewable Energy Portfolio Standard**.

Qualifying 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.

Thermal Biomass

Chapter 635 of 2012 (SB 1004) included thermal energy from a thermal biomass system as a Tier 1 source. “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 feed stock; (2) is used in the State; and (3) complies with all applicable State and federal laws and regulations, as determined by the appropriate regulatory authority.

Thermal energy from a thermal biomass system is converted from British Thermal Units (BTUs) to kilowatt-hours to determine RECs received. The total amount of energy generated and consumed for a residential, nonresidential, or commercial thermal biomass system must be measured by an on-site meter that meets performance standards established by the Public Service Commission.

Greenhouse Gas Reduction Act of 2009

Chapters 171 and 172 of 2009 (SB 278/HB 315) required the State to develop plans, adopt regulations, and implement programs to reduce greenhouse gas emissions by 25% from 2006 levels by 2020.

Background:

Wood as a Fuel Source for Thermal Biomass Systems

The Maryland Wood Energy Coalition, organized by the University of Maryland Extension and the Department of Natural Resources, released a report in February 2012 on advanced biomass thermal technology in the State. The report details a wide array of the policy options and technical considerations to increase the use of woody biomass for thermal energy, and included as a policy option the inclusion of thermal biomass systems in the State RPS.

According to the report, thermal energy in the form of heating and cooling for buildings and industrial processes represents 40% of all energy consumed in the State. Maryland primarily relies on natural gas, electricity, and heating oil for heating and cooling. According to the U.S. Energy Information Administration, wood is a comparatively inexpensive fuel source for thermal energy. The fuel cost per million BTUs for wood (though variable based on the species of wood), is \$17. For comparison, a natural gas furnace is \$14 and a baseboard electric heater is \$35 per million BTUs.

The report also describes some of the potential thermal biomass systems, their fuel and technology type, heat output, and average biomass consumption. For example, specified firewood and pellet stoves, used for residential heating, can produce 0.1 to 0.3 million BTUs per hour. Medium-sized systems can produce 0.5 to 3.0 million BTUs per hour, while large systems are capable of up to 30 million BTUs per hour.

Thermal Energy

The U.S. Energy Information Administration defines a BTU as “the quantity of heat required to raise the temperature of one pound of liquid water by one degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).” The standard conversion factor for BTUs to megawatt-hours is 3.412 million BTUs per megawatt-hour. Put another way, since a REC is representative of one megawatt-hour of renewable energy, a thermal biomass system earns one REC per 3.412 million BTUs of heat output. The Department of Legislative Services notes that some thermal biomass systems are capable of producing millions of BTUs per hour of operation, and thus a significant quantity of RECs.

Additional Information

Prior Introductions: None.

Cross File: HB 1084 (Delegate Stein, *et al.*) - Economic Matters.

Information Source(s): Public Service Commission, Maryland Energy Administration, Department of Natural Resources, Maryland Department of the Environment, U.S. Energy Information Administration, Maryland Wood Energy Coalition, 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.