SENATE BILL 154

C5 5lr1467
CF 5lr1468

By: **Senator Middleton**
Introduced and read first time: January 29, 2015
Assigned to: Finance

A BILL ENTITLED

AN ACT concerning

Renewable Energy Portfolio Standard – Thermal Energy

FOR the purpose of altering the renewable energy portfolio standard for certain years; providing for certain thermal energy sources to be thermal tier renewable sources; requiring an electricity supplier to meet the renewable energy portfolio standard by accumulating a certain amount of renewable energy credits and thermal renewable energy credits; providing that thermal energy from a thermal tier renewable source is eligible for inclusion in meeting the renewable portfolio standard if it is generated at a certain system or facility; applying certain provisions that relate to renewable energy credits to thermal renewable energy credits; repealing a provision that limited which persons could receive renewable energy credits for energy generated by a certain geothermal heating and cooling system; altering the method of determining the amount of thermal renewable energy credits generated by a certain geothermal heating and cooling system; altering the method of determining the amount of thermal renewable energy credits generated by a certain animal manure biomass system; providing that thermal energy from a woody biomass system is eligible for inclusion in meeting the renewable energy portfolio standard under certain circumstances; requiring the Commission to adopt certain regulations relating to woody biomass systems; requiring the Commission to consider certain metering and verification methods for woody biomass systems when adopting certain regulations; authorizing an interested party to petition the Commission to adopt certain new metering and verification methods under certain circumstances; providing that a certain woody biomass system shall receive thermal renewable energy credits only for the portion of thermal energy generated by the woody biomass; providing that the owner of a certain geothermal heating and cooling system or animal manure biomass system that is registered with the Commission to receive renewable energy credits as a Tier 1 renewable source before a certain date may remain registered as a Tier 1 renewable source that generates renewable energy credits or reregister as a thermal tier renewable source that generates thermal renewable energy credits; requiring the Commission, on or before a certain date each year, to publish certain information on its Web site regarding the availability of

EXPLANATION: **CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.**
[Brackets**]** indicate matter deleted from existing law.

thermal renewable energy credits and the adjustment of certain compliance fees under certain circumstances; requiring an electricity supplier, on or before a certain date each year, to submit certain thermal renewable energy credits or pay a certain compliance fee under certain circumstances; providing that an electricity supplier may not be required to comply with a certain obligation if insufficient thermal renewable energy credits are available by a certain date through a certain electronic system; setting certain compliance fees for a certain thermal renewable energy credits shortfall; requiring the Commission to establish a market–based trading system on the Internet where producers of thermal renewable energy credits may register and publish thermal renewable energy credits for sale to an electricity supplier; requiring the Commission to adopt certain regulations on or before a certain date; defining certain terms; altering and repealing certain definitions; making certain clarifying changes; and generally relating to the renewable energy portfolio standard.

BY repealing and reenacting, with amendments,
Article – Public Utilities
Section 7–701, 7–703, 7–704, 7–705(a) and (b), and 7–708
Annotated Code of Maryland
(2010 Replacement Volume and 2014 Supplement)

BY adding to
Article – Public Utilities
Section 7–705(g)
Annotated Code of Maryland
(2010 Replacement Volume and 2014 Supplement)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That the Laws of Maryland read as follows:

Article – Public Utilities

7–701.

(a) In this subtitle the following words have the meanings indicated.

(b) "Administration" means the Maryland Energy Administration.

(C) "ANIMAL MANURE BIOMASS SYSTEM" MEANS A SYSTEM THAT:

(1) USES:

(I) PRIMARILY ANIMAL MANURE, INCLUDING POULTRY LITTER, AND ASSOCIATED BEDDING TO GENERATE THERMAL ENERGY THROUGH EITHER ANAEROBIC DIGESTION OR A THERMOCHEMICAL PROCESS; AND

(II) FOOD WASTE OR QUALIFIED BIOMASS FOR THE REMAINDER OF THE FEEDSTOCK; AND

(2) COMPLIES WITH ALL APPLICABLE STATE AND FEDERAL LAWS AND REGULATIONS.

[(c)**] (D)** "Fund" means the Maryland Strategic Energy Investment Fund established under § 9–20B–05 of the State Government Article.

[(d)**] (E)** "Geothermal heating and cooling system" means a system that:

(1) exchanges thermal energy from groundwater or a shallow ground source to generate thermal energy through a geothermal heat pump or a system of geothermal heat pumps interconnected with any geothermal extraction facility that is:

(i) a closed loop or a series of closed loop systems in which fluid is permanently confined within a pipe or tubing and does not come in contact with the outside environment; or

(ii) an open loop system in which ground or surface water is circulated in an environmentally safe manner directly into the facility and returned to the same aquifer or surface water source;

(2) meets or exceeds the **[**current**]** federal Energy Star product specification standards **IN EFFECT AT THE TIME OF SYSTEM INSTALLATION**;

(3) **[**replaces or displaces inefficient space or water heating systems whose primary fuel is electricity or a nonnatural gas fuel source;

(4)**]** replaces or displaces inefficient space cooling systems that do not meet federal Energy Star product specification standards;

[(5)**] (4)** is manufactured, installed, and operated in accordance with applicable government and industry standards; and

[(6)**] (5)** does not feed electricity back to the grid.

[(e)**] (F)** "Industrial process load" means the consumption of electricity by a manufacturing process at an establishment classified in the manufacturing sector under the North American Industry Classification System, Codes 31 through 33.

(G) "NONRENEWABLE FUEL" MEANS A FUEL WITH ECONOMIC VALUE THAT CANNOT BE READILY REPLACED BY NATURAL MEANS ON A LEVEL EQUAL TO ITS CONSUMPTION.

[(f)**] (H)** "Offshore wind energy" means energy generated by a qualified offshore wind project.

[(g)**] (I)** "Old growth timber" means timber from a forest:

(1) at least 5 acres in size with a preponderance of old trees, of which the oldest exceed at least half the projected maximum attainable age for the species; and

(2) that exhibits several of the following characteristics:

(i) shade–tolerant species are present in all age and size classes;

(ii) randomly distributed canopy gaps are present;

(iii) a high degree of structural diversity characterized by multiple growth layers reflecting a broad spectrum of ages is present;

(iv) an accumulation of dead wood of varying sizes and stages of decomposition accompanied by decadence in live dominant trees is present; and

(v) pit and mound topography can be observed.

[(h)**] (J)** "Offshore wind renewable energy credit" or "OREC" means a renewable energy credit equal to the generation attributes of 1 megawatt–hour of electricity that is derived from offshore wind energy.

[(i)**] (K)** "PJM region" means the control area administered by the PJM Interconnection, as the area may change from time to time.

[(j)**] (L)** "Poultry litter" means the fecal and urinary excretions of poultry, including wood shavings, sawdust, straw, rice hulls, and other bedding material for the disposition of manure.

[(k)**] (M)** "Qualified offshore wind project" means a wind turbine electricity generation facility, including the associated transmission–related interconnection facilities and equipment, that:

(1) is located on the outer continental shelf of the Atlantic Ocean in an area that:

(i) the United States Department of the Interior designates for leasing after coordination and consultation with the State in accordance with § 388(a) of the Energy Policy Act of 2005; and

(ii) is between 10 and 30 miles off the coast of the State;

(2) interconnects to the PJM Interconnection grid at a point located on the Delmarva Peninsula; and

(3) the Commission approves under § 7–704.1 of this subtitle.

[(l)**] (N)** (1) "Qualifying biomass" means a nonhazardous, organic material that is available on a renewable or recurring basis, and is:

(i) waste material that is segregated from inorganic waste material and is derived from sources including:

1. except for old growth timber, any of the following forest–related resources:

A. mill residue, except sawdust and wood shavings;

B. precommercial soft wood thinning;

C. slash;

D. brush; or

E. yard waste;

2. a pallet, crate, or dunnage;

3. agricultural and silvicultural sources, including tree crops, vineyard materials, grain, legumes, sugar, and other crop by–products or residues; or

4. gas produced from the anaerobic decomposition of animal waste or poultry waste; or

(ii) a plant that is cultivated exclusively for purposes of being used at a Tier 1 renewable source or a Tier 2 renewable source to produce electricity.

(2) "Qualifying biomass" includes biomass listed in paragraph (1) of this subsection that is used for co–firing, subject to § 7–704(d) of this subtitle.

(3) "Qualifying biomass" does not include:

(i) unsegregated solid waste or postconsumer wastepaper; or

(ii) an invasive exotic plant species.

[(m) "Thermal biomass system" means a system that:

(1) uses:

(i) primarily animal manure, including poultry litter, and associated bedding to generate thermal energy; and

(ii) food waste or qualifying biomass for the remainder of the feedstock;

(2) is used in the State; and

(3) complies with all applicable State and federal statutes and regulations, as determined by the appropriate regulatory authority.**]**

[(n)**] (O)** "Renewable energy credit" **[**or "credit"**]** means a credit equal to the **[**generation**]** **ENVIRONMENTAL** attributes of 1 megawatt–hour of electricity that is derived from a Tier 1 renewable source or a Tier 2 renewable source that is located:

(1) in the PJM region;

(2) outside the area described in item (1) of this subsection but in a control area that is adjacent to the PJM region, if the electricity is delivered into the PJM region; or

(3) on the outer continental shelf of the Atlantic Ocean in an area that:

(i) the United States Department of the Interior designates for leasing after coordination and consultation with the State in accordance with § 388(a) of the Energy Policy Act of 2005; and

(ii) is between 10 and 30 miles off the coast of the State.

[(o)**] (P)** "Renewable energy portfolio standard" or "standard" means the percentage of electricity sales at retail in the State that is to be derived from **RENEWABLE ENERGY CREDITS GENERATED BY** Tier 1 renewable sources and Tier 2 renewable sources **AND THERMAL RENEWABLE ENERGY CREDITS GENERATED BY THERMAL TIER RENEWABLE ENERGY SOURCES** in accordance with § 7–703(b) of this subtitle.

[(p)**] (Q)** "Renewable on–site generator" means a person who generates electricity **OR THERMAL ENERGY** on site from a Tier 1 renewable source **[**or a**],** Tier 2 renewable source**, OR THERMAL TIER RENEWABLE SOURCE** for the person's own use.

[(q)**] (R)** (1) "Solar water heating system" means a system that:

(i) consists of glazed liquid–type flat–plate or tubular solar collectors or concentrating solar thermal collectors as defined and certified to the OG–100 standard of the Solar Ratings and Certification Corporation;

(ii) generates energy using solar radiation for the purpose of heating water; and

(iii) does not feed electricity back to the electric grid.

(2) "Solar water heating system" does not include a system that generates energy using solar radiation for the sole purpose of heating a hot tub or swimming pool.

(S) "THERMAL RENEWABLE ENERGY CREDIT" MEANS A CREDIT EQUAL TO THE ENVIRONMENTAL ATTRIBUTES OF 3,412,000 BTUS OF THERMAL ENERGY:

(1) GENERATED BY A THERMAL TIER RENEWABLE SOURCE; AND

(2) USED FOR A USEFUL THERMAL APPLICATION.

(T) "THERMAL TIER RENEWABLE SOURCE" MEANS ONE OR MORE OF THE FOLLOWING ENERGY SYSTEMS USED FOR THE GENERATION OF THERMAL ENERGY:

(1) GEOTHERMAL HEATING AND COOLING SYSTEMS;

(2) ANIMAL MANURE BIOMASS SYSTEMS; AND

(3) WOODY BIOMASS SYSTEMS.

[(r)**] (U)** "Tier 1 renewable source" means one or more of the following types of energy sources:

(1) solar energy, including energy from photovoltaic technologies and solar water heating systems;

(2) wind;

(3) qualifying biomass;

(4) methane from the anaerobic decomposition of organic materials in a landfill or wastewater treatment plant;

(5) geothermal**[**, including energy generated through geothermal exchange from or thermal energy avoided by, groundwater or a shallow ground source**], EXCEPT FOR GEOTHERMAL HEATING AND COOLING**;

(6) ocean, including energy from waves, tides, currents, and thermal differences;

(7) a fuel cell that produces electricity from a Tier 1 renewable source under item (3) or (4) of this subsection;

(8) a small hydroelectric power plant of less than 30 megawatts in capacity that is licensed or exempt from licensing by the Federal Energy Regulatory Commission;

(9) poultry litter–to–energy;

(10) waste–to–energy; **AND**

(11) refuse–derived fuel**[**; and

(12) thermal energy from a thermal biomass system**]**.

[(s)**]** **(V)** "Tier 2 renewable source" means hydroelectric power other than pump storage generation.

(W) (1) "USEFUL THERMAL APPLICATION" MEANS THERMAL ENERGY THAT IS USED:

(I) FOR:

1. HEATING, INCLUDING AMBIENT BUILDING TEMPERATURES AND WATER;

2. COOLING, INCLUDING AMBIENT BUILDING TEMPERATURES;

3. HUMIDITY CONTROL; OR

4. PROCESS USE; AND

(II) IN PLACE OF ELECTRICITY OR A NONRENEWABLE FUEL IN AN APPLICATION IN WHICH ELECTRICITY OR A NONRENEWABLE FUEL WOULD HAVE OTHERWISE BEEN USED.

(2) "USEFUL THERMAL APPLICATION" DOES NOT INCLUDE THERMAL ENERGY USED FOR:

(I) THE PURPOSE OF HEATING OR COOLING A PORTABLE STRUCTURE USED FOR RECREATIONAL PURPOSES;

(II) THE PURPOSE OF DRYING OR REFINING BIOMASS; OR

(III) THE SUBSEQUENT GENERATION OF ELECTRICITY.

(X) (1) "WOODY BIOMASS" MEANS:

(I) CLEAN AND UNTREATED WOOD SUCH AS BRUSH, STUMPS, LUMBER ENDS OR TRIMMINGS, WOOD PALLETS, BARK, WOOD CHIPS OR PELLETS, SHAVINGS, SAWDUST, OR SLASH;

(II) AN AGRICULTURAL CROP;

(III) BIOGAS PRODUCED FROM CLEAN AND UNTREATED WOOD OR AGRICULTURAL CROPS; OR

(IV) LIQUID BIOFUEL PRODUCED FROM CLEAN AND UNTREATED WOOD OR AGRICULTURAL CROPS.

(2) "WOODY BIOMASS" DOES NOT INCLUDE:

(I) MATERIALS DERIVED WHOLLY OR PARTLY FROM CONSTRUCTION AND DEMOLITION DEBRIS; OR

(II) LIQUIDS DERIVED FROM MILL RESIDUE.

(Y) "WOODY BIOMASS SYSTEM" MEANS A SYSTEM THAT GENERATES THERMAL ENERGY USING WOODY BIOMASS.

7–703.

(a) (1) (i) The Commission shall implement a renewable energy portfolio standard that, except as provided under paragraphs (2) and (3) of this subsection, applies to all retail electricity sales in the State by electricity suppliers.

(ii) If the standard becomes applicable to electricity sold to a customer after the start of a calendar year, the standard does not apply to electricity sold to the customer during that portion of the year before the standard became applicable.

(2) A renewable energy portfolio standard may not apply to electricity sales at retail by any electricity supplier:

(i) in excess of 300,000,000 kilowatt–hours of industrial process load to a single customer in a year;

(ii) to residential customers in a region of the State in which electricity prices for residential customers are subject to a freeze or cap contained in a

settlement agreement entered into under § 7–505 of this title until the freeze or cap has expired; or

(iii) to a customer served by an electric cooperative under an electricity supplier purchase agreement that existed on October 1, 2004, until the expiration of the agreement.

(3) The portion of a renewable energy portfolio standard that represents offshore wind energy may not apply to electricity sales at retail by any electricity supplier in excess of:

(i) 75,000,000 kilowatt–hours of industrial process load to a single customer in a year; and

(ii) 3,000 kilowatt–hours of electricity in a month to a customer who is an owner of agricultural land and files an Internal Revenue Service form 1040, schedule F.

(b) The renewable energy portfolio standard shall be as follows:

(1) in 2006, 1% from Tier 1 renewable sources and 2.5% from Tier 2 renewable sources;

(2) in 2007, 1% from Tier 1 renewable sources and 2.5% from Tier 2 renewable sources;

(3) in 2008, 2.005% from Tier 1 renewable sources, including at least 0.005% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(4) in 2009, 2.01% from Tier 1 renewable sources, including at least 0.01% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(5) in 2010, 3.025% from Tier 1 renewable sources, including at least 0.025% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(6) in 2011, 5.0% from Tier 1 renewable sources, including at least 0.05% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(7) in 2012, 6.5% from Tier 1 renewable sources, including at least 0.1% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(8) in 2013, 8.2% from Tier 1 renewable sources, including at least 0.25% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(9) in 2014, 10.3% from Tier 1 renewable sources, including at least 0.35% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(10) in 2015, 10.5% from Tier 1 renewable sources, including at least 0.5% derived from solar energy, and 2.5% from Tier 2 renewable sources;

(11) in 2016**[**,**]:**

(I) 12.7% from Tier 1 renewable sources, including at least 0.7% derived from solar energy**[**, and**];**

(II) 2.5% from Tier 2 renewable sources; **AND**

(III) 0.1% FROM THERMAL TIER RENEWABLE SOURCES;

(12) in 2017:

(i) 13.1% from Tier 1 renewable sources, including:

1. at least 0.95% derived from solar energy; and

2. an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy; **[**and**]**

(ii) 2.5% from Tier 2 renewable sources; **AND**

(III) 0.25% FROM THERMAL TIER RENEWABLE SOURCES;

(13) in 2018:

(i) 15.8% from Tier 1 renewable sources, including:

1. at least 1.4% derived from solar energy; and

2. an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy; **[**and**]**

(ii) 2.5% from Tier 2 renewable sources; **AND**

(III) 0.38% FROM THERMAL TIER RENEWABLE SOURCES;

(14) in 2019**[**,**]:**

(I) 17.4% from Tier 1 renewable sources, including:

[(i)**]** **1.** at least 1.75% derived from solar energy; and

[(ii)**]** **2.** an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy; **AND**

(II) 0.5% FROM THERMAL TIER RENEWABLE SOURCES;

(15) in 2020**[**,**]:**

(I) 18% from Tier 1 renewable sources, including:

[(i)**]** **1.** at least 2.0% derived from solar energy; and

[(ii)**]** **2.** an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy; **AND**

(II) 0.75% FROM THERMAL TIER RENEWABLE SOURCES;

(16) in 2021**[**,**]:**

(I) 18.7% from Tier 1 renewable sources, including:

[(i)**]** **1.** at least 2.0% derived from solar energy; and

[(ii)**]** **2.** an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy; and

(II) 1.0% FROM THERMAL TIER RENEWABLE SOURCES;

(17) in 2022 **[**and later,**]:**

(I) 20% from Tier 1 renewable sources, including:

[(i)**]** **1.** at least 2% derived from solar energy; and

[(ii)**]** **2.** an amount set by the Commission under § 7–704.2(a) of this subtitle, not to exceed 2.5%, derived from offshore wind energy**; AND**

(II) 1.2% FROM THERMAL TIER RENEWABLE SOURCES;

(18) IN 2023:

(I) 20% FROM TIER 1 RENEWABLE SOURCES, INCLUDING:

1. AT LEAST 2% DERIVED FROM SOLAR ENERGY; AND

2. AN AMOUNT SET BY THE COMMISSION UNDER § 7–704.2(A) OF THIS SUBTITLE, NOT TO EXCEED 2.5%, DERIVED FROM OFFSHORE WIND ENERGY; AND

(II) 1.4% FROM THERMAL TIER RENEWABLE SOURCES;

(19) IN 2024:

(I) 20% FROM TIER 1 RENEWABLE SOURCES, INCLUDING:

1. AT LEAST 2% DERIVED FROM SOLAR ENERGY; AND

2. AN AMOUNT SET BY THE COMMISSION UNDER § 7–704.2(A) OF THIS SUBTITLE, NOT TO EXCEED 2.5%, DERIVED FROM OFFSHORE WIND ENERGY; AND

(II) 1.7% FROM THERMAL TIER RENEWABLE SOURCES; AND

(20) IN 2024 AND LATER:

(I) 20% FROM TIER 1 RENEWABLE SOURCES, INCLUDING:

1. AT LEAST 2% DERIVED FROM SOLAR ENERGY; AND

2. AN AMOUNT SET BY THE COMMISSION UNDER § 7–704.2(A) OF THIS SUBTITLE, NOT TO EXCEED 2.5%, DERIVED FROM OFFSHORE WIND ENERGY; AND

(II) 2% FROM THERMAL TIER RENEWABLE SOURCES.

(c) Before calculating the number of **RENEWABLE ENERGY** credits **AND THERMAL RENEWABLE ENERGY CREDITS** required to meet the percentages established under subsection (b) of this section, an electricity supplier shall exclude from its total retail electricity sales all retail electricity sales described in subsection (a)(2) and (3) of this section.

(d) Subject to subsections (a) and (c) of this section and in accordance with **[**§ 7–704.2**] §§ 7–704.2 AND 7–705(G)** of this subtitle, an electricity supplier shall meet the renewable energy portfolio standard by accumulating the equivalent amount of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS** that equal the percentages required under this section.

7–704.

(a) (1) **[**Energy**]** **ELECTRICITY** from a Tier 1 renewable source:

(i) is eligible for inclusion in meeting the renewable energy portfolio standard regardless of when the generating system or facility was placed in service; and

(ii) may be applied to the percentage requirements of the standard for either Tier 1 renewable sources or Tier 2 renewable sources.

(2) (i) **[**Energy**]** **ELECTRICITY** from a Tier 1 renewable source under **[**§ 7–701(r)(1),**]** **§ 7–701(U)(1),** (5), (9), (10), or (11) of this subtitle is eligible for inclusion in meeting the renewable energy portfolio standard only if the source is connected with the electric distribution grid serving Maryland.

(ii) If the owner of a solar generating system in this State chooses to sell solar renewable energy credits from that system, the owner must first offer the credits for sale to an electricity supplier or electric company that shall apply them toward compliance with the renewable energy portfolio standard under § 7–703 of this subtitle.

(3) **[**Energy**]** **ELECTRICITY** from a Tier 1 renewable source under **[**§ 7–701(r)(8)**]** **§ 7–701(U)(8)** of this subtitle is eligible for inclusion in meeting the renewable energy portfolio standard if it is generated at a dam that existed as of January 1, 2004, even if a system or facility that is capable of generating electricity did not exist on that date.

(4) **[**Energy**]** **ELECTRICITY** from a Tier 2 renewable source under **[**§ 7–701(s)**]** **§ 7–701(V)** of this subtitle is eligible for inclusion in meeting the renewable energy portfolio standard through 2018 if it is generated at a system or facility that existed and was operational as of January 1, 2004, even if the facility or system was not capable of generating electricity on that date.

(5) THERMAL ENERGY FROM A THERMAL TIER RENEWABLE SOURCE UNDER § 7–701(S) OF THIS SUBTITLE IS ELIGIBLE FOR INCLUSION IN MEETING THE RENEWABLE PORTFOLIO STANDARD IF IT IS GENERATED AT A SYSTEM OR FACILITY THAT:

(I) DELIVERS THE THERMAL ENERGY THROUGH DIRECT HEAT, STEAM, HOT WATER, OR OTHER THERMAL FORM FOR A USEFUL THERMAL APPLICATION BY AN END USER IN MARYLAND; AND

(II) DID NOT EXIST AS OF JANUARY 1, 2015.

(b) On or after January 1, 2004, an electricity supplier may:

(1) receive renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**; and

(2) accumulate renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS** under this subtitle.

(c) (1) This subsection applies only to a generating facility that is placed in service on or after January 1, 2004.

(2) (i) On or before December 31, 2005, an electricity supplier shall receive 120% credit toward meeting the renewable energy portfolio standard for energy derived from wind.

(ii) After December 31, 2005, and on or before December 31, 2008, an electricity supplier shall receive 110% credit toward meeting the renewable energy portfolio standard for energy derived from wind.

(3) On or before December 31, 2008, an electricity supplier shall receive 110% credit toward meeting the renewable energy portfolio standard for energy derived from methane under **[**§ 7–701(r)(4)**] § 7–701(U)(4)** of this subtitle.

(d) An electricity supplier shall receive credit toward meeting the renewable energy portfolio standard for electricity derived from the biomass fraction of biomass co–fired with other fuels.

(e) (1) In this subsection, "customer" means:

(i) an industrial electric customer that is not on standard offer service; or

(ii) a renewable on–site generator.

(2) This subsection does not apply to offshore wind renewable energy credits.

(3) (i) A customer may independently acquire renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS** to satisfy the standards applicable to the customer's load, including credits created by a renewable on–site generator.

(ii) **[**Credits**] RENEWABLE ENERGY CREDITS AND THERMAL RENEWABLE ENERGY CREDITS** that a customer transfers to its electricity supplier to meet the standard and that the electricity supplier relies on in submitting its compliance report may not be resold or retransferred by the customer or by the electricity supplier.

(4) A renewable on–site generator may retain or transfer at its sole option any **RENEWABLE ENERGY** credits **AND THERMAL RENEWABLE ENERGY CREDITS** created by the renewable on–site generator, including **RENEWABLE ENERGY** credits for the portion of its on–site generation from a Tier 1 renewable source or a Tier 2 renewable

source that displaces the purchase of electricity by the renewable on–site generator from the grid.

(5) A customer that satisfies the standard applicable to the customer's load under this subsection may not be required to contribute to a compliance fee recovered under § 7–706 of this subtitle.

(6) The Commission shall adopt regulations governing the application and transfer of **RENEWABLE ENERGY** credits **AND THERMAL RENEWABLE ENERGY CREDITS** under this subsection consistent with federal law.

(f) **[**(1)**]** In order to create a renewable energy credit **OR THERMAL RENEWABLE ENERGY CREDIT**, a Tier 1 renewable source **[**or**],** Tier 2 renewable source**, OR THERMAL TIER RENEWABLE SOURCE** must substantially comply with all applicable environmental and administrative requirements, including air quality, water quality, solid waste, and right–to–know provisions, permit conditions, and administrative orders.

[(2) (i)**] (G) (1)** This **[**paragraph**]** **SUBSECTION** applies to Tier 1 renewable sources that incinerate solid waste.

[(ii)**] (2)** At least 80% of the solid waste incinerated at a Tier 1 renewable source facility shall be collected from:

[1.**] (I)** for areas in Maryland, jurisdictions that achieve the recycling rates required under § 9–505 of the Environment Article; and

[2.**] (II)** for other states, jurisdictions for which the electricity supplier demonstrates recycling substantially comparable to that required under § 9–505 of the Environment Article, in accordance with regulations of the Commission.

[(iii)**] (3)** An electricity supplier may report **RENEWABLE ENERGY** credits received under this **[**paragraph**]** **SUBSECTION** based on compliance by the facility with the percentage requirement of **[**subparagraph (ii)**]** **PARAGRAPH (2)** of this **[**paragraph**]** **SUBSECTION** during the year immediately preceding the year in which the electricity supplier receives the **RENEWABLE ENERGY** credit to apply to the standard.

[(g)**](H)** (1) Energy from a solar water heating system is eligible for inclusion in meeting the renewable energy portfolio standard.

(2) A person that owns and operates a solar water heating system shall receive a renewable energy credit equal to the amount of energy, converted from BTUs to kilowatt–hours, that is generated by the system that is used by the person for water heating.

(3) The total amount of energy generated and consumed for a nonresidential or commercial solar water heating system shall be measured by an

on–site meter that meets the required performance standards of the International Organization of Legal Metrology.

(4) The total amount of energy generated and consumed by a residential solar water heating system shall be:

(i) measured by a meter that meets the required standards of the International Organization of Legal Metrology; or

(ii) 1. measured by the Solar Ratings and Certification Corporation's OG–300 thermal performance rating for the system or an equivalent certification that the Commission approves in consultation with the Administration; and

2. certified to the OG–300 standard of the Solar Ratings and Certification Corporation or an equivalent certification body that the Commission approves in consultation with the Administration.

(5) A residential solar water heating system shall be installed in accordance with applicable State and local plumbing codes.

(6) A residential solar water heating system may not produce more than five solar renewable energy credits in any 1 year.

[(h)**](I)** (1) **[**Energy**]** **THERMAL ENERGY** from a geothermal heating and cooling system is eligible for inclusion in meeting the renewable energy portfolio standard.

(2) **[**A person shall receive a renewable energy credit equal to the amount of energy, converted from BTUs to kilowatt–hours, that is generated by a geothermal heating and cooling system for space heating and cooling or water heating if the person:

(i) owns and operates the system;

(ii) leases and operates the system; or

(iii) contracts with a third party who owns and operates the system.

(3)**]** To determine the **[**energy savings of a**]** **ANNUAL AMOUNT OF THERMAL RENEWABLE ENERGY CREDITS AWARDED FOR A RESIDENTIAL** geothermal heating and cooling system **[**for a residence**]**, the Commission shall:

(i) identify available Internet–based energy consumption calculators developed by the geothermal heating and cooling industry;

(ii) collect the following data provided in the renewable energy credit application that:

1. describes the name of the applicant and the address at which the geothermal heating and cooling system is installed; and

2. provides the annual BTU energy savings attributable to home heating, cooling, and water heating; and

(iii) **[**in determining the annual amount of renewable energy credits awarded for the geothermal heating and cooling system,**]** convert the annual **[**BTUs into annual megawatt hours**]** **BTU ENERGY SAVINGS INTO THERMAL RENEWABLE ENERGY CREDITS**.

[(4)**] (3)** To determine the **[**energy savings of**]** **ANNUAL AMOUNT OF THERMAL RENEWABLE ENERGY CREDITS AWARDED FOR** a nonresidential geothermal heating and cooling system, the Commission shall:

(i) use the geothermal heating and cooling engineering technical system designs provided with the **THERMAL** renewable energy credit application; and

(ii) in determining the annual amount of **THERMAL** renewable energy credits awarded for the geothermal heating and cooling system, convert the annual **[**BTUs into annual megawatt hours**]** **BTU ENERGY SAVINGS INTO THERMAL RENEWABLE ENERGY CREDITS**.

[(5)**] (4)** A geothermal heating and cooling system shall be installed in accordance with applicable State well construction and local building code standards.

[(i)**](J)** (1) Energy from **[**a thermal**]** **AN ANIMAL MANURE** biomass system is eligible for inclusion in meeting the renewable energy portfolio standard.

(2) **[**(i) A person that owns and operates a thermal biomass system that uses anaerobic digestion is eligible to receive a renewable energy credit.

(ii) A**]** **BEFORE RECEIVING THERMAL RENEWABLE ENERGY CREDITS, A** person that owns and operates **[**a thermal**]** **AN ANIMAL MANURE** biomass system that uses a thermochemical process **[**is eligible to receive a renewable energy credit if the person demonstrates**]** **SHALL DEMONSTRATE** to the Maryland Department of the Environment that the operation of the **[**thermal**]** **ANIMAL MANURE** biomass system:

[1.**] (I)** is not significantly contributing to local or regional air quality impairments; and

[2.**] (II)** will substantially decrease emissions of oxides of nitrogen beyond that achieved by a direct burn combustion unit through the use of precombustion techniques, combustion techniques, or postcombustion techniques.

(3) **[**A person that is eligible to receive a renewable energy credit under paragraph (2) of this subsection shall receive a renewable energy credit equal to the amount of energy, converted from BTUs to kilowatt–hours, that is generated by the thermal biomass system and used on site.

(4)**]** The total amount of energy generated and consumed for a residential, nonresidential, or commercial **[**thermal**]** **ANIMAL MANURE** biomass system shall be measured by an on–site meter that meets the required performance standards established by the Commission.

[(5)**] (4)** The Commission shall adopt regulations for the metering, verification, and reporting of the output of **[**thermal**]** **ANIMAL MANURE** biomass systems.

(K) (1) THERMAL ENERGY FROM A WOODY BIOMASS SYSTEM IS ELIGIBLE FOR INCLUSION IN MEETING THE RENEWABLE ENERGY PORTFOLIO STANDARD IF THE WOODY BIOMASS SYSTEM:

(I) ACHIEVES A NET SYSTEM EFFICIENCY OF:

1. 50% OR GREATER IF THE SYSTEM USES COMBINED HEAT AND POWER TECHNOLOGY AND FUEL WITH 50% OR GREATER MOISTURE CONTENT; OR

2. 65% OR GREATER IF THE SYSTEM USES FUEL WITH LESS THAN 50% MOISTURE CONTENT; AND

(II) COMPLIES WITH ALL APPLICABLE STATE AND FEDERAL LAWS AND REGULATIONS.

(2) THE COMMISSION SHALL ADOPT REGULATIONS FOR THE METERING, VERIFICATION, AND REPORTING OF THE OUTPUT OF WOODY BIOMASS SYSTEMS.

(3) WHEN ADOPTING REGULATIONS UNDER PARAGRAPH (2) OF THIS SUBSECTION, THE COMMISSION SHALL CONSIDER METERING AND VERIFICATION METHODS THAT ARE TECHNICALLY AND ECONOMICALLY FEASIBLE FOR COMMERCIAL, INDUSTRIAL, AND RESIDENTIAL CUSTOMERS, INCLUDING SEPARATE METHODS FOR EACH CUSTOMER TYPE.

(4) A PARTY MAY PETITION THE COMMISSION TO ADOPT NEW METERING AND VERIFICATION METHODS NOT AUTHORIZED BY A REGULATION ADOPTED UNDER PARAGRAPH (2) OF THIS SUBSECTION.

(5) A WOODY BIOMASS SYSTEM ELIGIBLE FOR INCLUSION IN THE RENEWABLE ENERGY PORTFOLIO STANDARD SHALL RECEIVE THERMAL RENEWABLE ENERGY CREDITS ONLY FOR THE PORTION OF THE THERMAL ENERGY GENERATED BY WOODY BIOMASS.

(L) THE OWNER OF A GEOTHERMAL HEATING AND COOLING SYSTEM OR AN ANIMAL MANURE BIOMASS SYSTEM THAT WAS REGISTERED WITH THE COMMISSION TO RECEIVE RENEWABLE ENERGY CREDITS ELIGIBLE FOR INCLUSION IN THE RENEWABLE PORTFOLIO STANDARD AS A TIER 1 RENEWABLE SOURCE BEFORE OCTOBER 1, 2015, MAY ELECT TO:

(1) HAVE THE SYSTEM REMAIN REGISTERED AS A TIER 1 RENEWABLE SOURCE THAT GENERATES RENEWABLE ENERGY CREDITS; OR

(2) REREGISTER THE SYSTEM AS A THERMAL TIER RENEWABLE SOURCE THAT GENERATES THERMAL RENEWABLE ENERGY CREDITS.

7–705.

(a) Each electricity supplier shall submit a report to the Commission each year in a form and by a date specified by the Commission that:

(1) demonstrates that the electricity supplier has complied with the applicable renewable energy portfolio standard under § 7–703 of this subtitle and includes the submission of the required amount of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**; or

(2) demonstrates the amount of electricity sales by which the electricity supplier failed to meet the applicable renewable energy portfolio standard.

(b) (1) This subsection does not apply to a shortfall from the required Tier 1 renewable sources that is to be derived from offshore wind energy.

(2) If an electricity supplier fails to comply with the **ELECTRICITY COMPONENT OF THE** renewable energy portfolio standard for the applicable year, the electricity supplier shall pay into the Maryland Strategic Energy Investment Fund established under § 9–20B–05 of the State Government Article:

(i) except as provided in item (ii) of this paragraph, a compliance fee of:

1. 4 cents for each kilowatt–hour of shortfall from required Tier 1 renewable sources other than the shortfall from the required Tier 1 renewable sources that is to be derived from solar energy;

2. the following amounts for each kilowatt–hour of shortfall from required Tier 1 renewable sources that is to be derived from solar energy:

A. 45 cents in 2008;

B. 40 cents in 2009 through 2014;

C. 35 cents in 2015 and 2016;

D. 20 cents in 2017 and 2018;

E. 15 cents in 2019 and 2020;

F. 10 cents in 2021 and 2022; and

G. 5 cents in 2023 and later; and

3. 1.5 cents for each kilowatt–hour of shortfall from required Tier 2 renewable sources; or

(ii) for industrial process load:

1. for each kilowatt–hour of shortfall from required Tier 1 renewable sources, a compliance fee of:

A. 0.8 cents in 2006, 2007, and 2008;

B. 0.5 cents in 2009 and 2010;

C. 0.4 cents in 2011 and 2012;

D. 0.3 cents in 2013 and 2014;

E. 0.25 cents in 2015 and 2016; and

F. except as provided in paragraph (3) of this subsection, 0.2 cents in 2017 and later; and

2. nothing for any shortfall from required Tier 2 renewable sources.

(3) For industrial process load, the compliance fee for each kilowatt–hour of shortfall from required Tier 1 renewable sources is:

(i) 0.1 cents in any year during which suppliers are required to purchase ORECs under § 7–704.2 of this subtitle; and

(ii) nothing for the year following any year during which, after final calculations, the net rate impact per megawatt–hour from qualified offshore wind projects exceeded $1.65 in 2012 dollars.

(G) (1) ON OR BEFORE MARCH 1 OF EACH YEAR, THE COMMISSION SHALL PUBLISH ON ITS WEB SITE:

(I) WHETHER SUFFICIENT THERMAL RENEWABLE ENERGY CREDITS ARE AVAILABLE ON THE ELECTRONIC SYSTEM TO FULFILL THE OBLIGATION SPECIFIED IN § 7–703(B) OF THIS SUBTITLE FOR EACH ELECTRICITY SUPPLIER DURING THE PREVIOUS CALENDAR YEAR; AND

(II) IF INSUFFICIENT THERMAL RENEWABLE ENERGY CREDITS ARE AVAILABLE UNDER SUBPARAGRAPH (I) OF THIS PARAGRAPH, A REDUCED OBLIGATION THAT ADJUSTS THE OBLIGATION SPECIFIED IN § 7–703(B) OF THIS SUBTITLE PROPORTIONALLY BASED ON THE NUMBER OF THERMAL RENEWABLE ENERGY CREDITS AVAILABLE ON THE ELECTRONIC SYSTEM COMPARED TO THE NUMBER OF THERMAL RENEWABLE ENERGY CREDITS ELECTRICITY SUPPLIERS WOULD HAVE BEEN REQUIRED TO PURCHASE UNDER THE FULL OBLIGATION, ROUNDED DOWN TO THE CLOSEST WHOLE NUMBER.

(2) ON OR BEFORE APRIL 1 OF EACH YEAR, AN ELECTRICITY SUPPLIER SHALL:

(I) SUBMIT THERMAL RENEWABLE ENERGY CREDITS UP TO THE ELECTRICITY SUPPLIER'S OBLIGATION AS DETERMINED BY THE COMMISSION UNDER PARAGRAPH (1) OF THIS SUBSECTION; OR

(II) PAY A COMPLIANCE FEE UNDER PARAGRAPH (4) OF THIS SUBSECTION FOR EACH THERMAL RENEWABLE ENERGY CREDIT SHORTFALL IN MEETING THE ELECTRICITY SUPPLIER'S OBLIGATION AS DETERMINED BY THE COMMISSION UNDER PARAGRAPH (1) OF THIS SUBSECTION.

(3) AN ELECTRICITY SUPPLIER MAY NOT BE REQUIRED TO COMPLY WITH THE OBLIGATION SPECIFIED IN § 7–703(B) AND, IF APPLICABLE, ADJUSTED UNDER PARAGRAPH (1) OF THIS SUBSECTION FOR THERMAL RENEWABLE ENERGY CREDITS IF THERE ARE NO THERMAL RENEWABLE ENERGY CREDITS AVAILABLE ON MARCH 1 THROUGH THE TRADING SYSTEM ESTABLISHED UNDER § 7–708 OF THIS SUBTITLE DURING THE PREVIOUS CALENDAR YEAR.

(4) AN ELECTRICITY SUPPLIER SHALL PAY INTO THE MARYLAND STRATEGIC ENERGY INVESTMENT FUND ESTABLISHED UNDER § 9–20B–05 OF THE STATE GOVERNMENT ARTICLE THE FOLLOWING AMOUNTS FOR EACH 3,412 BTU

SHORTFALL IN THERMAL RENEWABLE ENERGY CREDITS THAT OCCURS IN ACCORDANCE WITH PARAGRAPHS (1) AND (2) OF THIS SUBSECTION:

(I) 3 CENTS IN 2016;

(II) 2.75 CENTS IN 2017;

(III) 2.5 CENTS IN 2018;

(IV) 2.25 CENTS IN 2019; AND

(V) 2 CENTS IN 2020 AND LATER.

7–708.

(a) (1) The Commission shall establish and maintain a market–based renewable electricity trading system to facilitate the creation and transfer of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**.

(2) To the extent practicable, the trading system shall be consistent with and operate in conjunction with the trading system developed by PJM Interconnection, Inc., if available.

(3) The Commission may contract with a for–profit or a nonprofit entity to assist in the administration of the electricity trading system required under paragraph (1) of this subsection.

(b) (1) The system shall include a registry of pertinent information regarding all:

(i) available renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**; and

(ii) renewable energy credit **AND THERMAL RENEWABLE ENERGY CREDIT** transactions among electricity suppliers in the State, including:

1. the creation and application of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**;

2. the number of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS** sold or transferred; and

3. the price paid for the sale or transfer of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS**.

(2) (i) The registry shall provide current information to electricity suppliers and the public on the status of renewable energy credits **AND THERMAL RENEWABLE ENERGY CREDITS** created, sold, or transferred in the State.

(ii) Registry information shall be available by computer network access through the Internet.

SECTION 2. AND BE IT FURTHER ENACTED, That, on or before March 1, 2016, the Public Service Commission shall adopt regulations necessary to implement this Act.

SECTION 3. AND BE IT FURTHER ENACTED, That this Act shall take effect October 1, 2015.