

Department of Legislative Services
Maryland General Assembly
2012 Session

FISCAL AND POLICY NOTE

House Bill 1443 (Delegate Stein)
Economic Matters

Renewable Energy Portfolio Standard - Qualifying Thermal Biomass Systems

This bill specifies that energy from a “qualifying thermal biomass system” is eligible for inclusion in meeting the State’s Renewable Energy Portfolio Standard (RPS) for compliance years starting with 2013. The Public Service Commission (PSC) must adopt specified regulations.

The bill takes effect January 1, 2013.

Fiscal Summary

State Effect: PSC can implement the bill with existing budgeted resources. The inclusion of specified thermal biomass systems is not anticipated to materially affect State finances.

Local Effect: Minimal.

Small Business Effect: Meaningful.

Analysis

Bill Summary: “Qualifying thermal biomass system” means a system that (1) produces and consumes energy in the State; (2) uses qualifying biomass; and (3) provides energy for space or water heating or cooling, combined heat and power, humidity control, or thermal end use for which fuel or electricity would otherwise be consumed.

Energy from a qualifying thermal biomass system is eligible for inclusion in meeting RPS for compliance years starting with 2013. The owner of the system receives

Renewable Energy Credits (RECs) for the renewable thermal energy equivalent produced by the system. “Renewable thermal energy equivalent” means the electrical equivalent in megawatt-hours of renewable thermal energy calculated by dividing the heat content, measured in British Thermal Units (BTUs), of the thermal energy at the point of transfer to a heat-dependent process by the standard conversion factor of 3.412 million BTUs per megawatt-hour.

PSC must adopt regulations for the metering, verification, and reporting of thermal energy output from qualifying thermal biomass systems.

The bill applies only to thermal biomass systems that are commissioned on or after June 1, 2012.

Current Law: A REC is a tradable commodity representing the renewable energy generation attributes of one megawatt-hour of electricity. RECs are awarded to operators who generate electricity using specified renewable energy sources. A renewable on-site generator of electricity owns and may sell or transfer RECs to another party. RECs are not awarded for electricity conservation measures.

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 alternative compliance payment equivalent to the supplier’s shortfall. RECs are classified as Tier 1, Tier 1 Solar, or Tier 2. Examples of Tier 1 sources include solar; 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. Examples of Tier 2 sources include a hydroelectric plant of greater than 30 megawatts. Solar RECs may be generated from photovoltaic cells and residential solar water heating systems commissioned in fiscal 2012 or later.

Biomass

“Qualifying biomass” 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.

Chapter 140 of 2008 established a State income tax credit of \$0.03 per gallon up to \$500 for the purchase of bio-heating oil for space and water heating. To qualify, the bio-heating oil must contain at least 5% biodiesel. The tax credit applies to tax years 2008 through 2012.

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 BTU per hour. Medium-sized systems can produce 0.5 to 3.0 million BTU per hour, while large systems are capable of up to 30 million BTU per hour.

Qualifying Thermal Biomass Systems

In addition to woody biomass thermal energy systems, another example of a qualifying thermal biomass system as described in the bill is a manure-to-energy system. For manure-to-energy systems, there are generally two ways to produce energy: directly burning the manure for fuel, or anaerobic digestion to convert waste solids to methane, which can then be burned to produce thermal energy. There are advantages and disadvantages to each method, depending on the specific fuel source and the intended location of the system. In 2011, the U.S. Department of Agriculture issued \$850,000 in grants to the National Fish and Wildlife Foundation to help farmers in Maryland and surrounding states convert manure to energy.

Thermal Energy

The U.S. Energy Information Administration defines a BTU as “the quantity of heat required to raise the temperature of 1 pound of liquid water by 1 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 qualifying thermal biomass system would earn one REC per 3.412 million BTUs of heat output. 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.

Small Business Effect: Small businesses that operate qualifying thermal biomass systems will benefit from the revenue generated by selling RECs. Small businesses that install, repair, or supply fuel for qualifying thermal biomass systems will benefit from an increase in the demand for thermal biomass system installations.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Maryland Department of Agriculture, Department of Natural Resources, Maryland Department of the Environment, Maryland Energy Administration, Office of People’s Counsel, Public Service Commission, U.S. Energy Information Administration, Manure-to-Energy Summit, Maryland Wood Energy Coalition, Washington Examiner, Department of Legislative Services

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