

116TH CONGRESS  
1ST SESSION

# S. 1359

To amend the Public Utility Regulatory Policies Act of 1978 to establish a market-oriented standard for clean electric energy generation, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

MAY 8, 2019

Ms. SMITH (for herself, Mr. HEINRICH, Mr. Kaine, Mr. WHITEHOUSE, and Mr. SCHATZ) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To amend the Public Utility Regulatory Policies Act of 1978 to establish a market-oriented standard for clean electric energy generation, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Clean Energy Stand-  
5 ard Act of 2019”.

6 **SEC. 2. FEDERAL CLEAN ENERGY STANDARD.**

7 (a) IN GENERAL.—Title VI of the Public Utility Reg-  
8 ulatory Policies Act of 1978 (16 U.S.C. 2601 et seq.) is  
9 amended by adding at the end the following:

1 **“SEC. 610. FEDERAL CLEAN ENERGY STANDARD.**

2 “(a) PURPOSE.—The purpose of this section is to es-  
3 tablish a technology-neutral, market-oriented standard for  
4 electric energy generation that—

5 “(1) stimulates clean energy innovation and al-  
6 lows the United States to achieve a net-zero emis-  
7 sion electric sector at the lowest cost;

8 “(2) will guide power sector investment and  
9 provide regulatory certainty, while helping to ensure  
10 that the United States is the leader and dominant  
11 competitor in the global clean energy transition; and

12 “(3) will result in—

13 “(A) hundreds of billions of dollars in do-  
14 mestic health and environmental benefits by the  
15 mid-21st century; and

16 “(B) save tens of thousands of lives in the  
17 United States.

18 “(b) DEFINITIONS.—In this section:

19 “(1) APPLICABLE CARBON INTENSITY.—The  
20 term ‘applicable carbon intensity’ means 0.4 metric  
21 tons of carbon dioxide equivalent per megawatt-hour.

22 “(2) APPLICABLE CLEAN ENERGY PERCENT-  
23 AGE.—The term ‘applicable clean energy percent-  
24 age’, with respect to a retail electricity supplier,  
25 means the clean energy percentage applicable to the

1 retail electricity supplier for the relevant calendar  
2 year under subsection (c).

3 “(3) BASE QUANTITY.—

4 “(A) IN GENERAL.—The term ‘base quan-  
5 tity’, with respect to a retail electricity supplier  
6 for a calendar year, means the total quantity of  
7 electric energy consumed by electric customers  
8 of the retail electricity supplier, expressed in  
9 megawatt-hours, during the calendar year, in-  
10 cluding—

11 “(i) the quantity of electric energy  
12 sold by the retail electricity supplier to  
13 electric customers for purposes other than  
14 resale; and

15 “(ii) the quantity of behind-the-meter  
16 generation consumed by electric consumers  
17 served by the retail electricity supplier.

18 “(B) DETERMINATION.—For purposes of  
19 subparagraph (A), not later than 180 days  
20 after the date of enactment of this section, the  
21 Secretary shall develop appropriate processes  
22 for determining the quantity of behind-the-  
23 meter generation consumed by electric con-  
24 sumers served by a retail electricity supplier, in-  
25 cluding by requiring from the retail electricity

1 supplier relevant documentation of behind-the-  
2 meter electric energy consumption, such as  
3 records associated with net-metering.

4 “(4) BASELINE PERCENTAGE.—The term ‘base-  
5 line percentage’ means—

6 “(A) for a retail electricity supplier in op-  
7 eration on the date of enactment of this section,  
8 the clean energy percentage of the retail elec-  
9 tricity supplier calculated for the calendar year  
10 in which this section is enacted; and

11 “(B) for a retail electricity supplier that  
12 commences operation after the date of enact-  
13 ment of this section, such clean energy percent-  
14 age as the Secretary determines to be appro-  
15 priate.

16 “(5) BEHIND-THE-METER GENERATION.—The  
17 term ‘behind-the-meter generation’ means the gen-  
18 eration of clean energy using a system that operates  
19 on the customer side of the applicable utility meter,  
20 subject to the condition that the retail electricity  
21 supplier serving the generator shall submit to the  
22 Secretary, not less frequently than annually,  
23 verification of the quantity of that generation in  
24 such form, in such manner, and containing such in-  
25 formation as the Secretary may require.

1 “(6) CARBON DIOXIDE EQUIVALENT.—

2 “(A) IN GENERAL.—The term ‘carbon di-  
3 oxide equivalent’ means the number of metric  
4 tons of carbon dioxide emissions with the same  
5 global warming potential over a 100-year period  
6 as 1 metric ton of another greenhouse gas.

7 “(B) GLOBAL WARMING POTENTIAL.—For  
8 purposes of subparagraph (A), global warming  
9 potential shall be determined in accordance with  
10 the Fifth Assessment Report of the Intergov-  
11 ernmental Panel on Climate Change.

12 “(7) CARBON INTENSITY.—The term ‘carbon  
13 intensity’ means the carbon dioxide equivalent emis-  
14 sions associated with the generation of 1 megawatt-  
15 hour of electric energy by a generator.

16 “(8) CLEAN ENERGY.—The term ‘clean energy’  
17 means electric energy that is—

18 “(A) generated at a facility using—

19 “(i) renewable energy;

20 “(ii) qualified renewable biomass;

21 “(iii) hydropower;

22 “(iv) nuclear power;

23 “(v) qualified waste-to-energy;

24 “(vi) qualified low-carbon fuels;

1                   “(vii) a qualified combined heat and  
2                   power system; or

3                   “(viii) any other source of energy in a  
4                   manner that ensures that the facility does  
5                   not exceed the applicable carbon intensity;

6                   “(B) generated at a facility that—

7                   “(i) captures the carbon dioxide  
8                   from—

9                   “(I) a waste stream of the facil-  
10                  ity;

11                  “(II) another waste stream; or

12                  “(III) the atmosphere directly;

13                  and

14                  “(ii) prevents the release of the cap-  
15                  tured carbon dioxide into the atmosphere;

16                  or

17                  “(C) dispatched from a qualified energy  
18                  storage system.

19                  “(9) CLEAN ENERGY PERCENTAGE.—

20                  “(A) IN GENERAL.—The term ‘clean en-  
21                  ergy percentage’ means the percentage of clean  
22                  energy consumed by all electric consumers of a  
23                  retail electricity supplier.

24                  “(B) CALCULATION.—For purposes of sub-  
25                  paragraph (A), the clean energy percentage of

1 a retail electricity supplier shall be equal to the  
2 quotient obtained by dividing—

3 “(i) the sum of—

4 “(I) the quantity of clean energy  
5 sold by the retail electricity supplier  
6 to electric consumers; and

7 “(II) the quantity of behind-the-  
8 meter generation consumed by electric  
9 consumers served by the retail elec-  
10 tricity supplier; by

11 “(ii) the base quantity of the retail  
12 electricity supplier.

13 “(C) DETERMINATION.—

14 “(i) IN GENERAL.—For purposes of  
15 subparagraph (B), not later than 180 days  
16 after the date of enactment of this section,  
17 the Secretary shall develop a process for  
18 determining the quantities of—

19 “(I) clean energy sold by a retail  
20 electricity supplier to electric con-  
21 sumers, taking into account—

22 “(aa) the need to quantify,  
23 without double counting, appro-  
24 priate quantities of clean en-  
25 ergy—

1                   “(AA) owned by the re-  
2 tail electricity supplier;

3                   “(BB) obtained by the  
4 retail electricity supplier  
5 through power purchase  
6 agreements;

7                   “(CC) imported by the  
8 retail electricity supplier;

9                   “(DD) purchased by  
10 the retail electricity supplier  
11 from wholesale markets; and

12                   “(EE) purchased by the  
13 retail electricity supplier  
14 through existing renewable  
15 or clean energy credits and  
16 certificates; and

17                   “(bb) appropriate dif-  
18 ferences between—

19                   “(AA) retailers oper-  
20 ating in organized wholesale  
21 markets; and

22                   “(BB) retailers oper-  
23 ating in vertically integrated  
24 market contexts; and

1                   “(II) behind-the-meter generation  
2                   consumed by electric consumers  
3                   served by a retail electricity supplier,  
4                   including by requiring from the retail  
5                   electricity supplier relevant docu-  
6                   mentation of behind-the-meter electric  
7                   energy consumption, such as records  
8                   associated with net-metering.

9                   “(ii) QUANTIFYING CLEAN ENERGY.—  
10                  For purposes of quantifying clean energy  
11                  and behind-the-meter generation under  
12                  clause (i), the Secretary shall use the  
13                  methods used to assign a quantity of cred-  
14                  its to generators under subsection (f).

15                  “(10) DISPATCHABLE LOW-EMISSION TECH-  
16                  NOLOGY.—The term ‘dispatchable low-emission tech-  
17                  nology’ means a generator that uses a technology or  
18                  combination of technologies that—

19                         “(A) has a carbon intensity of not more  
20                         than 0.05 metric tons of carbon dioxide equiva-  
21                         lent per megawatt-hour;

22                         “(B) has the ability, at any time, to start,  
23                         increase, decrease, and stop energy production  
24                         on demand;

1           “(C) is placed into service after the date of  
2           enactment of this section; and

3           “(D) is not a dispatchable zero-emission  
4           technology.

5           “(11) DISPATCHABLE ZERO-EMISSION TECH-  
6           NOLOGY.—The term ‘dispatchable zero-emission  
7           technology’ means a generator that uses a tech-  
8           nology or combination of technologies that—

9           “(A) has a carbon intensity of zero;

10           “(B) has the ability, at any time, to start,  
11           increase, decrease, and stop energy production  
12           on demand; and

13           “(C) is placed into service after the date of  
14           enactment of this section.

15           “(12) ENERGY STORAGE SYSTEM.—The term  
16           ‘energy storage system’ means any equipment or fa-  
17           cility relating to the electric grid that—

18           “(A) is capable of absorbing energy, stor-  
19           ing the energy for a period of time, and dis-  
20           patching the energy as electric energy; and

21           “(B) uses mechanical, electrochemical, bio-  
22           chemical, or thermal processes—

23           “(i) to store energy generated at an  
24           earlier time for use at a later time; or

1                   “(ii) to store energy generated from a  
2                   mechanical process that would otherwise be  
3                   wasted for delivery at a later time.

4                   “(13) FEDERAL CLEAN ENERGY CREDIT.—The  
5                   term ‘Federal clean energy credit’ means a credit  
6                   issued pursuant to subsection (e).

7                   “(14) GENERATOR.—The term ‘generator’  
8                   means a unit or system of units that—

9                   “(A) generates not fewer than 20 mega-  
10                  watt-hours of electric energy per calendar year;

11                  “(B) delivers electric energy to the grid;  
12                  and

13                  “(C) is located in the United States.

14                  “(15) LIFECYCLE GREENHOUSE GAS EMIS-  
15                  SIONS.—The term ‘lifecycle greenhouse gas emis-  
16                  sions’ means the aggregate quantity of carbon diox-  
17                  ide equivalent emissions relating to the full lifecycle  
18                  of electric energy production, including—

19                  “(A) extraction, production, and distribu-  
20                  tion of fuels and materials for physical capital;

21                  “(B) power generation and transmission;  
22                  and

23                  “(C) handling and disposal of waste, by-  
24                  products, and end-of-life materials.

1           “(16) QUALIFIED COMBINED HEAT AND POWER  
2           SYSTEM.—The term ‘qualified combined heat and  
3           power system’ means a system that—

4                   “(A) uses the same energy source for the  
5                   simultaneous or sequential generation of elec-  
6                   trical energy and thermal energy;

7                   “(B) produces at least—

8                           “(i) 20 percent of the useful energy of  
9                           the system in the form of electricity; and

10                           “(ii) 20 percent of the useful energy  
11                           in the form of useful thermal energy;

12                   “(C) to the extent that the system uses  
13                   biomass, uses only qualified renewable biomass;  
14                   and

15                   “(D) operates with an energy efficiency  
16                   percentage, as determined in accordance with  
17                   section 48(e)(3)(C)(i) of the Internal Revenue  
18                   Code of 1986, of greater than 50 percent.

19           “(17) QUALIFIED DISPATCHABLE.—

20                   “(A) IN GENERAL.—The term ‘qualified  
21                   dispatchable’ means—

22                           “(i) with respect to a dispatchable  
23                           low-emission technology, a dispatchable  
24                           low-emission technology that—

1                   “(I) is 1 of the first 5 original  
2                   demonstrations in the United States  
3                   of a particular innovative technology  
4                   providing not less than 20 megawatts  
5                   of electric energy generation capacity;

6                   “(II) generates revenue from the  
7                   sale of electric energy; and

8                   “(III) is placed into service be-  
9                   fore January 1, 2030; and

10                  “(ii) with respect to a dispatchable  
11                  zero-emission technology, means a dis-  
12                  patchable zero-emission technology that—

13                   “(I) is 1 of the first 5 original  
14                   demonstrations in the United States  
15                   of a particular innovative technology  
16                   providing not less than 20 megawatts  
17                   of electric energy generation capacity;

18                   “(II) generates revenue from the  
19                   sale of electric energy; and

20                   “(III) is placed into service be-  
21                   fore January 1, 2040.

22                  “(B) DETERMINATION.—For purposes of  
23                  determining whether a dispatchable low-emis-  
24                  sion technology or dispatchable zero-emission  
25                  technology is an original demonstration of an

1 innovative technology under clause (i)(I) or  
2 (ii)(I), respectively, of subparagraph (A), the  
3 Secretary shall—

4 “(i) develop a process that—

5 “(I) ensures that each innovative  
6 technology exhibits a significant tech-  
7 nical or economic advancement, as  
8 compared to existing technologies; and

9 “(II) includes consideration of an  
10 application submitted to the Secretary  
11 by the owner of the dispatchable low-  
12 emission technology or dispatchable  
13 zero-emission technology;

14 “(ii) not later than 90 days after the  
15 date of submission of an application under  
16 clause (i)(II), make a determination re-  
17 garding whether to approve the applica-  
18 tion; and

19 “(iii) subject to subparagraph (C),  
20 provide to each owner, the application of  
21 which is approved under clause (ii), a cer-  
22 tification—

23 “(I) that the applicable generator  
24 is a qualified dispatchable low-emis-

1                   sion technology or dispatchable zero-  
2                   emission technology; and

3                   “(II) that shall be surrendered to  
4                   earn Federal clean energy credits  
5                   under subsection (f)(10).

6                   “(C) TERMINATION OF CERTIFICATION.—  
7                   Except as otherwise provided by the Secretary,  
8                   a certification provided under subparagraph  
9                   (B)(iii) shall cease to have any force or effect  
10                  if the Secretary determines that construction of  
11                  the applicable generator—

12                   “(i) does not commence by the date  
13                   that is 2 years after the date of certifi-  
14                   cation; or

15                   “(ii) has been suspended indefinitely.

16                  “(18) QUALIFIED ENERGY STORAGE SYSTEM.—  
17                  The term ‘qualified energy storage system’ means an  
18                  energy storage system that stores clean energy—

19                   “(A) that would otherwise be wasted or  
20                   curtailed;

21                   “(B) with verifiable carbon intensity that  
22                   does not exceed the applicable carbon intensity;  
23                   and

24                   “(C) for which no Federal clean energy  
25                   credit is issued.

1           “(19) QUALIFIED GENERATION.—The term  
2           ‘qualified generation’ means the number of mega-  
3           watt-hours of electric energy that a generator—

4                   “(A)(i) generates; or

5                   “(ii) generates and stores using a con-  
6           nected energy storage system; and

7                   “(B)(i) sells for resale;

8                   “(ii) if the generator is owned by a retail  
9           electricity supplier, sells to electric consumers;

10           or

11                   “(iii) if the generator is a behind-the-meter  
12           generation system, consumes onsite for a useful  
13           purpose.

14           “(20) QUALIFIED LOW-CARBON FUEL.—

15                   “(A) IN GENERAL.—The term ‘qualified  
16           low-carbon fuel’ means a fuel used to generate  
17           electric energy that—

18                   “(i) is produced through any process  
19           (but not including any processes that use  
20           electric energy as an input) that signifi-  
21           cantly limits or avoids greenhouse gas  
22           emissions; and

23                   “(ii) does not release greenhouse gas  
24           or other pollutant emissions during com-  
25           bustion.

1           “(B) INCLUSION.—The term ‘qualified  
2 low-carbon fuel’ includes—

3                   “(i) ammonia; and

4                   “(ii) hydrogen.

5           “(21) QUALIFIED RENEWABLE BIOMASS.—The  
6 term ‘qualified renewable biomass’ means—

7                   “(A) any crop byproduct or crop residue  
8 harvested from actively managed or fallow agri-  
9 cultural land that is cleared before the date of  
10 enactment of this section, if the harvesting of  
11 the residue does not lead to a net decline in soil  
12 organic matter for the applicable land;

13                   “(B) any planted tree, brush, slash, or res-  
14 idue from an actively managed tree farm dedi-  
15 cated to energy crop production and located on  
16 forest land established for planted tree crop  
17 production before the date of enactment of this  
18 section;

19                   “(C) any brush, slash, or residue from an  
20 actively managed forest that is certified to  
21 achieve compliance with applicable—

22                           “(i) sustainability standards of the  
23 Forest Stewardship Council; or

1 “(ii) standards endorsed by the Pro-  
2 gramme for the Endorsement of Forest  
3 Certification, including—

4 “(I) the Sustainable Forestry Ini-  
5 tiative; and

6 “(II) the American Tree Farm  
7 System;

8 “(D) algae;

9 “(E) nonhazardous plant matter derived  
10 from landscape right-of-way trimmings; and

11 “(F) vegetative matter removed from an  
12 area located not more than 200 yards from a  
13 building, residence, or campground for the pur-  
14 pose of hazardous fuels management.

15 “(22) QUALIFIED WASTE-TO-ENERGY.—The  
16 term ‘qualified waste-to-energy’ means energy pro-  
17 duced—

18 “(A) from the combustion of—

19 “(i) post-recycled municipal solid  
20 waste;

21 “(ii) gas produced from the gasifi-  
22 cation or pyrolization of post-recycled mu-  
23 nicipal solid waste;

24 “(iii) biogas;

25 “(iv) landfill methane;

1           “(v) animal waste or animal byprod-  
2           ucts;

3           “(vi) food waste;

4           “(vii) wood, paper products that are  
5           not commonly recyclable, and vegetation  
6           (including trees and trimmings, yard  
7           waste, pallets, railroad ties, crates, and  
8           solid-wood manufacturing and construction  
9           debris), if diverted from or separated from  
10          other waste out of a municipal waste  
11          stream; or

12          “(viii) any byproduct of a wood or  
13          paper mill operation, including lignin in  
14          spent pulping liquors; and

15          “(B) at a facility that the Secretary has  
16          certified, on an annual basis, is in compliance  
17          with all applicable Federal and State environ-  
18          mental permits, including—

19                 “(i) in the case of a facility that com-  
20                 mences operation before the date of enact-  
21                 ment of this section, compliance with emis-  
22                 sion standards under sections 112 and, as  
23                 applicable, 129 of the Clean Air Act (42  
24                 U.S.C. 7412, 7429) that apply as of the  
25                 date of enactment of this section to new

1 facilities within the applicable source cat-  
2 egory; and

3 “(ii) in the case of a facility that pro-  
4 duces electric or thermal energy from the  
5 combustion, pyrolyzation, or gasification of  
6 municipal solid waste, certification that  
7 each local government unit from which the  
8 waste originates operates, participates in  
9 the operation of, contracts for, or other-  
10 wise provides for recycling services for resi-  
11 dents of the local government unit.

12 “(23) RENEWABLE ENERGY.—The term ‘renew-  
13 able energy’ means solar, wind, ocean, current, wave,  
14 tidal, or geothermal energy.

15 “(24) RETAIL ELECTRICITY SUPPLIER.—

16 “(A) IN GENERAL.—The term ‘retail elec-  
17 tricity supplier’, as determined for each cal-  
18 endar year, means an entity in the United  
19 States that sold not fewer than 20 megawatt-  
20 hours of electric energy to electric consumers  
21 for purposes other than resale during the pre-  
22 ceding calendar year.

23 “(B) INCLUSIONS AND LIMITATIONS.—For  
24 purposes of making a determination under sub-  
25 paragraph (A) with respect to an entity—

1           “(i) any sale of electric energy made  
2           by an affiliate of the entity to an electric  
3           consumer (other than to a lessee or tenant  
4           of the affiliate) for purposes other than re-  
5           sale may be considered to be a sale made  
6           by the entity; and

7           “(ii) any sale of electric energy made  
8           by the entity to an affiliate, lessee, or ten-  
9           nant of the entity shall not be considered to  
10          be a sale to an electric consumer.

11          “(C) AFFILIATE.—For purposes of sub-  
12          paragraph (B), the term ‘affiliate’, with respect  
13          to an entity, means an individual or entity that  
14          directly or indirectly owns or controls, is owned  
15          or controlled by, or is under common ownership  
16          or control with, the entity, as determined in ac-  
17          cordance with applicable regulations of the Sec-  
18          retary.

19          “(c) CLEAN ENERGY REQUIREMENT.—

20                 “(1) IN GENERAL.—Beginning in the second  
21                 full calendar year beginning after the date of enact-  
22                 ment of this section, and each calendar year there-  
23                 after, each retail electricity supplier shall sell a  
24                 quantity of clean energy equal to the product ob-  
25                 tained by multiplying—

1           “(A) the applicable clean energy percent-  
2           age determined for the retail electricity supplier  
3           for the calendar year under paragraph (2); and

4           “(B) the base quantity of the retail elec-  
5           tricity supplier for the applicable calendar year.

6           “(2) DETERMINATION OF APPLICABLE CLEAN  
7           ENERGY PERCENTAGES.—

8           “(A) INITIAL PERCENTAGE.—

9           “(i) USE OF BASELINE PERCENT-  
10           AGE.—For purposes of the determinations  
11           required under subparagraphs (B) and  
12           (C), the applicable clean energy percentage  
13           for a retail electricity supplier for the cal-  
14           endar year during which this section is en-  
15           acted shall be the baseline percentage of  
16           the retail electricity supplier.

17           “(ii) NEW RETAIL ELECTRICITY SUP-  
18           PLIERS.—For purposes of the determina-  
19           tions required under subparagraphs (B)  
20           and (C), for a retail electricity supplier  
21           that is established after the date of enact-  
22           ment of this section, the Secretary shall  
23           determine the appropriate applicable clean  
24           energy percentage for the first calendar  
25           year beginning after the date on which the

1 retail electricity supplier commences oper-  
2 ation.

3 “(B) SUBSEQUENT DETERMINATIONS.—  
4 Subject to paragraph (3), for the first calendar  
5 year beginning after the date of enactment of  
6 this section and each calendar year thereafter  
7 until the calendar year for which the applicable  
8 clean energy percentage for a retail electricity  
9 supplier is 90 percent, the applicable clean en-  
10 ergy percentage for the retail electricity supplier  
11 under paragraph (1) shall be—

12 “(i) in the case of a retail electricity  
13 supplier with not less than 2,000,000  
14 megawatt-hours of retail electric energy  
15 sales during the calendar year in which  
16 this section is enacted, or a retail elec-  
17 tricity supplier with less than 2,000,000  
18 megawatt-hours of retail electric energy  
19 sales during that calendar year but more  
20 than 2,000,000 megawatt-hours of retail  
21 electric energy sales during a subsequent  
22 calendar year due to a merger or the ac-  
23 quisition of additional territory, the appli-  
24 cable clean energy percentage for the retail

1 electricity supplier for the preceding cal-  
2 endar year, as increased—

3 “(I) for any calendar year for  
4 which the applicable clean energy per-  
5 centage of the retail electricity sup-  
6 plier is not more than 60 percent, by  
7 the fast growth rate for the calendar  
8 year, as determined under paragraph  
9 (3)(B); and

10 “(II) for any calendar year for  
11 which the applicable clean energy per-  
12 centage of the retail electricity sup-  
13 plier is more than 60 percent, by the  
14 slow growth rate for the calendar  
15 year, as determined under paragraph  
16 (3)(C), up to a maximum of 90 per-  
17 cent; and

18 “(ii) in the case of a retail electricity  
19 supplier not described in clause (i), the ap-  
20 plicable clean energy percentage for the re-  
21 tail electricity supplier for the preceding  
22 calendar year, as increased by the small  
23 growth rate for the calendar year, as deter-  
24 mined under paragraph (3)(D), up to a  
25 maximum of 90 percent.

1           “(C) FINAL TARGET PERCENTAGE.—Effective  
2           beginning in calendar year 2040, for each  
3           calendar year beginning after the first calendar  
4           year for which the applicable clean energy per-  
5           centage of a retail electricity supplier under  
6           subparagraph (B) is 90 percent, the applicable  
7           clean energy percentage for the retail electricity  
8           supplier under paragraph (1) shall be increased  
9           by 1 percentage point, up to a maximum of 100  
10          percent.

11          “(3) RATE INCREASE ADJUSTMENTS.—

12           “(A) DEFINITIONS.—In this paragraph:

13           “(i) RATE DECREASE-ADJUSTED CAL-  
14           ENDAR YEAR.—The term ‘rate decrease-  
15           adjusted calendar year’ means any cal-  
16           endar year beginning after a calendar year  
17           for which alternative compliance payments  
18           accounted for greater than 10 percent of  
19           total compliance obligations of all retail  
20           electricity providers under subsection (d)  
21           for that calendar year.

22           “(ii) RATE INCREASE-ADJUSTED CAL-  
23           ENDAR YEAR.—The term ‘rate increase-ad-  
24           justed calendar year’ means any calendar  
25           year beginning after a 2-consecutive cal-

1           endar year period during which, for each of  
2           those 2 consecutive calendar years, the av-  
3           erage price of a Federal clean energy cred-  
4           it for the 3 preceding calendar years was  
5           below the rate-increased floor price.

6           “(iii)     RATE-INCREASED     FLOOR  
7           PRICE.—The term ‘rate-increased floor  
8           price’ means the difference between—

9                     “(I) the alternative compliance  
10                    payment for the applicable calendar  
11                    year; and

12                    “(II)(aa) during the period be-  
13                    ginning on the date of enactment of  
14                    this section and ending on December  
15                    31 of the second full calendar year be-  
16                    ginning after that date of enactment,  
17                    a rate of 1.5 cents per kilowatt-hour;  
18                    and

19                    “(bb) for each calendar year  
20                    thereafter, the rate described in item  
21                    (aa) for the preceding calendar year—

22                             “(AA) increased by 3 per-  
23                             cent; and

1                   “(BB) adjusted for inflation,  
2                   as the Secretary determines to be  
3                   necessary.

4                   “(B) FAST GROWTH RATE.—For purposes  
5                   of paragraph (2)(B)(i)(I), the fast growth rate  
6                   shall be—

7                   “(i) for the calendar year in which  
8                   this section is enacted, 2.75 percentage  
9                   points;

10                  “(ii) for the first calendar year begin-  
11                  ning after the date of enactment of this  
12                  section and each calendar year thereafter  
13                  that is not a rate increase-adjusted cal-  
14                  endar year or a rate decrease-adjusted cal-  
15                  endar year, the fast growth rate for the  
16                  preceding calendar year;

17                  “(iii) for a rate increase-adjusted cal-  
18                  endar year, the fast growth rate for the  
19                  preceding calendar year, increased by 0.5  
20                  percentage points; and

21                  “(iv) for a rate decrease-adjusted cal-  
22                  endar year, the fast growth rate for the  
23                  preceding calendar year, decreased by 0.25  
24                  percentage points, down to a minimum of  
25                  2.75 percentage points.

1           “(C) SLOW GROWTH RATE.—For purposes  
2 of paragraph (2)(B)(i)(II), the slow growth rate  
3 shall be—

4           “(i) for the calendar year in which  
5 this section is enacted, 1.75 percentage  
6 points;

7           “(ii) for the first calendar year begin-  
8 ning after the date of enactment of this  
9 section and each calendar year thereafter  
10 that is not a rate increase-adjusted cal-  
11 endar year or a rate decrease-adjusted cal-  
12 endar year, the slow growth rate for the  
13 preceding calendar year;

14           “(iii) for a rate increase-adjusted cal-  
15 endar year, the slow growth rate for the  
16 preceding calendar year, increased by 0.5  
17 percentage points; and

18           “(iv) for a rate decrease-adjusted cal-  
19 endar year, the slow growth rate for the  
20 preceding calendar year, decreased by 0.25  
21 percentage points, down to a minimum of  
22 1.75 percentage points.

23           “(D) SMALL GROWTH RATE.—For pur-  
24 poses of paragraph (2)(B)(ii), the small growth  
25 rate shall be—

1           “(i) for the calendar year in which  
2           this section is enacted, 1.5 percentage  
3           points;

4           “(ii) for the first calendar year begin-  
5           ning after the date of enactment of this  
6           section and each calendar year thereafter  
7           that is not a rate increase-adjusted cal-  
8           endar year or a rate decrease-adjusted cal-  
9           endar year, the small growth rate for the  
10          preceding calendar year;

11          “(iii) for a rate increase-adjusted cal-  
12          endar year, the small growth rate for the  
13          preceding calendar year, increased by 0.5  
14          percentage points; and

15          “(iv) for a rate decrease-adjusted cal-  
16          endar year, the small growth rate for the  
17          preceding calendar year, decreased by 0.25  
18          percentage points, down to a minimum of  
19          1.5 percentage points.

20          “(d) MEANS OF COMPLIANCE.—

21                 “(1) IN GENERAL.—A retail electricity supplier  
22                 shall annually achieve compliance with subsection (c)  
23                 by—

24                         “(A) submitting to the Secretary Federal  
25                         clean energy credits;

1           “(B) submitting to the Secretary docu-  
2           mentation of the quantity of behind-the-meter  
3           generation consumed by electric consumers  
4           served by the retail electricity supplier;

5           “(C) making alternative compliance pay-  
6           ments of 3 cents per kilowatt-hour in accord-  
7           ance with subsection (i); or

8           “(D) taking a combination of actions de-  
9           scribed in subparagraphs (A) through (C).

10           “(2) FAILURE TO ESTABLISH FEDERAL CLEAN  
11           ENERGY CREDIT TRADING PROGRAM.—If the Sec-  
12           retary does not establish a Federal clean energy  
13           credit trading program under subsection (e), a retail  
14           electricity supplier shall achieve compliance with  
15           subsection (e) by—

16           “(A) submitting to the Secretary docu-  
17           mentation of the clean energy percentage of the  
18           retail electricity supplier;

19           “(B) making alternative compliance pay-  
20           ments of 3 cents per kilowatt-hour in accord-  
21           ance with subsection (i); or

22           “(C) taking a combination of actions de-  
23           scribed in subparagraphs (A) and (B).

24           “(e) FEDERAL CLEAN ENERGY CREDIT TRADING  
25           PROGRAM.—

1           “(1) ESTABLISHMENT.—Not later than 1 year  
2 after the date of enactment of this section, the Sec-  
3 retary shall establish a Federal clean energy credit  
4 trading program under which—

5           “(A) 1 Federal clean energy credit rep-  
6 resents 1 megawatt-hour of clean energy gen-  
7 erated by a generator;

8           “(B) retail electricity suppliers may submit  
9 to the Secretary Federal clean energy credits to  
10 certify compliance by the retail electricity sup-  
11 pliers with subsection (c); and

12           “(C) those Federal clean energy credits are  
13 issued, recorded, tracked, and transferred.

14           “(2) CLEAN ENERGY CREDITS.—Except as pro-  
15 vided in subparagraphs (B) and (C) of paragraph  
16 (3), the Secretary shall issue to each generator and  
17 qualified energy storage system a quantity of Fed-  
18 eral clean energy credits determined in accordance  
19 with subsections (f) and (g).

20           “(3) ADMINISTRATION.—In carrying out the  
21 program under this subsection, the Secretary shall  
22 ensure that—

23           “(A) a Federal clean energy credit may  
24 be—

1           “(i) used only once for purposes of  
2           compliance with this section; and

3           “(ii) purchased only by a retail elec-  
4           tricity supplier;

5           “(B) a Federal clean energy credit issued  
6           for clean energy generated and sold for resale  
7           under a contract in effect on the date of enact-  
8           ment of this section shall be issued to the pur-  
9           chasing retail electricity supplier, unless other-  
10          wise provided by the contract; and

11          “(C) with respect to clean energy gen-  
12          erated in a facility outside of the United States,  
13          a Federal clean energy credit may be issued  
14          only—

15                 “(i) if the clean energy is sold for re-  
16                 sale in the United States; and

17                 “(ii) to the purchasing retail elec-  
18                 tricity supplier.

19          “(4) DELEGATION OF MARKET FUNCTION.—

20                 “(A) IN GENERAL.—In carrying out the  
21                 program under this subsection, the Secretary  
22                 may delegate—

23                         “(i) to 1 or more appropriate entities  
24                         (including any Federal entity in existence  
25                         on the date of enactment of this section),

1 the administration of a national Federal  
2 clean energy credit market for purposes of  
3 establishing a transparent national market  
4 for the sale or trade of Federal clean en-  
5 ergy credits; and

6 “(ii) to appropriate entities, the track-  
7 ing of dispatch of clean energy generation.

8 “(B) ADMINISTRATION.—In making a del-  
9 egation under subparagraph (A)(ii), the Sec-  
10 retary shall ensure that the tracking and re-  
11 porting of information concerning the dispatch  
12 of clean energy generation is transparent,  
13 verifiable, and independent of any generation or  
14 load interests subject to an obligation under  
15 this section.

16 “(5) BANKING OF FEDERAL CLEAN ENERGY  
17 CREDITS.—

18 “(A) IN GENERAL.—Subject to subpara-  
19 graph (B), for purposes of achieving compliance  
20 with subsection (c), a Federal clean energy  
21 credit shall be valid for—

22 “(i) the calendar year during which  
23 the Federal clean energy credit is issued;  
24 or

1           “(ii) either of the 2 subsequent cal-  
2           endar years.

3           “(B) ADJUSTMENTS.—

4           “(i) CALENDAR YEARS 2040 THROUGH  
5           2049.—For each of calendar years 2040  
6           through 2049, a Federal clean energy  
7           credit shall be valid for—

8                   “(I) the calendar year during  
9                   which the Federal clean energy credit  
10                  is issued; or

11                   “(II) the subsequent calendar  
12                  year.

13           “(ii) CALENDAR YEAR 2050 AND  
14           THEREAFTER.—Beginning in calendar year  
15           2050, a Federal clean energy credit shall  
16           be valid only for the calendar year during  
17           which the Federal clean energy credit is  
18           issued.

19           “(f) DETERMINATION OF QUANTITY OF CREDITS.—

20                   “(1) IN GENERAL.—Except as otherwise pro-  
21           vided in this subsection, the quantity of Federal  
22           clean energy credits issued to a generator of clean  
23           energy shall be equal to the product obtained by  
24           multiplying—

1           “(A) the qualified generation of the gener-  
2           ator; and

3           “(B) the difference between—

4                 “(i) 1.0; and

5                 “(ii) the quotient obtained by divid-  
6           ing—

7                         “(I) the carbon intensity of the  
8                         generator, as determined in accord-  
9                         ance with subsection (g) (expressed in  
10                        metric tons per megawatt-hour); by

11                       “(II) the applicable carbon inten-  
12                       sity.

13           “(2) QUALIFIED COMBINED HEAT AND POWER  
14           SYSTEMS.—

15                 “(A) IN GENERAL.—The quantity of Fed-  
16                 eral clean energy credits issued to a generator  
17                 that is a qualified combined heat and power  
18                 system shall be equal to the difference be-  
19                 tween—

20                         “(i) the product obtained by multi-  
21                         plying—

22                                 “(I) the number of megawatt-  
23                                 hours of electric energy generated by  
24                                 the qualified combined heat and power  
25                                 system; and

1 “(II) the difference between—  
2 “(aa) 1.0; and  
3 “(bb) the quotient obtained  
4 by dividing—  
5 “(AA) the carbon inten-  
6 sity of the generator, as de-  
7 termined in accordance with  
8 subsection (g) (expressed in  
9 metric tons per megawatt-  
10 hour); by  
11 “(BB) the applicable  
12 carbon intensity; and  
13 “(ii) the product obtained by multi-  
14 plying—  
15 “(I) the number of megawatt-  
16 hours of electric energy generated by  
17 the qualified combined heat and power  
18 system that are consumed onsite; and  
19 “(II) the national weighted aver-  
20 age of the applicable clean energy per-  
21 centage required for the calendar year  
22 under subsection (c), as determined  
23 by the Secretary.  
24 “(B) ADDITIONAL CREDITS.—In addition  
25 to Federal clean energy credits issued under

1           subparagraph (A), the Secretary shall issue  
2           Federal clean energy credits to a generator that  
3           is a qualified combined heat and power system  
4           for greenhouse gas emissions avoided as a re-  
5           sult of the use of the qualified combined heat  
6           and power system, rather than a separate ther-  
7           mal source, to meet the onsite thermal needs of  
8           the generator.

9           “(3) QUALIFIED RENEWABLE BIOMASS.—

10           “(A) IN GENERAL.—Subject to subpara-  
11           graph (B), the quantity of Federal clean energy  
12           credits issued to each generator of clean energy  
13           using qualified renewable biomass shall be equal  
14           to the product obtained by multiplying—

15                   “(i) the qualified generation of the  
16                   generator using qualified renewable bio-  
17                   mass; and

18                   “(ii) the qualified renewable biomass  
19                   credit value determined under subsection  
20                   (g)(4)(B)(iii).

21           “(B) EXISTING GENERATORS.—For gen-  
22           erators placed into service before the date of en-  
23           actment of this section, the quantity of Federal  
24           clean energy credits issued to each generator of

1 energy using qualified renewable biomass shall  
2 be equal to the greater of—

3 “(i) the product obtained by multi-  
4 plying—

5 “(I) the qualified generation of  
6 the generator, not to exceed the gen-  
7 eration capacity of the generator on  
8 the date of enactment of this section;  
9 and

10 “(II) 0.5; and

11 “(ii) the quantity of credits deter-  
12 mined under subparagraph (A).

13 “(4) QUALIFIED WASTE-TO-ENERGY.—

14 “(A) IN GENERAL.—Subject to subpara-  
15 graph (B), the quantity of Federal clean energy  
16 credits issued to a generator that is a qualified  
17 waste-to-energy facility shall be equal to the  
18 product obtained by multiplying—

19 “(i) the qualified generation of the  
20 generator using qualified waste-to-energy;  
21 and

22 “(ii) the qualified waste-to-energy  
23 credit value determined under subsection  
24 (g)(4)(B)(iii).

1           “(B) EXISTING GENERATORS.—For gen-  
 2           erators placed into service before the date of en-  
 3           actment of this section, the quantity of Federal  
 4           clean energy credits issued to each generator of  
 5           energy that is a qualified waste-to-energy facil-  
 6           ity shall be equal to the greater of—

7                   “(i) the qualified generation of the  
 8                   generator, not to exceed the generation ca-  
 9                   pacity of the generator on the date of en-  
 10                  actment of this section; and

11                  “(ii) the quantity of credits deter-  
 12                  mined under subparagraph (A).

13           “(5) QUALIFIED LOW-CARBON FUELS.—The  
 14           quantity of Federal clean energy credits issued to a  
 15           generator using qualified low-carbon fuels shall be  
 16           equal to the product obtained by multiplying—

17                   “(A) the qualified generation of the gener-  
 18                   ator using qualified low-carbon-fuels; and

19                   “(B) the qualified low-carbon fuel credit  
 20                   value determined under subsection  
 21                   (g)(4)(B)(iii).

22           “(6) CARBON CAPTURE, STORAGE, AND UTILI-  
 23           ZATION.—

24                   “(A) DEFINITIONS.—In this paragraph,  
 25                   the terms ‘qualified carbon oxide’, ‘qualified en-

1 hanced oil or natural gas recovery project’, and  
2 ‘tertiary injectant’ have the meanings given  
3 those terms in section 45Q of the Internal Rev-  
4 enue Code of 1986.

5 “(B) QUANTITY OF CREDITS.—Except as  
6 otherwise provided in this subsection, the quan-  
7 tity of Federal clean energy credits issued to  
8 each generator of clean energy through the cap-  
9 ture and storage or utilization of qualified car-  
10 bon oxide from a waste stream of the generator  
11 shall be equal to the product obtained by multi-  
12 plying—

13 “(i) the qualified generation of the  
14 generator; and

15 “(ii) the difference between—

16 “(I) 1.0; and

17 “(II) the quotient obtained by di-  
18 viding—

19 “(aa) the carbon intensity of  
20 the generator, as determined in  
21 accordance with subsection (g)  
22 (expressed in metric tons per  
23 megawatt-hour); by

24 “(bb) the applicable carbon  
25 intensity.

1           “(C) ADDITIONAL CREDITS.—In addition  
2 to Federal clean energy credits issued under  
3 subparagraph (B), the Secretary shall issue  
4 Federal clean energy credits to each generator  
5 of clean energy through the capture and storage  
6 or utilization of qualified carbon oxide from a  
7 waste stream other than the waste stream of  
8 the generator, or from the atmosphere directly,  
9 in a quantity equal to the quotient obtained by  
10 dividing—

11                   “(i) the number of metric tons of  
12 qualified carbon oxide captured and stored  
13 or utilized; by

14                   “(ii) the carbon intensity of the gener-  
15 ator, as determined in accordance with  
16 subsection (g) (expressed in metric tons  
17 per megawatt-hour).

18           “(D) SPECIAL RULES.—

19                   “(i) REGULATIONS.—

20                           “(I) IN GENERAL.—Subject to  
21 subclause (III), not later than 1 year  
22 after the date of enactment of this  
23 section, the Secretary, in consultation  
24 with the Administrator of the Envi-

1                   ronmental Protection Agency, shall  
2                   promulgate regulations establishing—

3                   “(aa) the conditions under  
4                   which qualified carbon oxide may  
5                   be safely and permanently stored  
6                   for purposes of issuing Federal  
7                   clean energy credits to a gener-  
8                   ator under this paragraph; and

9                   “(bb) in accordance with  
10                  subclause (II), the methods and  
11                  processes by which qualified car-  
12                  bon oxide may be utilized in a  
13                  manner that ensures the removal  
14                  of the qualified carbon oxide  
15                  safely and permanently from the  
16                  atmosphere.

17                  “(II) REQUIREMENTS.—For pur-  
18                  poses of subclause (I)(bb)—

19                  “(aa) utilization of qualified  
20                  carbon oxide may include the  
21                  production of substances, such as  
22                  plastics and chemicals; and

23                  “(bb) the regulations pro-  
24                  mulgated pursuant to that sub-  
25                  clause shall minimize the escape

1 or further emission of qualified  
2 carbon oxide into the atmos-  
3 phere.

4 “(III) EXISTING REQUIRE-  
5 MENTS.—In promulgating regulations  
6 pursuant to this clause, the Secretary  
7 shall incorporate any existing Federal  
8 requirements for the permanent geo-  
9 logic storage of carbon oxides, includ-  
10 ing any requirements under section  
11 45Q of the Internal Revenue Code of  
12 1986.

13 “(ii) ADJUSTED QUANTITY.—

14 “(I) IN GENERAL.—Notwith-  
15 standing subparagraphs (B) and (C),  
16 except as provided in subclause (II),  
17 the quantity of Federal clean energy  
18 credits issued under this paragraph to  
19 a generator at which qualified carbon  
20 oxide is captured and used as a ter-  
21 tiary injectant in a qualified enhanced  
22 oil or natural gas recovery project  
23 shall be reduced by 50 percent.

24 “(II) NO REDUCTION.—If the  
25 qualified carbon oxide captured and

1 used as a tertiary injectant in a quali-  
2 fied enhanced oil or natural gas recov-  
3 ery project by a generator achieves  
4 compliance with the conditions estab-  
5 lished pursuant to clause (i)(I)(aa),  
6 the quantity of Federal clean energy  
7 credits issued to the generator shall  
8 not be reduced.

9 “(7) QUALIFIED ENERGY STORAGE SYSTEMS.—  
10 The quantity of Federal clean energy credits issued  
11 to each qualified energy storage system shall be  
12 equal to the product obtained by multiplying—

13 “(A) the electric energy dispatched and  
14 sold by the qualified energy storage system (ex-  
15 pressed in megawatt-hours); and

16 “(B) the difference between—

17 “(i) 1.0; and

18 “(ii) the quotient obtained by divid-  
19 ing—

20 “(I) the average carbon intensity  
21 of the clean energy stored in the  
22 qualified energy storage system, as  
23 determined in accordance with sub-  
24 section (g) (expressed in metric tons  
25 per megawatt-hour); by

1                   “(II) the applicable carbon inten-  
2                   sity.

3                   “(8) NEGATIVE CREDITS.—Notwithstanding  
4                   any other provision of this subsection, the Secretary  
5                   shall not issue a negative quantity of Federal clean  
6                   energy credits to any generator.

7                   “(9) MAXIMUM QUANTITY OF CREDITS.—Not-  
8                   withstanding paragraphs (1) through (6), the total  
9                   quantity of Federal clean energy credits issued  
10                  under those paragraphs to a generator for a cal-  
11                  endar year shall not exceed the number of mega-  
12                  watt-hours of the applicable annual qualified genera-  
13                  tion of the generator.

14                  “(10) INNOVATION MULTIPLIER.—

15                  “(A) IN GENERAL.—Notwithstanding  
16                  paragraphs (1) through (6), until the applicable  
17                  date described in subparagraph (C), the quan-  
18                  tity of Federal clean energy credits issued  
19                  under this section to—

20                         “(i) a generator that is a qualified  
21                         dispatchable low-emission technology or a  
22                         qualified dispatchable zero-emission tech-  
23                         nology shall be equal to the product ob-  
24                         tained by multiplying—

1                   “(I) the qualified generation of  
2                   that generator;

3                   “(II) the difference between—

4                         “(aa) 1.0; and

5                         “(bb) the quotient obtained  
6                   by dividing—

7                         “(AA) the carbon inten-  
8                         sity of the generator, as de-  
9                         termined in accordance with  
10                        subsection (g) (expressed in  
11                        metric tons per megawatt-  
12                        hour); by

13                       “(BB) the applicable  
14                        carbon intensity; and

15                   “(III) 1.5;

16                   “(ii) a generator that is a dispatch-  
17                   able zero-emission technology that is not  
18                   issued Federal clean energy credits under  
19                   clause (i) shall be equal to the product ob-  
20                   tained by multiplying—

21                       “(I) the qualified generation of  
22                       that generator;

23                       “(II) the difference between—

24                         “(aa) 1.0; and

1 “(bb) the quotient obtained  
2 by dividing—

3 “(AA) the carbon inten-  
4 sity of the generator, as de-  
5 termined in accordance with  
6 subsection (g) (expressed in  
7 metric tons per megawatt-  
8 hour); by

9 “(BB) the applicable  
10 carbon intensity; and

11 “(III) the appropriate multiplier,  
12 as determined under subparagraph  
13 (B)(i); and

14 “(iii) a generator that is a dispatch-  
15 able low-emission technology that is not  
16 issued Federal clean energy credits under  
17 clause (i) shall be equal to the product ob-  
18 tained by multiplying—

19 “(I) the qualified generation of  
20 that generator;

21 “(II) the difference between—

22 “(aa) 1.0; and

23 “(bb) the quotient obtained  
24 by dividing—

1                   “(AA) the carbon inten-  
2                   sity of the generator, as de-  
3                   termined in accordance with  
4                   subsection (g) (expressed in  
5                   metric tons per megawatt-  
6                   hour); by

7                   “(BB) the applicable  
8                   carbon intensity; and

9                   “(III) the appropriate multiplier,  
10                  as determined under subparagraph  
11                  (B)(ii).

12                  “(B) MULTIPLIERS.—The multipliers re-  
13                  ferred to in clauses (ii)(III) and (iii)(III) of  
14                  subparagraph (A) are—

15                  “(i) for a dispatchable zero-emission  
16                  technology described in subparagraph  
17                  (A)(ii)—

18                  “(I) for the period beginning on  
19                  the date of enactment of this section  
20                  and ending on the date on which the  
21                  total capacity of dispatchable zero-  
22                  emission technologies in the United  
23                  States is greater than 5 gigawatts, as  
24                  determined by the Secretary, 1.25;

1           “(II) for the period beginning on  
2           the day after the date of expiration of  
3           the period described in subclause (I)  
4           and ending on the date on which the  
5           total capacity of dispatchable zero-  
6           emission technologies in the United  
7           States is greater than 10 gigawatts,  
8           as determined by the Secretary, 1.2;

9           “(III) for the period beginning on  
10          the day after the date of expiration of  
11          the period described in subclause (II)  
12          and ending on the date on which the  
13          total capacity of dispatchable zero-  
14          emission technologies in the United  
15          States is greater than 15 gigawatts,  
16          as determined by the Secretary, 1.15;  
17          and

18          “(IV) for the period beginning on  
19          the day after the date of expiration of  
20          the period described in subclause (III)  
21          and ending on the date on which the  
22          total capacity of dispatchable zero-  
23          emission technologies in the United  
24          States is greater than 20 gigawatts,

1 as determined by the Secretary, 1.1;  
2 and

3 “(ii) for a dispatchable low-emission  
4 technology described in subparagraph  
5 (A)(iii)—

6 “(I) for the period beginning on  
7 the date of enactment of this section  
8 and ending on the date on which the  
9 total capacity of dispatchable low-  
10 emission technologies and  
11 dispatchable zero-emission tech-  
12 nologies in the United States is great-  
13 er than 5 gigawatts, as determined by  
14 the Secretary, 1.25;

15 “(II) for the period beginning on  
16 the day after the date of expiration of  
17 the period described in subclause (I)  
18 and ending on the date on which the  
19 total capacity of dispatchable low-  
20 emission technologies and  
21 dispatchable zero-emission tech-  
22 nologies in the United States is great-  
23 er than 10 gigawatts, as determined  
24 by the Secretary, 1.2;

1           “(III) for the period beginning on  
2           the day after the date of expiration of  
3           the period described in subclause (II)  
4           and ending on the date on which the  
5           total capacity of dispatchable low-  
6           emission technologies and  
7           dispatchable zero-emission tech-  
8           nologies in the United States is great-  
9           er than 15 gigawatts, as determined  
10          by the Secretary, 1.15; and

11          “(IV) for the period beginning on  
12          the day after the date of expiration of  
13          the period described in subclause (III)  
14          and ending on the date on which the  
15          total capacity of dispatchable low-  
16          emission technologies and  
17          dispatchable zero-emission tech-  
18          nologies in the United States is great-  
19          er than 20 gigawatts, as determined  
20          by the Secretary, 1.1.

21          “(C) PHASE-OUT.—The quantity of Fed-  
22          eral clean energy credits issued under this sec-  
23          tion to—

24                 “(i) a generator described in subpara-  
25                 graph (A)(i) that is—

1           “(I) a qualified dispatchable low-  
2           emission technology shall be deter-  
3           mined in accordance with subpara-  
4           graph (A)(iii), effective beginning on  
5           the earlier of—

6                   “(aa) the date on which the  
7                   qualified dispatchable low-emis-  
8                   sion technology has been in serv-  
9                   ice for 10 years; and

10                   “(bb) January 1, 2035; and

11           “(II) a qualified dispatchable  
12           zero-emission technology shall be de-  
13           termined in accordance with subpara-  
14           graph (A)(ii), effective beginning on  
15           the date on which the qualified  
16           dispatchable zero-emission technology  
17           has been in service for 10 years;

18                   “(ii) a generator described in subpara-  
19                   graph (A)(ii) shall be determined in ac-  
20                   cordance with paragraphs (1) through (6),  
21                   effective beginning on January 1, 2050;  
22                   and

23                   “(iii) a generator described in sub-  
24                   paragraph (A)(iii) shall be determined in  
25                   accordance with paragraphs (1) through

1 (6), effective beginning on January 1,  
2 2040.

3 “(D) PROHIBITION ON DOUBLE RE-  
4 CEIPTS.—A generator that receives Federal  
5 clean energy credits under subparagraph (A)  
6 may not receive any additional Federal clean  
7 energy credit under any of paragraphs (1)  
8 through (6).

9 “(g) DETERMINATION OF CARBON INTENSITY AND  
10 CREDIT VALUE.—

11 “(1) IN GENERAL.—For purposes of deter-  
12 mining the quantity of Federal clean energy credits  
13 under subsection (f), except as otherwise provided in  
14 this subsection, the Secretary shall determine the  
15 carbon intensity of each generator using data and  
16 methods from the Air Emission Measurement Center  
17 of the Environmental Protection Agency for emission  
18 testing and monitoring, including—

19 “(A) Continuous Emission Monitoring Sys-  
20 tems; and

21 “(B) Predictive Emission Monitoring Sys-  
22 tems.

23 “(2) NATURAL GAS ADJUSTMENT.—Except as  
24 provided in paragraph (4), the Secretary shall adjust  
25 the carbon intensity determined under paragraph (1)

1 for each generator using natural gas by applying the  
2 methane leakage rates assumed in the 9-region  
3 MARKAL Database of the Environmental Protec-  
4 tion Agency (commonly known as the ‘EPAUS9R  
5 database’).

6 “(3) NONEMITTING GENERATORS.—Except as  
7 provided in paragraph (4), the Secretary shall assign  
8 a carbon intensity of zero for any generator that  
9 does not produce emissions on electric energy gen-  
10 eration, including any generator that uses renewable  
11 energy, hydropower, or nuclear power.

12 “(4) DETERMINATION AND NATIONAL ACADEMY  
13 OF SCIENCES STUDY.—The Secretary shall—

14 “(A) not later than 180 days after the date  
15 of enactment of this section, enter into an  
16 agreement with the National Academy of  
17 Sciences, under which the Academy shall—

18 “(i) evaluate data, models, and meth-  
19 odologies for quantifying lifecycle green-  
20 house gas emissions associated with gener-  
21 ating electric energy from each type of sig-  
22 nificant source of clean energy, including  
23 the sources described in subparagraphs (A)  
24 and (B) of subsection (b)(8);

1           “(ii) evaluate data, models, and meth-  
2 odologies for determining the appropriate  
3 credit value for use in the quantification of  
4 Federal clean energy credits under sub-  
5 section (f) for—

6           “(I) qualified renewable biomass,  
7 taking into consideration total  
8 lifecycle carbon dynamics, including—

9           “(aa) carbon absorbed  
10 through the regrowth of vegeta-  
11 tion;

12           “(bb) avoided decomposition  
13 relating to the full fuel lifecycle;

14           “(cc) carbon sink value from  
15 land use changes and temporal  
16 changes in forest carbon seques-  
17 tration; and

18           “(dd) lifecycle greenhouse  
19 gas emissions, including—

20           “(AA) direct green-  
21 house gas emissions; and

22           “(BB) significant indi-  
23 rect greenhouse gas emis-  
24 sions, including all stages of  
25 fuel and feedstock produc-

1                   tion and distribution and  
2                   feedstock generation or ex-  
3                   traction through the dis-  
4                   tribution and delivery of the  
5                   finished fuel to electric con-  
6                   sumers;

7                   “(II) qualified waste-to-energy,  
8                   taking into consideration total  
9                   lifecycle carbon dynamics, including—

10                   “(aa) avoided decomposition  
11                   relating to the feedstock lifecycle;  
12                   and

13                   “(bb) lifecycle greenhouse  
14                   gas emissions, including—

15                   “(AA) direct green-  
16                   house gas emissions; and

17                   “(BB) indirect green-  
18                   house gas emissions; and

19                   “(III) qualified low-carbon fuels,  
20                   taking into consideration lifecycle  
21                   greenhouse gas emissions, including—

22                   “(aa) direct greenhouse gas  
23                   emissions; and

1                   “(bb) significant indirect  
2 greenhouse gas emissions, includ-  
3 ing—

4                   “(AA) all stages of fuel  
5 and feedstock production  
6 and distribution; and

7                   “(BB) feedstock gen-  
8 eration or extraction  
9 through the distribution and  
10 delivery of the finished fuel  
11 to electric consumers;

12                   “(iii) evaluate the appropriateness of  
13 the definitions contained in subsection (b)  
14 of the terms—

15                   “(I) ‘qualified renewable bio-  
16 mass’, taking into consideration  
17 whether the definition should be ex-  
18 panded or contracted;

19                   “(II) ‘qualified waste-to-energy’;  
20 and

21                   “(III) ‘qualified low-carbon fuel’;

22                   “(iv) if it is determined under clause  
23 (iii)(I) that the definition of the term  
24 ‘qualified renewable biomass’ should be ex-  
25 panded, evaluate tools for determining the

1 allowable carbon stock removal levels dur-  
2 ing defined forest management operations;  
3 and

4 “(v) not later than 540 days after the  
5 date of enactment of this section, publish  
6 a report that includes—

7 “(I) a description of the evalua-  
8 tions under clauses (i) through (iv);  
9 and

10 “(II) recommendations for—

11 “(aa) determining the car-  
12 bon intensity, accounting for  
13 lifecycle greenhouse gas emis-  
14 sions, of electric energy gen-  
15 erated from each type of signifi-  
16 cant source of clean energy evalu-  
17 ated under clause (i);

18 “(bb) determining the credit  
19 value of electric energy generated  
20 from qualified renewable bio-  
21 mass, qualified waste-to-energy,  
22 and qualified low-carbon fuels;

23 “(cc) if applicable, changes  
24 to the definitions of the terms  
25 ‘qualified renewable biomass’,

1                   ‘qualified waste-to-energy’, and  
2                   ‘qualified low-carbon fuel’; and

3                   “(dd) if applicable, deter-  
4                   mining the allowable carbon  
5                   stock removal levels during de-  
6                   fined forest management oper-  
7                   ations;

8                   “(B) not later than 1 year after the date  
9                   of publication of the report under subparagraph  
10                  (A)(v), after providing notice an opportunity for  
11                  public comment, promulgate regulations, taking  
12                  into consideration the report, for—

13                  “(i) calculating lifecycle greenhouse  
14                  gas emissions of electric energy generated  
15                  from each type of significant source of  
16                  clean energy evaluated under subparagraph  
17                  (A)(i);

18                  “(ii) determining the carbon intensity  
19                  of electric energy generated from each type  
20                  of significant source of clean energy evalu-  
21                  ated under subparagraph (A)(i); and

22                  “(iii) determining the credit value of  
23                  electric energy generated from qualified re-  
24                  newable biomass, qualified waste-to-energy,  
25                  and qualified low-carbon fuels; and

1           “(C) if recommended in the report under  
2           subparagraph (A)(v)(II)(cc), submit to Con-  
3           gress recommendations relating to changes to  
4           the definitions of the terms ‘qualified renewable  
5           biomass’, ‘qualified waste-to-energy’, and ‘quali-  
6           fied low-carbon fuel’ for purposes of this sec-  
7           tion.

8           “(5) CONSULTATION.—The Secretary shall con-  
9           sult with—

10           “(A) in determining carbon intensities of  
11           generators pursuant to paragraph (1) and mak-  
12           ing adjustments pursuant to paragraph (2), the  
13           Administrator of the Environmental Protection  
14           Agency;

15           “(B) in promulgating regulations for calcu-  
16           lating lifecycle greenhouse gas emissions pursu-  
17           ant to paragraph (4)(B)(i) and determining  
18           carbon intensities pursuant to paragraph  
19           (4)(B)(ii), the Administrator of the Environ-  
20           mental Protection Agency;

21           “(C) in promulgating regulations for deter-  
22           mining appropriate credit values pursuant to  
23           paragraph (4)(B)(iii)—

24           “(i) the Administrator of the Environ-  
25           mental Protection Agency;

1 “(ii) the Secretary of Agriculture; and

2 “(iii) the Secretary of the Interior;

3 and

4 “(D) in making recommendations to Con-  
5 gress under paragraph (4)(C), the Adminis-  
6 trator of the Environmental Protection Agency,  
7 acting in consultation with the Scientific Advi-  
8 sory Board of the Environmental Protection  
9 Agency.

10 “(h) CIVIL PENALTIES.—

11 “(1) IN GENERAL.—Subject to paragraph (2), a  
12 retail electricity supplier that fails to meet the re-  
13 quirements of this section shall be subject to a civil  
14 penalty in an amount equal to the product obtained  
15 by multiplying—

16 “(A) the number of kilowatt-hours of elec-  
17 tric energy sold by the retail electricity supplier  
18 to electric consumers in violation of subsection  
19 (c); and

20 “(B) 200 percent of the value of the alter-  
21 native compliance payment, as adjusted under  
22 subsection (i)(2).

23 “(2) WAIVERS AND MITIGATION.—

24 “(A) FORCE MAJEURE.—The Secretary  
25 may mitigate or waive a civil penalty under

1 paragraph (1) if the applicable retail electricity  
2 supplier was unable to comply with an applica-  
3 ble requirement of this section for reasons out-  
4 side of the reasonable control of the retail elec-  
5 tricity supplier.

6 “(B) REDUCTION FOR STATE PEN-  
7 ALTIES.—The Secretary shall reduce the  
8 amount of a penalty determined under para-  
9 graph (1) by the amount paid by the applicable  
10 retail electricity supplier to a State for failure  
11 to comply with the requirement of a State re-  
12 newable energy program, if the State require-  
13 ment is more stringent than the applicable re-  
14 quirement of this section.

15 “(3) PROCEDURE FOR ASSESSING PENALTY.—  
16 The Secretary shall assess a civil penalty under this  
17 subsection in accordance with section 333(d) of the  
18 Energy Policy and Conservation Act (42 U.S.C.  
19 6303(d)).

20 “(i) ALTERNATIVE COMPLIANCE PAYMENTS.—

21 “(1) IN GENERAL.—A retail electricity supplier  
22 may satisfy the requirements of subsection (c), in  
23 whole or in part, by submitting, in lieu of Federal  
24 clean energy credits issued under this section, a pay-  
25 ment equal to the amount required under subsection

1 (d)(1)(C), in accordance with such regulations as the  
2 Secretary may promulgate, subject to paragraph (2).

3 “(2) ADJUSTMENT.—Not later than December  
4 1 of the second full calendar year beginning after  
5 the date of enactment of this section, and annually  
6 thereafter, the Secretary shall—

7 “(A) increase the rate of the alternative  
8 compliance payment under subsection (d)(1)(C)  
9 by—

10 “(i) during the period beginning on  
11 the date of enactment of this section and  
12 ending on December 31, 2029, 3 percent;  
13 and

14 “(ii) beginning on January 1, 2030, 5  
15 percent; and

16 “(B) additionally adjust that rate for infla-  
17 tion, as the Secretary determines to be nec-  
18 essary.

19 “(j) STATE ENERGY EFFICIENCY, CLEAN ENERGY  
20 DEPLOYMENT, AND ELECTRIC CONSUMER BILL REDUC-  
21 TION PROGRAM.—

22 “(1) ESTABLISHMENT.—Not later than Decem-  
23 ber 1 of the first calendar year beginning after the  
24 date of enactment of this section, the Secretary shall  
25 establish a State energy efficiency, clean energy de-

1       employment, and electric consumer bill reduction pro-  
2       gram.

3               “(2) FUNDING.—All funds collected by the Sec-  
4       retary as alternative compliance payments under  
5       subsection (i), or as civil penalties under subsection  
6       (h), shall be used solely to carry out the program  
7       under this subsection.

8               “(3) DISTRIBUTION TO STATES.—

9               “(A) IN GENERAL.—Of the funds de-  
10       scribed in paragraph (2), an amount equal to  
11       75 percent shall be used by the Secretary, with-  
12       out further appropriation or fiscal year limita-  
13       tion, to provide funds to States, in an amount  
14       determined proportionally based on the  
15       amounts collected from each State—

16               “(i) for the implementation of State  
17       energy efficiency plans under section 362  
18       of the Energy Policy and Conservation Act  
19       (42 U.S.C. 6322);

20               “(ii) for the conduct of clean energy  
21       programs in the State; and

22               “(iii) to carry out activities to reduce  
23       the amount of electricity bills for house-  
24       holds in the State below 300 percent of the  
25       poverty line (as defined in section 673 of

1           the Community Services Block Grant Act  
2           (42 U.S.C. 9902)).

3           “(B) ACTION BY STATES.—A State that  
4           receives funds under this paragraph shall main-  
5           tain such records and evidence of compliance as  
6           the Secretary may require.

7           “(4) GUIDELINES AND CRITERIA.—

8           “(A) BUY AMERICAN COMPLIANCE.—The  
9           funds made available under the program estab-  
10          lished under this subsection shall not be used  
11          for a project unless the project achieves compli-  
12          ance with all applicable requirements of chapter  
13          83 of title 41, United States Code (formerly  
14          known as the ‘Buy American Act’).

15          “(B) DAVIS-BACON COMPLIANCE.—

16          “(i) IN GENERAL.—All laborers and  
17          mechanics employed on projects funded di-  
18          rectly, or assisted in whole or in part, by  
19          this section shall be paid wages at rates  
20          not less than those prevailing on projects  
21          of a character similar in the locality as de-  
22          termined by the Secretary of Labor in ac-  
23          cordance with subchapter IV of chapter 31  
24          of part A of subtitle II of title 40, United

1 States Code (commonly referred to as the  
2 ‘Davis-Bacon Act’).

3 “(ii) AUTHORITY.—With respect to  
4 the labor standards specified in this sub-  
5 paragraph, the Secretary of Labor shall  
6 have the authority and functions set forth  
7 in Reorganization Plan Numbered 14 of  
8 1950 (64 Stat. 1267; 5 U.S.C. App.) and  
9 section 3145 of title 40, United States  
10 Code.

11 “(C) ADDITIONAL GUIDELINES AND CRI-  
12 TERIA.—The Secretary may issue such addi-  
13 tional guidelines and criteria for the program  
14 under this subsection as the Secretary deter-  
15 mines to be appropriate.

16 “(k) STATE PROGRAMS.—

17 “(1) SAVINGS PROVISION.—

18 “(A) IN GENERAL.—Subject to subpara-  
19 graph (B), nothing in this section affects the  
20 authority of a State or a political subdivision of  
21 a State to adopt or enforce any law or regula-  
22 tion relating to—

23 “(i) clean or renewable energy; or

24 “(ii) the regulation of any retail elec-  
25 tricity supplier.

1           “(B) FEDERAL LAW.—No law or regula-  
2           tion of a State or a political subdivision of a  
3           State may relieve a retail electricity supplier  
4           from the obligation to comply with an applica-  
5           ble requirement of this section.

6           “(2) COORDINATION.—The Secretary, in con-  
7           sultation with States that have clean and renewable  
8           energy programs in effect, shall facilitate, to the  
9           maximum extent practicable, coordination between  
10          the Federal clean energy program under this section  
11          and the relevant State clean and renewable energy  
12          programs.

13          “(1) INFORMATION COLLECTION.—

14                 “(1) IN GENERAL.—The Secretary may require  
15                 any retail electricity supplier, generator, or any  
16                 other entity that the Secretary determines appro-  
17                 priate to submit to the Secretary any information  
18                 the Secretary determines to be appropriate to carry  
19                 out this section.

20                 “(2) FAILURE TO SUBMIT; FALSE OR MIS-  
21                 LEADING INFORMATION.—An entity required to sub-  
22                 mit information pursuant to paragraph (1) that fails  
23                 to submit the information, or submits false or mis-  
24                 leading information, shall be in violation of this sec-  
25                 tion.

1       “(m) REPORT ON CLEAN ENERGY RESOURCES THAT  
2 DO NOT GENERATE ELECTRIC ENERGY.—

3           “(1) IN GENERAL.—Not later than 3 years  
4 after the date of enactment of this section, the Sec-  
5 retary shall submit to Congress a report examining  
6 mechanisms to supplement the standard under this  
7 section by addressing clean energy resources that do  
8 not generate electric energy but that may substan-  
9 tially reduce overall energy emissions, including en-  
10 ergy efficiency, demand response, flexible load, bene-  
11 ficial electrification, microgrids, biomass converted  
12 to thermal energy, geothermal energy collected using  
13 heat pumps, thermal energy delivered through dis-  
14 trict heating systems, and waste heat used as indus-  
15 trial process heat.

16           “(2) POTENTIAL INTEGRATION.—The report  
17 under paragraph (1) shall examine the benefits and  
18 challenges of integrating the additional clean energy  
19 resources into the standard established by this sec-  
20 tion, including—

21           “(A) the extent to which such an integra-  
22 tion would achieve the purposes of this section;

23           “(B) the manner in which a baseline de-  
24 scribing the use of the resources could be devel-  
25 oped that would ensure that only incremental

1           action that increased the use of the resources  
2           received credit; and

3           “(C) the challenges of crediting the re-  
4           sources, alone or in combination with other re-  
5           sources, in a comparable manner between orga-  
6           nized markets and vertically integrated markets  
7           to incentivize sufficient deployment of those re-  
8           sources to support efficient integration into the  
9           standard.

10          “(3) COMPLEMENTARY POLICIES.—The report  
11          under paragraph (1) shall examine the benefits and  
12          challenges of using complementary policies or stand-  
13          ards, other than the standard established under this  
14          section, to provide effective incentives for using the  
15          additional clean energy resources.

16          “(4) LEGISLATIVE RECOMMENDATIONS.—As  
17          part of the report under paragraph (1), the Sec-  
18          retary shall provide legislative recommendations for  
19          changes to the standard established under this sec-  
20          tion or new complementary policies that would pro-  
21          vide effective incentives for using the additional  
22          clean energy resources.

23          “(n) PERIODIC REVIEW AND ADJUSTMENTS.—

24          “(1) NATIONAL ACADEMY OF SCIENCES RE-  
25          VIEW.—The Secretary shall enter into an agreement

1 with the National Academy of Sciences under which  
2 the Academy shall, not later than July 1, 2028, and  
3 every 10 years thereafter, submit to Congress and  
4 the Secretary a comprehensive evaluation of all as-  
5 pects of the standard established under this section,  
6 including—

7 “(A) an evaluation of the effectiveness of  
8 the standard in decreasing the aggregate net  
9 carbon dioxide equivalent emissions in the elec-  
10 tric sector, including—

11 “(i) a comparison of—

12 “(I) the actual carbon dioxide  
13 equivalent emissions associated with  
14 the electric sector for the preceding  
15 calendar year; and

16 “(II)(aa) for the initial review,  
17 900,000,000 metric tons of carbon di-  
18 oxide equivalent;

19 “(bb) for the review conducted  
20 with respect to calendar year 2038,  
21 600,000,000 metric tons of carbon di-  
22 oxide equivalent; or

23 “(cc) if the Academy determines  
24 that an emissions value described in  
25 item (aa) or (bb) is inappropriate

1 after taking into consideration  
2 changes in electric energy consump-  
3 tion, and in emissions relating to en-  
4 ergy use outside of the electric sector,  
5 such emissions as the Academy deter-  
6 mines to be appropriate for the appli-  
7 cable review year; and

8 “(ii) an evaluation of the methods by  
9 which the quantity of Federal clean energy  
10 credits is determined, including—

11 “(I) alternative methods of quan-  
12 tifying credits for clean energy re-  
13 sources eligible to receive Federal  
14 clean energy credits under this section  
15 that may be more effective, such as—

16 “(aa) issuing credits based  
17 on the difference between the  
18 carbon intensity of a generator  
19 and the marginal emissions rate  
20 in a given hour and balancing  
21 area; and

22 “(bb) adjusting the innova-  
23 tion multipliers; and

24 “(II) potential methods of cred-  
25 iting other clean energy resources not

1                   already addressed in the report under  
2                   subsection (m);

3                   “(B) the impact of the standard on the re-  
4                   liability, resilience, security, and safety of elec-  
5                   tricity generation, transmission, and distribu-  
6                   tion;

7                   “(C) the impact of the standard on the  
8                   function of regulated and deregulated electricity  
9                   markets;

10                  “(D) the net benefits or costs of the stand-  
11                  ard to the United States and the States, includ-  
12                  ing—

13                         “(i) the effects on electricity demand  
14                         and prices;

15                         “(ii) the economic development bene-  
16                         fits of investment;

17                         “(iii) lifecycle environmental and safe-  
18                         ty costs and benefits;

19                         “(iv) the impacts on public health and  
20                         health care costs; and

21                         “(v) avoided costs relating to environ-  
22                         mental damages and adaptation invest-  
23                         ments that otherwise would have been re-  
24                         quired;

1           “(E) the impact of the standard on the  
2 emissions of behind-the-meter and off-grid elec-  
3 tricity generation;

4           “(F) recommendations regarding potential  
5 changes to the standard, such as—

6                 “(i) to regulations and procedures for  
7 implementing the standard;

8                 “(ii) to the structure and specific de-  
9 sign elements of the standard, such as—

10                         “(I) if the comparison of emis-  
11 sions under paragraph (1)(A)(i) re-  
12 veals that actual emissions for the  
13 electric sector are greater than the re-  
14 quired emissions under paragraph  
15 (1)(A)(i)(II), changes to the values of  
16 the growth rates, the applicable car-  
17 bon intensity, and alternative compli-  
18 ance payment to eliminate the gap be-  
19 tween actual and required emissions;

20                         “(II) the quantification of Fed-  
21 eral clean energy credits; and

22                         “(III) the value of and eligibility  
23 for the innovation multiplier; and

1                   “(iii) to the structure and administra-  
2                   tion of the Federal clean energy credit  
3                   trading program; and

4                   “(G) recommendations regarding potential  
5                   changes to related public policies or creation of  
6                   new complementary policies.

7                   “(2) RECOMMENDATIONS TO CONGRESS.—Not  
8                   later than January 1, 2029, and not less frequently  
9                   than once every 10 years thereafter, the Secretary  
10                  shall submit to the Committee on Energy and Nat-  
11                  ural Resources of the Senate and the Committee on  
12                  Energy and Commerce of the House of Representa-  
13                  tives a report including recommendations for modi-  
14                  fications and improvements to the standard estab-  
15                  lished under this section, including an explanation of  
16                  the inconsistencies, if any, between—

17                  “(A) the recommendations of the Sec-  
18                  retary; and

19                  “(B) the recommendations included in the  
20                  evaluation of the National Academy of Sciences  
21                  under paragraph (1).

22                  “(3) CONGRESSIONAL ACTION.—Not later than  
23                  January 1, 2030, and not less frequently than once  
24                  every 10 years thereafter, Congress shall enact legis-  
25                  lation that amends this section or establishes new

1 policies based on the recommendations submitted by  
2 the Secretary under paragraph (2).

3 “(4) ADJUSTMENTS UPON FAILURE OF CON-  
4 GRESSIONAL ACTION.—

5 “(A) IN GENERAL.—If Congress fails to  
6 enact legislation under paragraph (3) by an ap-  
7 plicable deadline, the Secretary—

8 “(i) shall, in any case in which the  
9 comparison of emissions under paragraph  
10 (1)(A)(i) reveals that actual emissions for  
11 the electric sector are greater than the re-  
12 quired emissions under paragraph  
13 (1)(A)(i)(II), make such compensatory ad-  
14 justments to the standard established  
15 under this section as the Secretary con-  
16 siders to be necessary, based on, and con-  
17 sistent with, the findings and recommenda-  
18 tions of the National Academy of Sciences  
19 under paragraph (1)(F)(ii)(I), to eliminate  
20 the gap between actual and required emis-  
21 sions by not later than 3 years after the  
22 date of the applicable deadline by—

23 “(I) increasing the fast growth  
24 rate;

1 “(II) increasing the slow growth  
2 rate;

3 “(III) increasing the small  
4 growth rate;

5 “(IV) decreasing the applicable  
6 carbon intensity;

7 “(V) increasing the alternative  
8 compliance payment under subsection  
9 (d)(1)(C); or

10 “(VI) taking a combination of ac-  
11 tions described in subclauses (I)  
12 through (V); and

13 “(ii) if the evaluation of the crediting  
14 system under paragraph (1)(A)(ii) de-  
15 scribes a more-effective method of issuing  
16 Federal clean energy credits to clean en-  
17 ergy resources, may make other modifica-  
18 tions and improvements to the standard  
19 based on, and consistent with, the rec-  
20 ommendations under paragraph (1)(F)(ii)  
21 that would have the effect of decreasing  
22 economy-wide emissions.

23 “(B) REQUIREMENT.—In making the com-  
24 pensatory adjustments under subparagraph  
25 (A)(i), the Secretary shall ensure that retail

1 electricity suppliers that have exceeded the pro-  
 2 portionate share of the reductions of the retail  
 3 electricity suppliers required under paragraph  
 4 (1)(A)(i)(II) shall not bear significant addi-  
 5 tional costs under this paragraph.

6 “(o) REGULATIONS.—Not later than 1 year after the  
 7 date of enactment of this section, the Secretary shall pro-  
 8 mulgate regulations to implement this section.”.

9 (b) CONFORMING AMENDMENT.—The table of con-  
 10 tents of the Public Utility Regulatory Policies Act of 1978  
 11 (16 U.S.C. prec. 2601) is amended by adding at the end  
 12 of the items relating to title VI the following:

“609. Rural and remote communities electrification grants.  
 “610. Federal clean energy standard.”.

13 **SEC. 3. CLEAN ENERGY RESEARCH, DEVELOPMENT, DEM-**  
 14 **ONSTRATION, AND DEPLOYMENT PROGRAM.**

15 (a) ESTABLISHMENT.—The Secretary of Energy  
 16 shall establish a cross-cutting national program within the  
 17 Department of Energy for the research, development,  
 18 demonstration, and deployment of clean energy tech-  
 19 nologies and portfolios for the purpose of meeting the re-  
 20 quirements established under section 610 of the Public  
 21 Utility Regulatory Policies Act of 1978 (as added by sec-  
 22 tion 2(a)).

23 (b) REQUIREMENTS.—In establishing the program  
 24 under subsection (a), the Secretary of Energy shall—

1           (1) identify and coordinate, across all relevant  
2 program offices throughout the Department of En-  
3 ergy, key areas of existing and future research with  
4 respect to a portfolio of technologies and approaches;

5           (2) with respect to dispatchable low-emission  
6 technologies and dispatchable zero-emission tech-  
7 nologies (as defined in sections 610(b) of the Public  
8 Utility Regulatory Policies Act of 1978 (as added by  
9 section 2(a))—

10           (A) prioritize programs that would accel-  
11 erate the research, development, demonstration,  
12 and deployment of technologies by—

13           (i) identifying specific applications of  
14 those technologies;

15           (ii) cataloguing existing Department  
16 of Energy programs and research to ad-  
17 vance the specific applications; and

18           (iii) establishing a center within the  
19 Department of Energy to coordinate re-  
20 search priorities and demonstration pro-  
21 grams for the specific applications;

22           (B) adopt long-term cost, performance,  
23 and deployment targets for the specific applica-  
24 tions identified under subparagraph (A)(i), in-  
25 cluding a goal of conducting not fewer than 5

1 technology demonstrations in the United States  
2 by December 31, 2030;

3 (C) identify opportunities to work with  
4 States and the private sector for technology  
5 demonstration; and

6 (D) identify barriers to the demonstration  
7 and deployment of those technologies;

8 (3) identify approaches to expedite deployment  
9 of clean energy technologies by evaluating and avoid-  
10 ing or minimizing potential impacts to natural com-  
11 munities, ecological resources, and high-quality  
12 working land; and

13 (4) recommend to Congress any additional  
14 funding needs or policy changes necessary to imple-  
15 ment the program.

16 (c) FUNDING.—Subject to the availability of appro-  
17 priations, the Secretary of Energy may use amounts avail-  
18 able to the Secretary to carry out this section.

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