Department of Legislative Services

Maryland General Assembly
2008 Session

FISCAL AND POLICY NOTE
Revised

House Bill 1166 (Delegate Davis, *et al.*)
Economic Matters Finance

Renewable Energy Portfolio Standard - Tier 1 Renewable Source - Poultry Litter

This bill removes the incineration of poultry litter from the list of eligible Tier 2 renewable energy sources and establishes poultry litter-to-energy as a qualifying Tier 1 renewable energy source under the Renewable Energy Portfolio Standard.

Poultry litter-to-energy is an eligible resource only if the source is connected with the electric distribution grid serving Maryland.

Fiscal Summary

State Effect: None. The Public Service Commission could handle any reporting requirements with existing resources.

Local Effect: Local government finances and operations would not be directly affected.

Small Business Effect: Overall minimal. Potential meaningful effect for start-up poultry-to-energy facilities in the State.

Analysis

Current Law: Maryland's Renewable Energy Portfolio Standard (RPS) was established in 2004 in order to recognize the economic, environmental, fuel diversity, and security benefits of renewable energy resources, establish a market for electricity from those resources in Maryland, and lower consumers' cost for electricity generated from renewable sources. According to the U.S. Department of Energy, 24 states and the District of Columbia have adopted some form of RPS as of September 2007.

An electricity supplier must meet RPS by accumulating "renewable energy credits" created from various renewable energy sources classified as Tier 1 and Tier 2 renewable sources. A renewable energy credit (REC) is a tradable commodity representing the renewable energy generation attributes of one megawatt hour of electricity.

As shown in **Exhibit 1**, Tier 1 renewable sources include solar, wind, qualifying biomass, methane, and geothermal sources. Tier 2 renewable sources include hydroelectric power, incineration of poultry litter, and waste-to-energy sources.

Exhibit 1
Maryland RPS – Summary of Eligible Technologies

Tier 1 Sources

- Solar
- Wind
- Qualifying biomass
- Methane from the 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
- Small-scale hydroelectric power (LT 30MW)

Tier 2 Sources

- Hydroelectric power other than pump storage generation
- Incineration of poultry litter
- Waste-to-energy

Chapter 119 of 2007 requires the Public Service Commission to take certain steps to improve the State's use of solar energy. As shown in **Exhibit 2**, updated RPS requirements include increased amounts of Tier 1 renewable energy to match a required Tier 1 solar generation component, commonly known as a "solar band." Beginning in 2012, to be eligible for the Tier 1 solar requirements, the generating facility must be connected with the electric grid serving Maryland. Through 2011, an electricity supplier may purchase solar renewable energy credits from other states only if offers for solar credits from Maryland grid sources are not sufficient to meet Tier 1 solar requirements and only to the extent of the shortfall of Maryland grid solar credits.

Exhibit 2
Renewable Energy Portfolio Standards

Year	Tier 1 RPS	Tier 1 Solar	Tier 2
2006	1.000%	-	-
2007	1.000%	-	-
2008	2.005%	0.005%	2.500%
2009	2.010%	0.010%	2.500%
2010	3.025%	0.025%	2.500%
2011	3.040%	0.040%	2.500%
2012	4.060%	0.060%	2.500%
2013	4.100%	0.100%	2.500%
2014	5.150%	0.150%	2.500%
2015	5.250%	0.250%	2.500%
2016	6.350%	0.350%	2.500%
2017	6.550%	0.550%	2.500%
2018	7.900%	0.900%	2.500%
2019	8.700%	1.200%	0%
2020	9.000%	1.500%	0%
2021	9.350%	1.850%	0%
2022	9.500%	2.000%	0%

Background: In 2007, the nation's first poultry litter fueled power plant opened in Minnesota. The plant will use 500,000 tons of turkey litter a year, nearly a quarter of the amount produced in the state. Three similar large-scale projects operate in the United Kingdoms.

RPS is a policy that requires retail suppliers of electricity to meet a portion of their energy supply needs with eligible forms of renewable energy. RPS policies are generally designed to maintain and/or increase the contribution of renewable energy to electricity supply. Advantages of RPS as an approach entail enhanced price stability as well as providing a mechanism to potentially increase regional power supply reliability and promote the development of new renewable resources with possible development of new resources in Maryland and nearby states.

Tier 1 and Tier 2 Renewable Energy Sources

A two-tiered system identifies the lowest cost technology or combination of technologies to meet the established renewable requirement of each tier. A two-tiered approach imposes constraints on the satisfaction of the RPS requirement by establishing that a portion of the generation used to meet the renewable requirement be of a particular group of technology types. In effect, a two-tiered approach can act to ensure that a wider variety of technologies are developed as a result of RPS implementation.

Compliance fees act as a cap on the prices electric suppliers must pay for renewable energy supplies, provide revenues to the State, and can insulate retail customers from high renewable prices. If supplies are not available in sufficient quantity or produced at too high a price, suppliers can comply with the renewable requirement through the purchase of the compliance fee. In the event that an electric supplier falls short on meeting its annual RPS procurement targets, the electric supplier may make a payment for any MWh shortfall. The compliance fee is generally set at a high level, sufficiently above the expected cost premium of renewable energy (such as $15 or $20/MWh), to encourage the purchase of renewable energy instead of paying the compliance fee. However, the compliance fee can be paid if market circumstances warrant without a regulatory process to impose a penalty.

Therefore, compliance fees can also act as a barrier to entry for those renewable technologies that cannot provide electricity at prices below the compliance fee. Maryland's RPS requirement sets the compliance fee for Tier 1 resources at $20 per MWh and $15 per MWh for Tier 2 resources. The bill effectively allows the renewable fuel in question (*i.e.*, "litter-to-energy") a greater potential return, which can potentially act as stimulus for the development of these specific renewable energy sources.

Poultry Litter-to-energy

The Virginia Cooperative Extension reports that nearly all broiler, pullet, and breeder operations grow birds on concrete, wooden, or earthen floors. A two- to six-inch layer of wood shavings, peanut hulls, or other bedding material is used as an absorptive base. The manure and bedding mixture is commonly called litter, and it is removed one or more times a year and replaced with fresh bedding material.

Poultry litter is commonly used as a crop fertilizer. Poultry litter has high concentrations of phosphorus relative to the amount of nitrogen. If enough poultry litter is applied as fertilizer to meet the nitrogen needs of crops, the land can eventually become saturated with phosphorus, leading to reduced water quality. The excess application of phosphorus on the Eastern Shore is a concern with respect to the Chesapeake Bay.

The viability of poultry litter as a power plant fuel stock depends on several technical and market factors. These include the chemical composition of the poultry litter being fired, delivered poultry litter feedstock prices, and the net revenues that can be generated at an energy plant from poultry litter ash – a waste product that results from generating electricity from poultry litter. If the value of the poultry litter ash as a fertilizer can cover the associated transportation costs, the ash maybe transferred away from the site for use as a fertilizer.

Maryland Poultry Litter-to-energy

The Maryland Environmental Service (MES) operates a combined heat and power (CHP) system which provides electricity and steam at the Eastern Correctional Institution located on the Eastern Shore in Westover, Maryland.[1] The facility burns wood chips and produces steam and heat for the institution. Since 1995, MES has been considering alternatives for expanding capacity at the ECI CHP facility because the existing boilers require high-quality wood chips, the primary fuel, which are high in cost relative to lower-grade fuels.

The Power Plant Research Program in the Department of Natural Resources undertook a comprehensive engineering and socioeconomic assessment of the facility's boilers, including a full-scale poultry litter test burn at the ECI CHP facility in 1999 – the first ever full-scale test burn of poultry litter in the United States. The final phase of assessment confirmed the viability of poultry litter as a fuel, but determined that significant additional modifications to the ECI CHP facility would be necessary to burn poultry litter and ensure that the modified facility would perform reliably.

In 2005, MES issued a request for information (RFI) from qualified firms interested in developing a poultry litter fueled power generation facility on the Eastern Shore. MES

[1]The Maryland Environmental Service is an instrumentality of the State and a self-supporting, not-for-profit public corporation that serves State, local, and federal agencies and the private sector through designing, planning, financing, constructing, and operating water supply, wastewater treatment, hazardous and solid waste management, and dredged material placement facilities. The service operates more than 200 water and wastewater treatment facilities as well as solid waste transfer stations, material recycling facilities, the Hart-Miller Island Dredged Material Containment Facility, the Poplar Island Dredged Material Beneficial Use Project, the Midshore Regional Landfill, and two yard debris composting facilities.

The Maryland Environmental Service operates on a fee-for-service basis under contract. The service is responsible for over 375 projects located in every jurisdiction in the State. In fiscal 2005, the Maryland Environmental Service did $78 million in business.

received "expressions of interest" from a total of 53 respondents to the RFI for "Poultry Litter Fueled Power Generation Facility."

Additional Information

Prior Introductions: None.

Cross File: SB 348 (Senator Middleton) – Finance.

Information Source(s): Department of Natural Resources, Maryland Energy Administration, Maryland Environmental Service, Public Service Commission, Maryland Department of Agriculture, Office of People's Counsel, U.S. Department of Energy, Virginia Cooperative Extension, Department of Legislative Services

Fiscal Note History: First Reader - February 20, 2008
ncs/hlb Revised - Enrolled Bill - May 5, 2008

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