

# HOUSE BILL 636

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CF SB 154

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By: **Delegates Stein, Clippinger, Gaines, and Morhaim**

Introduced and read first time: February 12, 2015

Assigned to: Economic Matters

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## A BILL ENTITLED

1 AN ACT concerning

2 **Renewable Energy Portfolio Standard – Thermal Energy**

3 FOR the purpose of altering the renewable energy portfolio standard for certain years;  
4 providing for certain thermal energy sources to be thermal tier renewable sources;  
5 requiring an electricity supplier to meet the renewable energy portfolio standard by  
6 accumulating a certain amount of renewable energy credits and thermal renewable  
7 energy credits; providing that thermal energy from a thermal tier renewable source  
8 is eligible for inclusion in meeting the renewable portfolio standard if it is generated  
9 at a certain system or facility; applying certain provisions that relate to renewable  
10 energy credits to thermal renewable energy credits; repealing a provision that  
11 limited which persons could receive renewable energy credits for energy generated  
12 by a certain geothermal heating and cooling system; altering the method of  
13 determining the amount of thermal renewable energy credits generated by a certain  
14 geothermal heating and cooling system; altering the method of determining the  
15 amount of thermal renewable energy credits generated by a certain animal manure  
16 biomass system; providing that thermal energy from a woody biomass system is  
17 eligible for inclusion in meeting the renewable energy portfolio standard under  
18 certain circumstances; requiring the Commission to adopt certain regulations  
19 relating to woody biomass systems; requiring the Commission to consider certain  
20 metering and verification methods for woody biomass systems when adopting certain  
21 regulations; authorizing an interested party to petition the Commission to adopt  
22 certain new metering and verification methods under certain circumstances;  
23 providing that a certain woody biomass system shall receive thermal renewable  
24 energy credits only for the portion of thermal energy generated by the woody  
25 biomass; providing that the owner of a certain geothermal heating and cooling  
26 system or animal manure biomass system that is registered with the Commission to  
27 receive renewable energy credits as a Tier 1 renewable source before a certain date  
28 may remain registered as a Tier 1 renewable source that generates renewable energy  
29 credits or reregister as a thermal tier renewable source that generates thermal  
30 renewable energy credits; requiring the Commission, on or before a certain date each  
31 year, to publish certain information on its Web site regarding the availability of

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EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.

[Brackets] indicate matter deleted from existing law.



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

15 BY repealing and reenacting, with amendments,  
 16 Article – Public Utilities  
 17 Section 7–701, 7–703, 7–704, 7–705(a) and (b), and 7–708  
 18 Annotated Code of Maryland  
 19 (2010 Replacement Volume and 2014 Supplement)

20 BY adding to  
 21 Article – Public Utilities  
 22 Section 7–705(g)  
 23 Annotated Code of Maryland  
 24 (2010 Replacement Volume and 2014 Supplement)

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

27 **Article – Public Utilities**

28 7–701.

- 29 (a) In this subtitle the following words have the meanings indicated.
- 30 (b) “Administration” means the Maryland Energy Administration.
- 31 (c) **“ANIMAL MANURE BIOMASS SYSTEM” MEANS A SYSTEM THAT:**
- 32 **(1) USES:**

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

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

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

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

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

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

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

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

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

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

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

23                   **[(5)] (4)** is manufactured, installed, and operated in accordance with  
24 applicable government and industry standards; and

25                   **[(6)] (5)** does not feed electricity back to the grid.

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

29           **(G) “NONRENEWABLE FUEL” MEANS A FUEL WITH ECONOMIC VALUE THAT**  
30 **CANNOT BE READILY REPLACED BY NATURAL MEANS ON A LEVEL EQUAL TO ITS**  
31 **CONSUMPTION.**

1           **[(f)] (H)**       “Offshore wind energy” means energy generated by a qualified offshore  
2 wind project.

3           **[(g)] (I)**       “Old growth timber” means timber from a forest:

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

6                   (2)     that exhibits several of the following characteristics:

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

8                           (ii)    randomly distributed canopy gaps are present;

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

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

13                          (v)     pit and mound topography can be observed.

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

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

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

22           **[(k)] (M)**       “Qualified offshore wind project” means a wind turbine electricity  
23 generation facility, including the associated transmission-related interconnection facilities  
24 and equipment, that:

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

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

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

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

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

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

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

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

10                                 A.     mill residue, except sawdust and wood shavings;

11                                 B.     precommercial soft wood thinning;

12                                 C.     slash;

13                                 D.     brush; or

14                                 E.     yard waste;

15                             2.     a pallet, crate, or dunnage;

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

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

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

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

25           (3)     “Qualifying biomass” does not include:

26                     (i)     unsegregated solid waste or postconsumer wastepaper; or

27                     (ii)    an invasive exotic plant species.

28           **[(m)]**    “Thermal biomass system” means a system that:

1 (1) uses:

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

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

6 (2) is used in the State; and

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

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

12 (1) in the PJM region;

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

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

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

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

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

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

29 [(q)] (R) (1) “Solar water heating system” means a system that:

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

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

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

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

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

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

9 **(2) USED FOR A USEFUL THERMAL APPLICATION.**

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

12 **(1) GEOTHERMAL HEATING AND COOLING SYSTEMS;**

13 **(2) ANIMAL MANURE BIOMASS SYSTEMS; AND**

14 **(3) WOODY BIOMASS SYSTEMS.**

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

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

19 (2) wind;

20 (3) qualifying biomass;

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

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

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

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

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

5 (9) poultry litter-to-energy;

6 (10) waste-to-energy; AND

7 (11) refuse-derived fuel[]; and

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

9 [(s)] (v) "Tier 2 renewable source" means hydroelectric power other than pump  
10 storage generation.

11 (w) (1) "USEFUL THERMAL APPLICATION" MEANS THERMAL ENERGY  
12 THAT IS USED:

13 (i) FOR:

14 1. HEATING, INCLUDING AMBIENT BUILDING  
15 TEMPERATURES AND WATER;

16 2. COOLING, INCLUDING AMBIENT BUILDING  
17 TEMPERATURES;

18 3. HUMIDITY CONTROL; OR

19 4. PROCESS USE; AND

20 (ii) IN PLACE OF ELECTRICITY OR A NONRENEWABLE FUEL IN  
21 AN APPLICATION IN WHICH ELECTRICITY OR A NONRENEWABLE FUEL WOULD HAVE  
22 OTHERWISE BEEN USED.

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

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

27 (ii) THE PURPOSE OF DRYING OR REFINING BIOMASS; OR



1                   **(III) THE SUBSEQUENT GENERATION OF ELECTRICITY.**

2           **(X) (1) “WOODY BIOMASS” MEANS:**

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

6                   **(II) AN AGRICULTURAL CROP;**

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

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

11           **(2) “WOODY BIOMASS” DOES NOT INCLUDE:**

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

14                   **(II) LIQUIDS DERIVED FROM MILL RESIDUE.**

15           **(Y) “WOODY BIOMASS SYSTEM” MEANS A SYSTEM THAT GENERATES**  
16 **THERMAL ENERGY USING WOODY BIOMASS.**

17 7–703.

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

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

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

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

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

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

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

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

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

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

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

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

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

19 (3) in 2008, 2.005% from Tier 1 renewable sources, including at least  
20 0.005% derived from solar energy, and 2.5% from Tier 2 renewable sources;

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

23 (5) in 2010, 3.025% from Tier 1 renewable sources, including at least  
24 0.025% derived from solar energy, and 2.5% from Tier 2 renewable sources;

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

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

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

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

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

3 (11) in 2016[.]:

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

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

7 (III) **0.1% FROM THERMAL TIER RENEWABLE SOURCES;**

8 (12) in 2017:

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

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

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

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

14 (III) **0.25% FROM THERMAL TIER RENEWABLE SOURCES;**

15 (13) in 2018:

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

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

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

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

21 (III) **0.38% FROM THERMAL TIER RENEWABLE SOURCES;**

22 (14) in 2019[.]:

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

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

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

3                    (II)    **0.5% FROM THERMAL TIER RENEWABLE SOURCES;**

4                    (15) in 2020[.]:

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

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

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

9                    (II)    **0.75% FROM THERMAL TIER RENEWABLE SOURCES;**

10                   (16) in 2021[.]:

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

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

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

15                   (II)    **1.0% FROM THERMAL TIER RENEWABLE SOURCES;**

16                   (17) in 2022 [and later.]:

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

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

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

21                   (II)    **1.2% FROM THERMAL TIER RENEWABLE SOURCES;**

22                   (18) IN 2023:

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

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

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

4                   (II)    1.4% FROM THERMAL TIER RENEWABLE SOURCES;

5                   (19) IN 2024:

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

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

8                   2.     AN AMOUNT SET BY THE COMMISSION UNDER §  
9 7-704.2(A) OF THIS SUBTITLE, NOT TO EXCEED 2.5%, DERIVED FROM OFFSHORE  
10 WIND ENERGY; AND

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

12                  (20) IN 2024 AND LATER:

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

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

15                  2.     AN AMOUNT SET BY THE COMMISSION UNDER §  
16 7-704.2(A) OF THIS SUBTITLE, NOT TO EXCEED 2.5%, DERIVED FROM OFFSHORE  
17 WIND ENERGY; AND

18                  (II)    2% FROM THERMAL TIER RENEWABLE SOURCES.

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

24           (d)     Subject to subsections (a) and (c) of this section and in accordance with [§  
25 7-704.2] §§ 7-704.2 AND 7-705(G) of this subtitle, an electricity supplier shall meet the  
26 renewable energy portfolio standard by accumulating the equivalent amount of renewable  
27 energy credits AND **THERMAL RENEWABLE ENERGY CREDITS** that equal the percentages  
28 required under this section.

29 7-704.

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

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

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

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

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

14 (3) [Energy] **ELECTRICITY** from a Tier 1 renewable source under [§  
15 7-701(r)(8)] **§ 7-701(U)(8)** of this subtitle is eligible for inclusion in meeting the renewable  
16 energy portfolio standard if it is generated at a dam that existed as of January 1, 2004,  
17 even if a system or facility that is capable of generating electricity did not exist on that  
18 date.

19 (4) [Energy] **ELECTRICITY** from a Tier 2 renewable source under [§  
20 7-701(s)] **§ 7-701(V)** of this subtitle is eligible for inclusion in meeting the renewable  
21 energy portfolio standard through 2018 if it is generated at a system or facility that existed  
22 and was operational as of January 1, 2004, even if the facility or system was not capable of  
23 generating electricity on that date.

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

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

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

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

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

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

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

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

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

11 (3) On or before December 31, 2008, an electricity supplier shall receive  
12 110% credit toward meeting the renewable energy portfolio standard for energy derived  
13 from methane under [§ 7-701(r)(4)] **§ 7-701(U)(4)** of this subtitle.

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

17 (e) (1) In this subsection, “customer” means:

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

20 (ii) a renewable on-site generator.

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

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

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

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

1 source that displaces the purchase of electricity by the renewable on-site generator from  
2 the grid.

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

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

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

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

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

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

20 [2.] **(II)** for other states, jurisdictions for which the  
21 electricity supplier demonstrates recycling substantially comparable to that required under  
22 § 9-505 of the Environment Article, in accordance with regulations of the Commission.

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

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

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

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



1 on-site meter that meets the required performance standards of the International  
2 Organization of Legal Metrology.

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

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

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

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

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

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

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

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

22 (i) owns and operates the system;

23 (ii) leases and operates the system; or

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

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

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

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

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

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

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

9 **[(4) (3)]** To determine the [energy savings of] **ANNUAL AMOUNT OF**  
10 **THERMAL RENEWABLE ENERGY CREDITS AWARDED FOR** a nonresidential geothermal  
11 heating and cooling system, the Commission shall:

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

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

18 **[(5) (4)]** A geothermal heating and cooling system shall be installed in  
19 accordance with applicable State well construction and local building code standards.

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

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

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

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

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

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

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

9           [(5)] (4) The Commission shall adopt regulations for the metering,  
10 verification, and reporting of the output of [thermal] ANIMAL MANURE biomass systems.

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

14                   **(I) ACHIEVES A NET SYSTEM EFFICIENCY OF:**

15                           **1. 50% OR GREATER IF THE SYSTEM USES COMBINED  
16 HEAT AND POWER TECHNOLOGY AND FUEL WITH 50% OR GREATER MOISTURE  
17 CONTENT; OR**

18                           **2. 65% OR GREATER IF THE SYSTEM USES FUEL WITH  
19 LESS THAN 50% MOISTURE CONTENT; AND**

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

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

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

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

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

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

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

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

14 7–705.

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

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

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

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

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

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

31           1. 4 cents for each kilowatt–hour of shortfall from required  
32 Tier 1 renewable sources other than the shortfall from the required Tier 1 renewable  
33 sources that is to be derived from solar energy;

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

- 3                                   A.     45 cents in 2008;  
4                                   B.     40 cents in 2009 through 2014;  
5                                   C.     35 cents in 2015 and 2016;  
6                                   D.     20 cents in 2017 and 2018;  
7                                   E.     15 cents in 2019 and 2020;  
8                                   F.     10 cents in 2021 and 2022; and  
9                                   G.     5 cents in 2023 and later; and

10                                  3.     1.5 cents for each kilowatt–hour of shortfall from required  
11 Tier 2 renewable sources; or

12                                  (ii)   for industrial process load:

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

- 15                                  A.     0.8 cents in 2006, 2007, and 2008;  
16                                  B.     0.5 cents in 2009 and 2010;  
17                                  C.     0.4 cents in 2011 and 2012;  
18                                  D.     0.3 cents in 2013 and 2014;  
19                                  E.     0.25 cents in 2015 and 2016; and  
20                                  F.     except as provided in paragraph (3) of this subsection, 0.2  
21 cents in 2017 and later; and

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

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

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

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

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

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

10 (II) IF INSUFFICIENT THERMAL RENEWABLE ENERGY CREDITS  
11 ARE AVAILABLE UNDER SUBPARAGRAPH (I) OF THIS PARAGRAPH, A REDUCED  
12 OBLIGATION THAT ADJUSTS THE OBLIGATION SPECIFIED IN §  
13 7-703(B) OF THIS SUBTITLE PROPORTIONALLY BASED ON THE NUMBER OF  
14 THERMAL RENEWABLE ENERGY CREDITS AVAILABLE ON THE ELECTRONIC SYSTEM  
15 COMPARED TO THE NUMBER OF THERMAL RENEWABLE ENERGY CREDITS  
16 ELECTRICITY SUPPLIERS WOULD HAVE BEEN REQUIRED TO PURCHASE UNDER THE  
17 FULL OBLIGATION, ROUNDED DOWN TO THE CLOSEST WHOLE NUMBER.

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

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

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

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

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

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

- 3 (I) **3 CENTS IN 2016;**  
4 (II) **2.75 CENTS IN 2017;**  
5 (III) **2.5 CENTS IN 2018;**  
6 (IV) **2.25 CENTS IN 2019; AND**  
7 (V) **2 CENTS IN 2020 AND LATER.**

8 7–708.

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

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

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

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

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

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

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

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

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

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

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

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

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