

110TH CONGRESS
1ST SESSION

S. 1168

To amend the Clean Air Act to establish a regulatory program for sulfur dioxide, nitrogen oxides, mercury, and carbon dioxide emissions from the electric generating sector.

IN THE SENATE OF THE UNITED STATES

APRIL 19, 2007

Mr. ALEXANDER (for himself and Mr. LIEBERMAN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

A BILL

To amend the Clean Air Act to establish a regulatory program for sulfur dioxide, nitrogen oxides, mercury, and carbon dioxide emissions from the electric generating sector.

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; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the
5 “Clean Air/Climate Change Act of 2007”.

6 (b) TABLE OF CONTENTS.—The table of contents of
7 this Act is as follows:

Sec. 1. Short title; table of contents.

Sec. 2. Findings and purposes.

TITLE I—GENERAL PROVISIONS

Sec. 101. New source performance standard.

Sec. 102. New source review program.

Sec. 103. Integrated air quality planning for the electric generating sector.

Sec. 104. Revisions to sulfur dioxide allowance program.

Sec. 105. Air quality forecasts and warnings.

Sec. 106. Relationship to other law.

TITLE II—GREENHOUSE GAS OFFSETS

Sec. 201. Greenhouse gas offsets.

1 **SEC. 2. FINDINGS AND PURPOSES.**

2 (a) FINDINGS.—Congress finds that—

3 (1) in 1992, the United States became a signa-
 4 tory to the United Nations Framework Convention
 5 on Climate Change in recognition of the need to
 6 begin to decrease greenhouse gas emission levels to
 7 1990 levels;

8 (2) fossil fuel-fired electric generating sources,
 9 consisting of units fueled by coal, fuel oil, and nat-
 10 ural gas, produce nearly $\frac{2}{3}$ of the electricity gen-
 11 erated in the United States;

12 (3) fossil fuel-fired electric generating units
 13 produce approximately 67 percent of the total sulfur
 14 dioxide emissions, 23 percent of the total nitrogen
 15 oxides emissions, 40 percent of the total mercury
 16 emissions, and 40 percent of the total carbon dioxide
 17 emissions in the United States;

1 (4) as of the date of enactment of this Act,
2 nearly $\frac{3}{4}$ of all coal-fired electricity generating units
3 are more than 30 years old;

4 (5)(A) many electric generating units have been
5 exempt from the emission limitations applicable to
6 new units based on the expectation that over time
7 the units would be retired or updated with new pol-
8 lution control equipment; but

9 (B) many of the exempted units continue to op-
10 erate and emit pollutants at relatively high rates;

11 (6) many owners of electric generating units
12 have failed—

13 (A) to install best available control tech-
14 nology for emissions reductions; and

15 (B) to retire the units, as anticipated by
16 Congress in the new source review provisions of
17 the prevention of significant deterioration and
18 nonattainment programs of the Clean Air Act
19 (42 U.S.C. 7401 et seq.);

20 (7) the Clean Air Act (42 U.S.C. 7401 et seq.)
21 regulates substances (including carbon dioxide)
22 that—

23 (A) are emitted into the ambient air; and

24 (B) affect the weather and the climate;

25 (8)(A) as of the date of enactment of this Act—

1 (i) many class I areas (as designated under
2 section 162(a) of the Clean Air Act (42 U.S.C.
3 7472(a))) are impaired by haze pollution;

4 (ii) the ecosystems of many class I areas
5 are adversely affected by deposits of acidic and
6 toxic compounds; and

7 (iii) the air quality of many class I areas
8 fails to meet national ambient air quality stand-
9 ards; and

10 (B)(i) fossil-fuel fired electric generating units
11 are a major source of air pollution impacting class
12 I areas; and

13 (ii) proposed new fossil-fuel fired electric gener-
14 ating units threaten to increase air pollution in class
15 I areas throughout the United States;

16 (9) according to the Energy Outlook for 2006
17 of the Energy Information Administration, carbon
18 dioxide emissions from electric generating units in
19 the United States have increased by 32 percent dur-
20 ing the period of 1990 through 2006 to at least
21 2,300,000,000 metric tons of carbon dioxide in
22 2006;

23 (10) the ability of owners of electric generating
24 units to plan effectively for the future is impeded by

1 the uncertainties surrounding future environmental
2 regulatory requirements;

3 (11) according to the National Energy Tech-
4 nology Laboratory of the Department of Energy—

5 (A) as of the date of enactment of this
6 Act, 159 new coal-fired electric generating units
7 are proposed to be constructed, which would
8 produce 96 gigawatts of new electric generating
9 capacity; and

10 (B) if the units described in subparagraph
11 (A) are constructed, the units would produce—

12 (i) an incremental increase of
13 500,000,000 tons of carbon dioxide per
14 year from the production by the power sec-
15 tor in the United States as in existence on
16 the date of enactment of this Act; and

17 (ii) an estimated 30,000,000,000 ad-
18 ditional tons of carbon dioxide over the
19 course of the useful lives of the units (as-
20 suming a lifespan of 60 years);

21 (12) by December 31, 2015, emissions of car-
22 bon dioxide from the United States electric utility
23 sector should be limited to 2,100,000,000 metric
24 tons;

1 (13) a report of the Congressional Budget Of-
2 fice, dated September 19, 2006, concluded that—

3 (A) relying exclusively on research and de-
4 velopment funding is not the most effective
5 strategy for reducing greenhouse gas emissions;
6 and

7 (B) combining research and development
8 funding with a gradually-increasing limitation
9 on emissions is a more cost-effective approach;

10 (14)(A) agriculture can be part of the solution
11 to reducing greenhouse gas emissions;

12 (B) less productive agricultural land can be re-
13 forested with carbon dioxide-consuming trees;

14 (C) farming practices can be improved to in-
15 crease the absorption and retention of carbon in ag-
16 ricultural soils;

17 (D) biomass from agricultural sources (includ-
18 ing corn and grass) can be used to produce biofuels
19 that can take the place of high-carbon fossil fuels
20 used in transportation and power generation; and

21 (E) many of the farming practices and land use
22 changes involved in achieving those reductions have
23 multiple benefits, including—

24 (i) improving soil, water, and air quality;

25 (ii) increasing wildlife habitat; and

1 (iii) providing additional recreational op-
2 portunities; and

3 (15) States and regions have adopted programs
4 to address carbon dioxide emissions from electric
5 generating units, and Federal regulations relating to
6 carbon dioxide emissions should take those programs
7 into consideration.

8 (b) PURPOSES.—The purposes of this Act are—

9 (1) to protect and preserve the environment and
10 safeguard public health by ensuring that substantial
11 emission reductions are achieved at fossil fuel-fired
12 electric generating units;

13 (2) to ensure that air quality of national parks
14 and all other class I areas (as designated by section
15 162(a) of the Clean Air Act (42 U.S.C. 7472(a)))
16 affected by emissions from fossil fuel-fired electric
17 generating units is significantly improved;

18 (3) to reduce significantly the quantities of
19 mercury, sulfur dioxide, nitrogen oxides, and carbon
20 dioxide that enter the environment as a result of the
21 combustion of fossil fuels;

22 (4) to encourage the development and use of re-
23 newable energy;

24 (5) to internalize the cost of protecting the val-
25 ues of public health, air, land, and water quality;

1 (6) to provide a period of environmental regu-
 2 latory stability for owners and operators of electric
 3 generating units so as to promote improved manage-
 4 ment of existing assets and new capital investments;
 5 and

6 (7) to achieve emission reductions from electric
 7 generating units in a cost-effective manner.

8 **TITLE I—GENERAL PROVISIONS**

9 **SEC. 101. NEW SOURCE PERFORMANCE STANDARD.**

10 Section 111 of the Clean Air Act (42 U.S.C. 7411)
 11 is amended by adding at the end the following:

12 “(k) STANDARD OF PERFORMANCE FOR NEW ELEC-
 13 TRIC GENERATING FACILITIES.—

14 “(1) IN GENERAL.—Each electric generating
 15 unit constructed or modified after January 1, 2015,
 16 shall meet a standard of performance equivalent to
 17 an emission limitation of 1,100 pounds of carbon di-
 18 oxide per megawatt-hour or less.

19 “(2) ELIGIBILITY FOR CARBON DIOXIDE AL-
 20 LOWANCES.—Beginning on January 1, 2007, each of
 21 the first 30 electric generating units to achieve the
 22 standard of performance described in paragraph (1)
 23 (or a revised standard under paragraph (4), as ap-
 24 plicable) shall be eligible to participate in the Cli-
 25 mate Champions Program under section 707.

1 “(3) TREATMENT OF CERTAIN CARBON DIOX-
2 IDE.—Carbon dioxide that is injected into a geologi-
3 cal formation in a manner that prevents any release
4 of the carbon dioxide into the atmosphere shall not
5 be considered to be carbon dioxide emissions from
6 an electric generating unit for purposes of the stand-
7 ard of performance under paragraph (1).

8 “(4) REVIEW.—

9 “(A) IN GENERAL.—Not later than Janu-
10 ary 1, 2015, and every 8 years thereafter, the
11 Administrator shall review the applicable stand-
12 ards of performance for new electric generating
13 units with respect to carbon dioxide emissions
14 to determine whether the emission limitation for
15 the units under paragraph (1) should be de-
16 creased, based on the best available techno-
17 logical system of continuous emission reduction.

18 “(B) TREATMENT.—A determination by
19 the Administrator under subparagraph (A) shall
20 be—

21 “(i) published in the Federal Register
22 not later than the deadline described in
23 that subparagraph for the applicable re-
24 view; and

1 “(ii) considered to be final agency ac-
2 tion for purposes of section 307(b)(1).”.

3 **SEC. 102. NEW SOURCE REVIEW PROGRAM.**

4 Section 165 of the Clean Air Act (42 U.S.C. 7475)
5 is amended by adding at the end the following:

6 “(f) REVISIONS TO NEW SOURCE REVIEW PRO-
7 GRAM.—

8 “(1) DEFINITIONS.—In this subsection:

9 “(A) AFFECTED UNIT.—The term ‘af-
10 fected unit’ has the meaning given the term in
11 section 701.

12 “(B) NEW SOURCE REVIEW PROGRAM.—
13 The term ‘new source review program’ means
14 the program to carry out this part and part D.

15 “(2) PERFORMANCE STANDARDS.—

16 “(A) IN GENERAL.—Except as provided in
17 subparagraph (B), beginning January 1, 2020,
18 and on each January 1 thereafter, each affected
19 unit that has been in operation 40 or more
20 years as of that January 1 shall meet perform-
21 ance standards of—

22 “(i) 2 lbs/MWh for sulfur dioxide; and

23 “(ii) 1 lbs/MWh for nitrogen oxides.

24 “(B) EXCEPTION.—

1 “(i) IN GENERAL.—Notwithstanding
 2 subparagraph (A), an affected unit that, as
 3 of January 1, 2020, is required to meet a
 4 more stringent performance standard than
 5 the applicable standard under subpara-
 6 graph (A) shall continue to meet the more
 7 stringent standard.

8 “(ii) MODIFICATION OF AFFECTED
 9 UNITS.—The requirements of this section
 10 shall not affect in any way any require-
 11 ment under section 111(a)(4), this part, or
 12 part D governing modifications of major
 13 stationary sources.

14 “(3) NO EFFECT ON OTHER REQUIREMENTS
 15 AND RETENTION OF STATE AUTHORITY.—Nothing in
 16 this subsection affects—

17 “(A) any State authority under section
 18 116; or

19 “(B) the obligation of any State or local
 20 government or any major emitting facility to
 21 comply with the requirements of this section.”.

22 **SEC. 103. INTEGRATED AIR QUALITY PLANNING FOR THE**
 23 **ELECTRIC GENERATING SECTOR.**

24 The Clean Air Act (42 U.S.C. 7401 et seq.) is amend-
 25 ed by adding at the end the following:

1 **“TITLE VII—INTEGRATED AIR**
 2 **QUALITY PLANNING FOR THE**
 3 **ELECTRIC GENERATING SEC-**
 4 **TOR**

“TITLE VII—INTEGRATED AIR QUALITY PLANNING FOR THE
 ELECTRIC GENERATING SECTOR

“Sec. 701. Definitions.

“Sec. 702. National pollutant tonnage limitations.

“Sec. 703. Nitrogen oxide trading program.

“Sec. 704. Mercury program.

“Sec. 705. Carbon dioxide allowance trading program.

“Sec. 706. Conventional pulverized coal facilities.

“Sec. 707. Climate Champions Program.

“Sec. 708. Auction of carbon dioxide allowances.

5 **“SEC. 701. DEFINITIONS.**

6 “In this title:

7 “(1) **AFFECTED SOURCE.**—The term ‘affected
 8 source’ means a source that includes 1 or more af-
 9 fected units.

10 “(2) **AFFECTED UNIT.**—

11 “(A) **CARBON DIOXIDE.**—

12 “(i) **IN GENERAL.**—The term ‘affected
 13 unit’, with respect to carbon dioxide,
 14 means an electric generating unit that, on
 15 or after January 1, 2000, served a gener-
 16 ator producing electricity for sale with a
 17 nameplate capacity of greater than 25
 18 megawatts.

1 “(ii) EXCLUSION.—The term ‘affected
2 unit’, with respect to carbon dioxide, does
3 not include a unit that—

4 “(I) cogenerates useful steam
5 and electricity; but

6 “(II) is not a cogeneration unit.

7 “(B) MERCURY.—

8 “(i) IN GENERAL.—The term ‘affected
9 unit’, with respect to mercury, means a
10 coal-fired electric generating unit that, on
11 or after January 1, 1985, served a gener-
12 ator producing electricity for sale with a
13 nameplate capacity greater than 25
14 megawatts.

15 “(ii) EXCLUSION.—The term ‘affected
16 unit’, with respect to mercury, does not in-
17 clude a unit that—

18 “(I) cogenerates useful steam
19 and electricity; but

20 “(II) is not a cogeneration unit.

21 “(C) NITROGEN OXIDES.—

22 “(i) IN GENERAL.—The term ‘affected
23 unit’, with respect to nitrogen oxides,
24 means a fossil fuel-fired electric generating
25 unit that, on or after January 1, 1985,

1 served a generator producing electricity for
2 sale with a nameplate capacity greater
3 than 25 megawatts.

4 “(ii) EXCLUSION.—The term ‘affected
5 unit’, with respect to nitrogen oxides, does
6 not include a unit that—

7 “(I) cogenerates useful steam
8 and electricity; but

9 “(II) is not a cogeneration unit.

10 “(D) SULFUR DIOXIDE.—The term ‘af-
11 fected unit’, with respect to sulfur dioxide, has
12 the meaning given the term in section 402.

13 “(3) CAIR.—The term ‘CAIR’ means the rule
14 promulgated by the Administrator entitled the
15 ‘Clean Air Interstate Rule’ (70 Fed. Reg. 25162
16 (May 12, 2005)) (as in effect on the date of enact-
17 ment of this title).

18 “(4) CAIR STATE.—The term ‘CAIR State’
19 means each State that is subject to the annual emis-
20 sion limitation and allowance trading program for
21 nitrogen oxides and sulfur dioxide under CAIR, in-
22 cluding, as of the date of enactment of this Act—

23 “(A) Alabama;

24 “(B) Delaware;

25 “(C) the District of Columbia;

- 1 “(D) Florida;
2 “(E) Georgia;
3 “(F) Illinois;
4 “(G) Indiana;
5 “(H) Iowa;
6 “(I) Kentucky;
7 “(J) Louisiana;
8 “(K) Maryland;
9 “(L) Michigan;
10 “(M) Minnesota;
11 “(N) Mississippi;
12 “(O) Missouri;
13 “(P) New Jersey;
14 “(Q) New York;
15 “(R) North Carolina;
16 “(S) Ohio;
17 “(T) Pennsylvania;
18 “(U) South Carolina;
19 “(V) Tennessee;
20 “(W) Texas;
21 “(X) Virginia;
22 “(Y) West Virginia; and
23 “(Z) Wisconsin.

24 “(5) CARBON DIOXIDE ALLOWANCE.—The term
25 ‘carbon dioxide allowance’ means an authorization

1 allocated by the Administrator under this title to
2 emit 1 ton of carbon dioxide during or after a speci-
3 fied calendar year.

4 “(6) COGENERATION UNIT.—The term ‘cogen-
5 eration unit’ means a unit that—

6 “(A) cogenerates—

7 “(i) useful steam; and

8 “(ii) electricity; and

9 “(B) supplies, in any calendar year, to any
10 utility power distribution system for sale—

11 “(i) more than $\frac{1}{3}$ of the potential
12 electric output capacity of the unit; and

13 “(ii) more than 219,000 megawatt-
14 hours of electrical output.

15 “(7) DESIGNATED REPRESENTATIVE.—The
16 term ‘designated representative’ means a responsible
17 person or official authorized by the owner or oper-
18 ator of an affected source to represent the owner or
19 operator in any matter relating to—

20 “(A) the holding, transfer, or disposition of
21 an allowance under this title; or

22 “(B) any submission concerning, and com-
23 pliance with, any requirement of this title for
24 the affected source.

1 “(8) FOSSIL FUEL.—The term ‘fossil fuel’ in-
2 cludes—

3 “(A) natural gas;

4 “(B) petroleum;

5 “(C) coal; and

6 “(D) any form of solid, liquid, or gaseous
7 fuel derived from a material described in any of
8 subparagraphs (A) through (C).

9 “(9) FOSSIL FUEL-FIRED.—The term ‘fossil
10 fuel-fired’ means the combustion of any quantity of
11 a fossil fuel during any calendar year.

12 “(10) GREENHOUSE GAS.—The term ‘green-
13 house gas’ means any of—

14 “(A) carbon dioxide;

15 “(B) methane (CH₄);

16 “(C) nitrous oxide (N₂O);

17 “(D) hydrofluorocarbons (HFC–23, HFC–
18 32, HFC–41, HFC–43–10mee, HFC–125,
19 HFC–134, HFC–134a, HFC–152a, HFC–143,
20 HFC–143a, HFC–227ea, HFC–236fa, and
21 HFC–245ca);

22 “(E) perfluorocarbons (CF₄, C₂F₆, C₃F₈,
23 C₄F₁₀, C–C₄F₈, C₅F₁₂, and C₆F₁₄); and

24 “(F) sulfur hexafluoride (SF₆).

1 “(11) NEW UNIT.—The term ‘new unit’ means
2 an affected unit that has operated for not more than
3 3 years and is not eligible to receive nitrogen oxide
4 allowances under the regulations promulgated by the
5 Administrator pursuant to section 705(b).

6 “(12) NITROGEN OXIDE ALLOWANCE.—The
7 term ‘nitrogen oxide allowance’ means an authoriza-
8 tion allocated by the Administrator under this title
9 to emit 1 ton of nitrogen oxides during or after a
10 specified calendar year.

11 “(13) SEQUESTRATION.—The term ‘sequestra-
12 tion’ means the action of sequestering carbon dioxide
13 by—

14 “(A) enhancing a natural carbon dioxide
15 sink (such as through afforestation); or

16 “(B)(i) capturing the carbon dioxide emit-
17 ted from relevant industrial units and a fossil
18 fuel-based energy system; and

19 “(ii)(I) storing the carbon dioxide in a geo-
20 logic formation in a manner that prevents any
21 release of the carbon dioxide; or

22 “(II) converting the carbon dioxide to a be-
23 nign solid material through a biological or
24 chemical process.

1 “(14) SULFUR DIOXIDE ALLOWANCE.—The
2 term ‘sulfur dioxide allowance’ has the meaning
3 given the term ‘allowance’ in section 402.

4 “(15) UNIT.—The term ‘unit’ means a combus-
5 tion device.

6 “(16) USEFUL ENERGY.—The term ‘useful en-
7 ergy’, with respect to a cogeneration unit, means the
8 total quantity of useful energy (including electrical
9 generation and useful steam) as determined by the
10 Administrator.

11 “(17) ZONE 1 STATE.—The term ‘Zone 1 State’
12 means—

13 “(A) any CAIR State;

14 “(B) Arkansas;

15 “(C) Connecticut;

16 “(D) Massachusetts;

17 “(E) Maine;

18 “(F) New Hampshire;

19 “(G) Rhode Island; and

20 “(H) Vermont.

21 “(18) ZONE 2 STATE.—The term ‘Zone 2 State’
22 means any of the 48 contiguous States that is not
23 a Zone 1 State.

1 **“SEC. 702. NATIONAL POLLUTANT TONNAGE LIMITATIONS.**

2 “(a) SULFUR DIOXIDE.—The annual tonnage limita-
3 tion for emissions of sulfur dioxide shall be equal to—

4 “(1) for each of calendar years 2010 through
5 2014, for affected units subject to CAIR, 3,500,000
6 tons, in accordance with CAIR; and

7 “(2) for calendar year 2015 and each calendar
8 year thereafter, for all affected units in the 48 con-
9 tiguous States, 2,000,000 tons.

10 “(b) NITROGEN OXIDES.—The Administrator shall
11 allocate an annual tonnage limitation for emissions of ni-
12 trogen oxides in a quantity that is equal to—

13 “(1) for each of calendar years 2009 through
14 2014, for affected units subject to CAIR, 1,450,000
15 tons; and

16 “(2) for calendar year 2015 and each calendar
17 year thereafter—

18 “(A) for affected units in Zone 1 States,
19 1,300,000 tons; and

20 “(B) for affected units in Zone 2 States,
21 320,000 tons.

22 “(c) MERCURY.—The emission of mercury from af-
23 fected units shall be limited in accordance with section
24 704.

25 “(d) CARBON DIOXIDE.—The annual tonnage limita-
26 tion for emissions of carbon dioxide from affected units

1 in the 48 contiguous States shall be equal to, as deter-
2 mined by the Administrator based on certified and quality-
3 assured continuous emissions monitoring data for carbon
4 dioxide reported to the Administrator by affected units in
5 accordance with this Act—

6 “(1) for each of calendar years 2011 through
7 2014, 2,300,000,000 metric tons;

8 “(2) for each of calendar years 2015 through
9 2019, 2,100,000,000 metric tons;

10 “(3) for each calendar years 2020 through
11 2024, 1,800,000,000 metric tons; and

12 “(4) for calendar year 2025 and each calendar
13 year thereafter, 1,500,000,000 metric tons.

14 “(e) REDUCTION OF EMISSIONS FROM SPECIFIED
15 AFFECTED UNITS.—Notwithstanding the annual tonnage
16 limitations and mercury emissions requirements estab-
17 lished under this section, the Federal Government or a
18 State government may require that emissions from a spec-
19 ified affected unit be reduced.

20 “(f) CAIR STATES.—

21 “(1) IN GENERAL.—Each CAIR State shall
22 comply with the applicable requirements of CAIR.

23 “(2) EXCEPTION.—Notwithstanding paragraph
24 (1), CAIR shall not apply to—

1 “(A) annual emissions of nitrogen oxides
2 emitted during calendar year 2015 and there-
3 after; or

4 “(B) annual emissions of sulfur dioxide
5 emitted during calendar year 2015 and there-
6 after.

7 **“SEC. 703. NITROGEN OXIDE TRADING PROGRAM.**

8 “(a) REGULATIONS.—

9 “(1) IN GENERAL.—Not later than 2 years
10 after the date of enactment of this title, the Admin-
11 istrator shall promulgate regulations to establish for
12 affected units in the 48 contiguous States a nitrogen
13 oxide allowance trading program.

14 “(2) REQUIREMENTS.—Regulations promul-
15 gated under paragraph (1) shall establish require-
16 ments for the allowance trading program under this
17 section, including requirements concerning—

18 “(A)(i) the allocation, issuance, recording,
19 tracking, transfer, and use of nitrogen oxide al-
20 lowances; and

21 “(ii) the public availability of all informa-
22 tion concerning the activities described in clause
23 (i) that is not confidential business information;

24 “(B) compliance with subsection (d)(1);

1 “(C) the monitoring and reporting of emis-
2 sions under paragraphs (2) and (3) of sub-
3 section (d); and

4 “(D) excess emission penalties under sub-
5 section (d)(4).

6 “(b) NITROGEN OXIDE ALLOCATIONS.—

7 “(1) TIMING OF ALLOCATIONS.—Not later than
8 2 years after the date of enactment of this title, the
9 Administrator shall allocate nitrogen oxide allow-
10 ances to affected units.

11 “(2) ALLOCATIONS TO AFFECTED UNITS.—

12 “(A) ZONE 1 STATES.—The Administrator
13 shall allocate, to each affected unit in a Zone 1
14 State, a quantity of nitrogen oxide allowances
15 that is equal to the product obtained by multi-
16 plying—

17 “(i) the quantity of nitrogen oxide al-
18 lowances available for allocation under sec-
19 tion 702(b)(2)(A); and

20 “(ii) the quotient obtained by divid-
21 ing—

22 “(I) the adjusted average heat
23 input (measured in mmBtus), of the
24 affected unit during calendar years
25 2006 through 2008; by

1 “(II) the sum of the adjusted
2 heat input quantities described in sub-
3 clause (I) with respect to all affected
4 units in all Zone 1 States.

5 “(B) ZONE 2 STATES.—The Administrator
6 shall allocate, to each affected unit in a Zone 2
7 State, a quantity of nitrogen oxide allowances
8 that is equal to the product obtained by multi-
9 plying—

10 “(i) the quantity of nitrogen oxide al-
11 lowances available for allocation under sec-
12 tion 702(b)(2)(B); and

13 “(ii) the quotient obtained by divid-
14 ing—

15 “(I) the adjusted average heat
16 input (measured in mmBtus), of the
17 affected unit during calendar years
18 2006 through 2008; by

19 “(II) the sum of the adjusted
20 heat input quantities described in sub-
21 clause (I) with respect to all affected
22 units in all Zone 2 States.

23 “(C) ADJUSTED HEAT INPUT.—

24 “(i) IN GENERAL.—The adjusted heat
25 input for a calendar year of an affected

1 unit that begins operation before January
2 1, 2006, shall be equal to the product ob-
3 tained by multiplying (using factors, emis-
4 sion rates, and categories of units deter-
5 mined by the Administrator)—

6 “(I) the heat input of the af-
7 fected unit for the calendar year; and

8 “(II) a factor reflecting—

9 “(aa) the category of the af-
10 fected unit, based on the types of
11 fuels combusted by the affected
12 unit during the calendar year;
13 and

14 “(bb) the actual nitrogen ox-
15 ides emission rate (expressed in
16 tons of nitrogen oxides emitted
17 per mmBtu) that is generally ap-
18 plicable to that category of af-
19 fected units.

20 “(ii) AVERAGE.—The average ad-
21 justed heat input of an affected unit for a
22 3-calendar year period described in sub-
23 paragraph (A)(ii)(I) or (B)(ii)(I) shall be
24 equal to the quotient obtained by divid-
25 ing—

1 “(I) the sum of the adjusted heat
2 input quantities, as determined under
3 clause (i), for each calendar year of
4 the 3-calendar year period; by

5 “(II) 3.

6 “(3) ADJUSTMENT OF ALLOCATIONS.—If, for
7 any calendar year, the total quantities of allowances
8 allocated under paragraph (2) are not equal to the
9 applicable quantities determined under section
10 702(b)(2), the Administrator shall adjust the quan-
11 tities of allowances allocated to affected units on a
12 pro rata basis so that the quantities are equal to the
13 applicable quantities determined under section
14 702(b)(2).

15 “(4) ALLOWANCE NOT A PROPERTY RIGHT.—A
16 nitrogen oxide allowance—

17 “(A) is not a property right; and

18 “(B) may be terminated or limited by the
19 Administrator.

20 “(5) NO JUDICIAL REVIEW.—An allocation of
21 nitrogen oxide allowances by the Administrator
22 under this subsection, and a determination of a
23 value used in calculating the allocation, shall not be
24 subject to judicial review.

1 “(c) NITROGEN OXIDE ALLOWANCE TRANSFER SYS-
2 TEM.—

3 “(1) USE OF ALLOWANCES.—The regulations
4 promulgated under subsection (a)(1) shall—

5 “(A) prohibit the use (but not the transfer
6 in accordance with paragraph (3)) of any nitro-
7 gen oxide allowance before the calendar year for
8 which the allowance is allocated;

9 “(B) provide that unused nitrogen oxide
10 allowances may be carried forward and added
11 to nitrogen oxide allowances allocated for subse-
12 quent years;

13 “(C) provide that unused nitrogen oxide al-
14 lowances may be transferred by—

15 “(i) the person to which the allow-
16 ances are allocated; or

17 “(ii) any person to which the allow-
18 ances are transferred; and

19 “(D) provide that, to achieve compliance
20 with paragraphs (1) and (4) of subsection (d)—

21 “(i) the owner and operator of an af-
22 fected unit in a Zone 1 State shall use only
23 nitrogen oxide allowances allocated to af-
24 fected units in Zone 1 States; and

1 “(ii) the owner and operator of an af-
2 fected unit in a Zone 2 State shall use only
3 nitrogen oxide allowances allocated to af-
4 fected units in Zone 2 States.

5 “(2) USE BY PERSONS TO WHICH ALLOWANCES
6 ARE TRANSFERRED.—Any person to which nitrogen
7 oxide allowances are transferred under paragraph
8 (1)(C)—

9 “(A) may use the nitrogen oxide allow-
10 ances in the calendar year for which the nitro-
11 gen oxide allowances were allocated, or in a
12 subsequent calendar year, to achieve compliance
13 with subsection (d)(1); or

14 “(B) may transfer the nitrogen oxide al-
15 lowances to any other person.

16 “(3) CERTIFICATION OF TRANSFER.—A trans-
17 fer of a nitrogen oxide allowance shall not take ef-
18 fect until a certification of the transfer, authorized
19 by a responsible official of the person making the
20 transfer, is received and recorded by the Adminis-
21 trator.

22 “(4) PERMIT REQUIREMENTS.—An allocation
23 or transfer of nitrogen oxide allowances to an af-
24 fected unit shall, after recording by the Adminis-
25 trator, be considered to be part of the federally en-

1 forceable permit of the affected unit under this Act,
2 without a requirement for any further review or revi-
3 sion of the permit.

4 “(d) COMPLIANCE AND ENFORCEMENT.—

5 “(1) IN GENERAL.—For calendar year 2015
6 and each calendar year thereafter, the owner and op-
7 erator of each affected source shall hold for the af-
8 fected source and surrender to the Administrator a
9 quantity of nitrogen oxide allowances that is equal
10 to the total tons of nitrogen oxides emitted by the
11 affected units of the affected source during the cal-
12 endar year.

13 “(2) MONITORING SYSTEM.—The Administrator
14 shall promulgate regulations requiring—

15 “(A) installation, operation, reporting, and
16 certification of continuous emissions monitoring
17 systems, or any alternative monitoring system
18 or methodology that, as determined by the Ad-
19 ministrator, provides information with the same
20 precision, reliability, accessibility, and timeli-
21 ness as that provided by continuous emission
22 monitoring system, to measure the quantity of
23 nitrogen oxides that is emitted from each af-
24 fected unit;

1 “(B) quality assurance, verification, and
2 reporting of nitrogen oxides emissions at each
3 affected unit; and

4 “(C) if continuous emission monitoring
5 system data, or data from an alternative moni-
6 toring system approved by the Administrator, is
7 not available for an affected unit during any pe-
8 riod of a calendar year for which the data is re-
9 quired to be certified under this subsection, and
10 if the owner or operator of the affected unit
11 cannot provide information satisfactory to the
12 Administrator on emissions during that pe-
13 riod—

14 “(i) treatment of the affected unit as
15 operating in an uncontrolled manner dur-
16 ing the entire period for which the data
17 was not available; and

18 “(ii) calculation of emissions for that
19 period as prescribed by the Administrator.

20 “(3) REPORTING.—

21 “(A) IN GENERAL.—Not less often than
22 quarterly, the designated representative of the
23 owner or operator of an affected unit shall sub-
24 mit to the Administrator a report on the moni-
25 toring of emissions of nitrogen oxides carried

1 out by the owner or operator in accordance with
2 the regulations promulgated under paragraph
3 (2).

4 “(B) AUTHORIZATION.—Each report sub-
5 mitted under subparagraph (A) shall be author-
6 ized by the designated representative of the af-
7 fected unit, who shall certify the accuracy of
8 the report.

9 “(C) PUBLIC REPORTING.—The Adminis-
10 trator shall make available to the public,
11 through 1 or more published reports and 1 or
12 more forms of electronic media, data concerning
13 the emissions of nitrogen oxides from each af-
14 fected unit.

15 “(4) EXCESS EMISSIONS.—The owner and oper-
16 ator of an affected source the affected units of which
17 emit, during a calendar year specified in paragraph
18 (1), nitrogen oxides in excess of the nitrogen oxide
19 allowances held for use by the affected source for
20 the calendar year shall offset, and pay an excess
21 emissions penalty for, the excess emissions by sur-
22 rendering to the Administrator a quantity of nitro-
23 gen oxides allowances for the following calendar
24 year, or such earlier period as the Administrator

1 may prescribe, equal to the product obtained by mul-
2 tipling—

3 “(A) the number of tons of the excess
4 emissions; and

5 “(B) 2.

6 “(e) EFFECT.—Nothing in this section limits or oth-
7 erwise affects the application of section 113, 114, 120, or
8 304.

9 **“SEC. 704. MERCURY PROGRAM.**

10 “(a) DEFINITION OF INLET MERCURY.—In this sec-
11 tion, the term ‘inlet mercury’ means the quantity of mer-
12 cury found—

13 “(1) in the as-fired coal of an affected unit; or

14 “(2) for an affected unit using coal that is sub-
15 jected to an advanced coal cleaning technology, in
16 the as-mined coal of the affected unit.

17 “(b) ANNUAL LIMITATION FOR CERTAIN UNITS.—

18 An affected unit that begins operation on or after the date
19 of enactment of this title shall be subject to the less strin-
20 gent of the following emission limitations on an annual
21 average calendar year basis with respect to inlet mercury:

22 “(1) 90 percent capture of inlet mercury.

23 “(2) An emission rate of 0.0060 lbs/GWh.

24 “(c) ANNUAL LIMITATION FOR EXISTING UNITS.—

25 An affected unit in operation on the date of enactment

1 of this title shall be subject to the following emission limi-
2 tations on an annual average calendar year basis with re-
3 spect to inlet mercury:

4 “(1) FIRST FULL CALENDAR YEAR BEGINNING
5 4 YEARS AFTER THE DATE OF ENACTMENT OF
6 TITLE THROUGH 2014.—For each of the first full
7 calendar year beginning 4 years after the date of en-
8 actment of this title through calendar year 2014, the
9 less stringent limitation of—

10 “(A) 60 percent capture of inlet mercury;

11 and

12 “(B) an emission rate of 0.02 lbs/GWh.

13 “(2) 2015 AND THEREAFTER.—Beginning on
14 January 1, 2015, the less stringent limitation of—

15 “(A) 90 percent capture of inlet mercury;

16 and

17 “(B) an emission rate of 0.0060 lbs/GWh.

18 “(d) AVERAGING ACROSS UNITS.—An owner or oper-
19 ator of an affected unit may demonstrate compliance with
20 the annual average limitations under subsections (b) and
21 (c) by averaging emissions from all affected units at an
22 affected source.

23 “(e) MONITORING SYSTEM.—The Administrator shall
24 promulgate regulations requiring—

1 “(1) installation, operation, reporting, and cer-
2 tification of continuous emissions monitoring sys-
3 tems, or any alternative monitoring system or meth-
4 odology that, as determined by the Administrator,
5 provides information with the same precision, reli-
6 ability, accessibility, and timeliness as that provided
7 by continuous emission monitors, to measure the
8 quantity of mercury emitted from each affected unit;

9 “(2) quality assurance, verification, and report-
10 ing of mercury emissions data at each affected unit;
11 and

12 “(3) if continuous emission monitoring system
13 data, or data from an alternative monitoring system
14 approved by the Administrator, is not available for
15 an affected unit during any period of a calendar
16 year for which the data is required to be certified
17 under this subsection, and if the owner or operator
18 of the affected unit cannot provide information satis-
19 factory to the Administrator on emissions during
20 that period—

21 “(A) treatment of the affected unit as op-
22 erating in an uncontrolled manner during the
23 entire period for which the data was not avail-
24 able; and

1 “(B) calculation of emissions for that pe-
2 riod as prescribed by the Administrator.

3 “(f) REPORTING.—

4 “(1) IN GENERAL.—Not less often than quar-
5 terly, the owner or operator of an affected unit shall
6 submit to the Administrator a report on the moni-
7 toring of emissions of mercury carried out by the
8 owner or operator in accordance with the regulations
9 promulgated under subsection (e).

10 “(2) AUTHORIZATION.—Each report submitted
11 under paragraph (1) shall be authorized by a des-
12 ignated representative of the affected unit, who shall
13 certify the accuracy of the report.

14 “(3) PUBLIC REPORTING.—The Administrator
15 shall make available to the public, through 1 or
16 more published reports and 1 or more forms of elec-
17 tronic media, data concerning the emission of mer-
18 cury from each affected unit.

19 “(g) EXCESS EMISSIONS.—

20 “(1) PENALTY.—

21 “(A) IN GENERAL.—The owner and oper-
22 ator of an affected unit described in subpara-
23 graph (B) shall pay an excess emissions penalty
24 determined under paragraph (2).

1 “(B) DESCRIPTION OF AFFECTED
2 UNITS.—An affected unit referred to in sub-
3 paragraph (A) is an affected unit that—

4 “(i) for an affected unit dem-
5 onstrating compliance at the unit level,
6 emits mercury in excess of an emission
7 limitation described in subsection (b) or
8 (c); or

9 “(ii) for an affected unit dem-
10 onstrating compliance under subsection
11 (d), is part of an affected source that emits
12 mercury in excess of the emission limita-
13 tion applicable to the affected source.

14 “(2) DETERMINATION OF EXCESS EMISSIONS
15 PENALTY.—The excess emissions penalty for mer-
16 cury shall be an amount equal to \$50,000 for each
17 pound of mercury emitted in excess of the emission
18 limitation described in subsection (b) or (c), as pro-
19 rated for each fraction of a pound.

20 “(3) PENALTY ADJUSTMENT.—For each fiscal
21 year, the Administrator, by regulation, shall adjust
22 the penalty specified in paragraph (2) to reflect
23 changes for the 12-month period ending the pre-
24 ceding November 30 in the Consumer Price Index

1 for All Urban Consumers published by the Bureau
2 of Labor Statistics of the Department of Labor.

3 “(h) PETITION FOR EXTENSION.—The Adminis-
4 trator, or the appropriate agency of a State with a pro-
5 gram approved under title IV, may issue for an affected
6 unit in existence on the date of enactment of this title
7 a permit that provides an extension of not more than 1
8 additional year of a deadline for compliance with any
9 standard under this section, if the Administrator or agen-
10 cy determines the extension is necessary for the installa-
11 tion at the affected unit of an appropriate control tech-
12 nology.

13 “(i) EFFECT OF SECTION.—Nothing in this section
14 limits or otherwise affects the application of section 113,
15 114, 120, or 304.

16 **“SEC. 705. CARBON DIOXIDE ALLOWANCE TRADING PRO-**
17 **GRAM.**

18 “(a) REGULATIONS.—

19 “(1) IN GENERAL.—Not later than 2 years
20 after the date of enactment of this title, the Admin-
21 istrator shall promulgate regulations to establish a
22 carbon dioxide allowance trading program for af-
23 fected units in the United States.

24 “(2) REQUIREMENTS.—

1 “(A) OTHER REQUIRED PROGRAMS.—In
2 promulgating regulations pursuant to para-
3 graph (1), the Administrator shall ensure that
4 no carbon dioxide allowance is provided for an
5 offset project the greenhouse gas reductions
6 under which are effectively required by any
7 other Federal, State, or local law (including
8 regulations) or judicial or administrative order.

9 “(B) OTHER STANDARDS.—In promul-
10 gating regulations pursuant to paragraph (1),
11 the Administrator shall require that—

12 “(i) each reduction or removal of
13 greenhouse gas emissions for which an off-
14 set project receives carbon dioxide allow-
15 ances under this section—

16 “(I) is not double counted under
17 this or any other allowance program;

18 “(II) is a permanent reduction in
19 greenhouse gas emissions; and

20 “(III) is monitored as the Ad-
21 ministrator determines to be appro-
22 priate with respect to the specific off-
23 set project type and quantity of car-
24 bon dioxide allowances provided for
25 the reduction; and

1 “(ii) each offset project shall reflect a
2 level of performance that, with respect to
3 emission reductions or a technology or
4 practice, is significantly better than aver-
5 age, as compared with recently carried out
6 activities or practices.

7 “(3) STATE OFFSET METHODS.—In promul-
8 gating regulations under paragraph (1), the Admin-
9 istrator shall take into consideration offset methods
10 developed, as of the date of enactment of this title,
11 by California or any other State pursuant to the Re-
12 gional Greenhouse Gas Initiative or a similar regu-
13 latory program with of comparable rigor, as deter-
14 mined by the Administrator.

15 “(b) NEW UNIT RESERVE.—

16 “(1) ESTABLISHMENT.—

17 “(A) IN GENERAL.—For each of calendar
18 years 2011 through 2020, the Administrator
19 shall establish, by regulation, a reserve of car-
20 bon dioxide allowances to be allocated to new
21 affected units fueled by coal that meet the cri-
22 teria under the Climate Champions Program
23 under section 707 for the calendar year.

24 “(B) REQUIRED QUANTITY.—For a cal-
25 endar year described in subparagraph (A), the

1 quantity of carbon dioxide allowances in the re-
2 serve established under this paragraph shall not
3 exceed 5 percent of the annual tonnage limita-
4 tion for carbon dioxide specified in section
5 702(d) for that calendar year.

6 “(2) REQUIRED ALLOCATIONS.—For each of
7 calendar years 2011 through 2014, the Adminis-
8 trator shall allocate allowances in the reserve estab-
9 lished under paragraph (1) to each of the 30 entities
10 identified under section 707(b)(1).

11 “(3) UNUSED CARBON DIOXIDE ALLOW-
12 ANCES.—For each calendar year, the Administrator
13 shall reallocate, to all affected units, any unused car-
14 bon dioxide allowances from the new unit reserve es-
15 tablished under paragraph (1) in the proportion
16 that—

17 “(A) the number of carbon dioxide allow-
18 ances allocated to each affected unit for the cal-
19 endar year; bears to

20 “(B) the number of carbon dioxide allow-
21 ances allocated to all affected units for the cal-
22 endar year.

23 “(c) CARBON DIOXIDE ALLOCATIONS.—

24 “(1) ALLOCATIONS TO AFFECTED UNITS THAT
25 ARE NOT NEW UNITS.—

1 “(A) IN GENERAL.—Not later than 2 years
2 after the date of enactment of this title, the Ad-
3 ministrator shall allocate, to each affected unit
4 that is not a new unit, a quantity of carbon di-
5 oxide allowances that is equal to the product
6 obtained by multiplying—

7 “(i) the quantity of carbon dioxide al-
8 lowances available for allocation under
9 paragraph (2); and

10 “(ii) the quotient obtained by divid-
11 ing—

12 “(I) the adjusted average heat
13 input (measured in mmBtus), of the
14 affected unit during any 3-consecu-
15 tive-calendar-year period during the
16 period beginning on January 1, 2000,
17 and ending on December 31, 2007;
18 and

19 “(II) the sum of the adjusted
20 heat input quantities described in sub-
21 clause (I) with respect to all affected
22 units that are not new units.

23 “(B) ADJUSTED HEAT INPUT.—

24 “(i) IN GENERAL.—The adjusted heat
25 input for a calendar year of an affected

1 unit that begins operation before January
2 1, 2005, shall be equal to the product ob-
3 tained by multiplying (using factors, emis-
4 sion rates, and categories of units deter-
5 mined by the Administrator)—

6 “(I) the heat input of the af-
7 fected unit for the calendar year;

8 “(II) a factor reflecting the cat-
9 egory of the affected unit, based on
10 the types of fuels combusted by the
11 affected unit during the calendar year;
12 and

13 “(III) the actual carbon dioxide
14 emission rate (expressed in tons of
15 carbon dioxide emitted per mmBtu)
16 that is generally applicable to that
17 category of affected units.

18 “(ii) AVERAGE.—The average ad-
19 justed heat input of an affected unit for a
20 3-calendar year period described in sub-
21 paragraph (A)(ii)(I)(bb) shall be equal to
22 the quotient obtained by dividing—

23 “(I) the sum of the adjusted heat
24 input quantities, as determined under

1 clause (i), for each calendar year of
2 the 3-calendar year period; and

3 “(II) 3.

4 “(2) QUANTITY TO BE ALLOCATED.—For each
5 calendar year, the quantity of carbon dioxide allow-
6 ances allocated under paragraph (1)(A) to affected
7 units that are not new units shall be equal to the
8 difference between—

9 “(A) the annual tonnage limitation for
10 emissions of carbon dioxide from affected units
11 specified in section 702(d) for the calendar
12 year; and

13 “(B) the sum of—

14 “(i) the quantity of carbon dioxide al-
15 lowances placed in the new unit reserve es-
16 tablished under subsection (b) for the cal-
17 endar year; and

18 “(ii) the quantity of carbon dioxide al-
19 lowances made available for auction under
20 section 708.

21 “(3) ADJUSTMENT OF ALLOCATIONS.—If the
22 total quantity of carbon dioxide allowances to be al-
23 located under paragraph (1) for a calendar year is
24 more than the total quantity of carbon dioxide allow-
25 ances available for allocation under paragraph (2)

1 for the calendar year, the Administrator shall allo-
2 cate to each affected unit a quantity of carbon diox-
3 ide allowances equal to the proportion that—

4 “(A) the quantity of carbon dioxide allow-
5 ances to be allocated to the affected unit under
6 paragraph (1) for the calendar year; bears to

7 “(B) the total quantity of carbon dioxide
8 allowances to be allocated to all affected units
9 under paragraph (1) for the calendar year.

10 “(4) ALLOCATIONS TO NEW UNITS.—The Ad-
11 ministrator shall promulgate regulations to establish
12 a methodology for allocating carbon dioxide allow-
13 ances to new units from the new unit reserve under
14 subsection (b).

15 “(d) USE AND TRANSFER OF CARBON DIOXIDE AL-
16 LOWANCES.—

17 “(1) USE BEFORE APPLICABLE CALENDAR
18 YEAR.—A carbon dioxide allowance may not be used
19 before the calendar year for which the carbon diox-
20 ide allowance was allocated.

21 “(2) TRANSFER.—

22 “(A) IN GENERAL.—Notwithstanding para-
23 graph (1), carbon dioxide allowances may be
24 transferred before the calendar year for which
25 the carbon dioxide allowances were allocated.

1 “(B) LIMITATION.—The transfer of a car-
2 bon dioxide allowance shall not take effect until
3 receipt and recording by the Administrator of a
4 certification of the transfer, which is executed
5 by an authorized official of the person making
6 the transfer.

7 “(3) USE BY PERSONS TO WHICH CARBON DI-
8 OXIDE ALLOWANCES ARE TRANSFERRED.—Any per-
9 son to which carbon dioxide allowances are trans-
10 ferred under paragraph (2)(A) may use the carbon
11 dioxide allowances in the calendar year for which the
12 carbon dioxide allowances were allocated, or in a
13 subsequent calendar year, to demonstrate compli-
14 ance with subsection (e)(1).

15 “(4) PERMIT REQUIREMENTS.—An allocation
16 or transfer of carbon dioxide allowances to an af-
17 fected unit shall be considered to be part of the fed-
18 erally enforceable permit of the affected unit under
19 this Act, without a requirement for further review or
20 revision of the permit.

21 “(e) COMPLIANCE AND ENFORCEMENT.—

22 “(1) IN GENERAL.—For the first full calendar
23 year beginning 4 years after the date of enactment
24 of this title and each calendar year thereafter, the
25 owner or operator of each affected source shall hold

1 for the affected source and surrender to the Admin-
2 istrator a quantity of carbon dioxide allowances
3 equal to the total tons of carbon dioxide emitted by
4 each affected unit of the affected source during the
5 calendar year.

6 “(2) EXCESS EMISSIONS.—The owner and oper-
7 ator of an affected source any affected unit of which
8 emits carbon dioxide in excess of the carbon dioxide
9 allowances held for use by the affected source for
10 the calendar year shall offset, and pay an excess
11 emissions penalty for, the excess emissions by sur-
12 rendering to the Administrator a quantity of carbon
13 dioxide allowances for the following calendar year or
14 such other period as the Administrator may pre-
15 scribe equal to the product obtained by multi-
16 plying—

17 “(A) the number of tons of the excess
18 emissions; and

19 “(B) 2.

20 “(3) MONITORING SYSTEM.—The Administrator
21 shall promulgate regulations requiring—

22 “(A) installation, operation, reporting, and
23 certification of continuous emissions monitoring
24 systems, or any alternative monitoring system
25 or methodology that, as determined by the Ad-

1 administrator, provides information with the same
2 precision, reliability, accessibility, and timeli-
3 ness as that provided by continuous emission
4 monitors, to measure the quantity of carbon di-
5 oxide emitted from each affected unit;

6 “(B) quality assurance, verification, and
7 reporting of carbon dioxide emissions data at
8 each affected unit; and

9 “(C) if continuous emission monitoring
10 system data, or data from an alternative moni-
11 toring system approved by the Administrator, is
12 not available for an affected unit during any pe-
13 riod of a calendar year for which the data is re-
14 quired to be certified under this subsection, and
15 if the owner or operator of the affected unit
16 cannot provide information satisfactory to the
17 Administrator on emissions during that pe-
18 riod—

19 “(i) treatment of the affected unit as
20 operating in an uncontrolled manner dur-
21 ing the entire period for which the data
22 was not available; and

23 “(ii) calculation of emissions for that
24 period as prescribed by the Administrator.

25 “(4) REPORTING.—

1 “(A) IN GENERAL.—Not less often than
2 quarterly, the owner or operator of an affected
3 unit shall submit to the Administrator a report
4 on the monitoring of emissions of carbon diox-
5 ide carried out by the owner or operator in ac-
6 cordance with the regulations promulgated
7 under paragraph (3).

8 “(B) AUTHORIZATION.—Each report sub-
9 mitted under subparagraph (A) shall be author-
10 ized by the designated representative of the af-
11 fected unit, who shall certify the accuracy of
12 the report.

13 “(C) PUBLIC REPORTING.—The Adminis-
14 trator shall make available to the public,
15 through 1 or more published reports and 1 or
16 more forms of electronic media, data concerning
17 the emission of carbon dioxide from each af-
18 fected unit.

19 “(f) EFFECT OF SECTION.—Nothing in this section
20 limits or otherwise affects the application of section 113,
21 114, 120, or 304.

22 “(g) ALLOWANCE NOT A PROPERTY RIGHT.—A car-
23 bon dioxide allowance—

24 “(1) is not a property right; and

1 “(2) may be terminated or limited by the Ad-
2 ministrators.

3 “(h) NO JUDICIAL REVIEW.—An allocation or
4 issuance of a carbon dioxide allowance by the Adminis-
5 trator, and the determination of any value used in calcu-
6 lating the allocation or issuance, shall not be subject to
7 judicial review.

8 **“SEC. 706. CONVENTIONAL PULVERIZED COAL FACILITIES.**

9 “The correspondence of the Office of Air Quality
10 Planning and Standards addressing best available control
11 technology requirements for proposed coal-fired power
12 plant projects and dated December 13, 2005—

13 “(1) shall be considered to be inconsistent with
14 section 169(3); and

15 “(2) shall be treated as void and of no effect as
16 of the date of issuance of the correspondence.

17 **“SEC. 707. CLIMATE CHAMPIONS PROGRAM.**

18 “(a) ESTABLISHMENT.—The Administrator shall es-
19 tablish a program, to be known as the ‘Climate Champions
20 Program’.

21 “(b) REWARDS; RECEIPT OF ALLOWANCES.—Under
22 the Climate Champions Program, the Administrator
23 shall—

24 “(1) identify and provide such reward as the
25 Administrator determines to be appropriate to each

1 of the first 30 entities to complete construction of a
2 new coal-fired electric generating unit that meets
3 each applicable new source performance standard
4 under section 102 after the date of enactment of
5 this title; and

6 “(2) distribute to the 30 entities identified
7 under paragraph (1) the carbon dioxide allowances
8 reserved for the entities for the calendar year under
9 section 705(b)(2).

10 **“SEC. 708. AUCTION OF CARBON DIOXIDE ALLOWANCES.**

11 “(a) IN GENERAL.—Not later than 2 years after the
12 date of enactment of this title, the Administrator shall
13 promulgate regulations establishing a procedure for the
14 auction of 25 percent of the quantity of carbon dioxide
15 allowances available for calendar year 2011 and each cal-
16 endar year thereafter.

17 “(b) DEPOSIT OF PROCEEDS.—The Administrator
18 shall deposit the proceeds from each auction carried out
19 pursuant to this section into a fund of the Administrator
20 for use, without further appropriation, for mitigating any
21 increase in the cost of electricity to electricity consumers
22 and energy-intensive industries, as determined by the Ad-
23 ministrator.”.

1 **SEC. 104. REVISIONS TO SULFUR DIOXIDE ALLOWANCE**
 2 **PROGRAM.**

3 (a) IN GENERAL.—Title IV of the Clean Air Act (re-
 4 lating to acid deposition control) (42 U.S.C. 7651 et seq.)
 5 is amended by adding at the end the following:

6 **“SEC. 417. REVISIONS TO SULFUR DIOXIDE ALLOWANCE**
 7 **PROGRAM.**

8 “(a) REGULATIONS.—Not later than 2 years after
 9 the date of enactment of the Clean Air/Climate Change
 10 Act of 2007, the Administrator shall promulgate such revi-
 11 sions to the regulations to implement this title as the Ad-
 12 ministrator determines to be necessary to implement sec-
 13 tion 702(a).

14 “(b) SULFUR DIOXIDE ALLOCATIONS.—

15 “(1) ALLOCATIONS TO ALLOWANCE TRACKING
 16 SYSTEM ACCOUNTS.—

17 “(A) IN GENERAL.—The Administrator
 18 shall allocate 95 percent of the quantity of sul-
 19 fur dioxide allowances provided to achieve com-
 20 pliance with the requirement under section
 21 702(a)(2) to accounts of the allowance tracking
 22 system under section 403(d) in accordance with
 23 the calculation under subparagraph (B).

24 “(B) CALCULATION FOR ALLOCATIONS.—

25 “(i) DEFINITION OF EXISTING QUAN-
 26 TITY.—In this subparagraph, the term ‘ex-

1 isting quantity’, with respect to sulfur di-
2 oxide allowances, means, as determined by
3 the Administrator in accordance with part
4 73 of title 40, Code of Federal Regulations
5 (or successor regulations)—

6 “(I) for sulfur dioxide allowances
7 allocated for any calendar year before
8 calendar year 2016, the quantity of
9 sulfur dioxide allowances allocated for
10 the calendar year under sections 404
11 through 406, and recorded in an ac-
12 count of the allowance tracking sys-
13 tem under section 403(d), as of 12:00
14 p.m., Eastern Standard Time, on the
15 date that is 180 days after the date of
16 enactment of the Clean Air/Climate
17 Change Act of 2007; and

18 “(II) for sulfur dioxide allow-
19 ances allocated for calendar year 2016
20 or any calendar year thereafter, the
21 quantity described in subclause (I),
22 reduced by—

23 “(aa) 7 percent for calendar
24 year 2016; and

1 “(bb) an additional 7 per-
2 cent for each calendar year there-
3 after.

4 “(ii) CALCULATION.—For calendar
5 year 2015 and each calendar year there-
6 after, the Administrator shall allocate to
7 each account of the allowance tracking sys-
8 tem under section 403(d) a quantity of sul-
9 fur dioxide allowances equal to the product
10 obtained by multiplying—

11 “(I) the total quantity of allow-
12 ances to be allocated under subpara-
13 graph (A); and

14 “(II) the proportion that—

15 “(aa) the total existing
16 quantity of sulfur dioxide allow-
17 ances for all calendar years in
18 the account; bears to

19 “(bb) the total existing
20 quantities of sulfur dioxide allow-
21 ances for all calendar years in all
22 accounts.

23 “(2) ALLOCATIONS TO CERTAIN EXISTING
24 UNITS.—

1 “(A) DEFINITION OF EXISTING AFFECTED
2 UNIT.—In this paragraph, the term ‘existing af-
3 fected unit’ means an affected unit that—

4 “(i) was an affected unit on December
5 31, 2006;

6 “(ii) began operation before January
7 1, 2001; and

8 “(iii) does not receive any sulfur diox-
9 ide allowance for a calendar year under
10 section 404, 405, 406, or 410.

11 “(B) ALLOCATION.—For calendar year
12 2015 and each calendar year thereafter, the Ad-
13 ministrator shall allocate 3½ percent of the
14 quantity of sulfur dioxide allowances provided
15 to achieve compliance with the requirement
16 under section 702(a)(2) to existing affected
17 units in accordance with the applicable calcula-
18 tion under subparagraph (C).

19 “(C) CALCULATIONS.—

20 “(i) COAL-FIRED EXISTING AFFECTED
21 UNITS.—For calendar year 2015 and each
22 calendar year thereafter, the Administrator
23 shall allocate to each existing affected unit
24 that is a coal-fired existing affected unit a
25 quantity of sulfur dioxide allowances equal

1 to the product (expressed in tons) obtained
2 by multiplying—

3 “(I) the total baseline heat input
4 of the existing affected unit, as deter-
5 mined under paragraph (4) (expressed
6 in mmBtus); and

7 “(II) 0.40 lb/mmBtu.

8 “(ii) OIL-FIRED EXISTING AFFECTED
9 UNITS.—For calendar year 2015 and each
10 calendar year thereafter, the Administrator
11 shall allocate to each existing affected unit
12 that is an oil-fired existing affected unit a
13 quantity of sulfur dioxide allowances equal
14 to the product (expressed in tons) obtained
15 by multiplying—

16 “(I) the total baseline heat input
17 of the existing affected unit, as deter-
18 mined under paragraph (4) (expressed
19 in mmBtus); and

20 “(II) 0.20 lb/mmBtu.

21 “(iii) OTHER EXISTING AFFECTED
22 UNITS.—For calendar year 2015 and each
23 calendar year thereafter, the Administrator
24 shall allocate to each existing affected unit
25 that is not a coal-fired or oil-fired existing

1 affected unit a quantity of sulfur dioxide
2 allowances equal to the product (expressed
3 in tons) obtained by multiplying—

4 “(I) the total baseline heat input
5 of the existing affected unit, as deter-
6 mined under paragraph (4) (expressed
7 in mmBtus); and

8 “(II) 0.05 lb/mmBtu.

9 “(D) ADJUSTMENT OF ALLOCATIONS.—If
10 the total quantity of sulfur dioxide allowances
11 to be allocated under subparagraph (C) for a
12 calendar year is more than the total quantity of
13 sulfur dioxide allowances available for allocation
14 under subparagraph (B) for the calendar year,
15 the Administrator shall allocate to each existing
16 affected unit a quantity of sulfur dioxide allow-
17 ances equal to the product obtained by multi-
18 plying—

19 “(i) the quantity of sulfur dioxide al-
20 lowances to be allocated to the existing af-
21 fected unit under subparagraph (C) for the
22 calendar year; and

23 “(ii) the proportion that—

24 “(I) the quantity of sulfur diox-
25 ide allowances to be allocated to the

1 existing affected unit under subpara-
2 graph (C) for the calendar year; bears
3 to

4 “(II) the total quantity of sulfur
5 dioxide allowances to be allocated to
6 all existing affected units under sub-
7 paragraph (C) for the calendar year.

8 “(E) EXCESS SUPPLY OF SULFUR DIOXIDE
9 ALLOWANCES.—Any sulfur dioxide allowance
10 that is available for allocation under subpara-
11 graph (B) for a calendar year, but that is not
12 allocated for the calendar year under subpara-
13 graph (C), shall be allocated in accordance with
14 paragraph (3).

15 “(3) ALLOCATION TO CERTAIN NEW UNITS.—

16 “(A) DEFINITION OF NEW AFFECTED
17 UNIT.—In this paragraph, the term ‘new af-
18 fected unit’ means an affected unit that—

19 “(i) was an affected unit on December
20 31, 2006;

21 “(ii) began operation during the pe-
22 riod beginning on January 1, 2001, and
23 ending on December 31, 2006; and

1 “(iii) does not receive any sulfur diox-
2 ide allowance for a calendar year under
3 section 404, 405, 406, or 410.

4 “(B) ALLOCATION.—For calendar year
5 2015 and each calendar year thereafter, the Ad-
6 ministrators shall allocate 1½ percent of the
7 quantity of sulfur dioxide allowances provided
8 to achieve compliance with the requirement
9 under section 702(a)(2) to new affected units in
10 accordance with the applicable calculation under
11 subparagraph (C).

12 “(C) CALCULATIONS.—

13 “(i) COAL-FIRED AND OIL-FIRED NEW
14 AFFECTED UNITS.—For calendar year
15 2015 and each calendar year thereafter,
16 the Administrator shall allocate to each
17 new affected unit that is a coal-fired or oil-
18 fired new affected unit a quantity of sulfur
19 dioxide allowances equal to the product
20 (expressed in tons) obtained by multi-
21 plying—

22 “(I) the total baseline heat input
23 of the new affected unit, as deter-
24 mined under paragraph (4) (expressed
25 in mmBtus); and

1 “(II) 0.19 lb/mmBtu.

2 “(ii) OTHER NEW AFFECTED
3 UNITS.—For calendar year 2015 and each
4 calendar year thereafter, the Administrator
5 shall allocate to each new affected unit
6 that is not a coal-fired or oil-fired new af-
7 fected unit a quantity of sulfur dioxide al-
8 lowances equal to the product (expressed
9 in tons) obtained by multiplying—

10 “(I) the total baseline heat input
11 of the new affected unit, as deter-
12 mined under paragraph (4) (expressed
13 in mmBtus); and

14 “(II) 0.02 lb/mmBtu.

15 “(D) ADJUSTMENT OF ALLOCATIONS.—If
16 the total quantity of sulfur dioxide allowances
17 to be allocated under subparagraph (C) for a
18 calendar year is more than the total quantity of
19 sulfur dioxide allowances available for allocation
20 under subparagraph (B) for the calendar year,
21 the Administrator shall allocate to each new af-
22 fected unit a quantity of sulfur dioxide allow-
23 ances equal to the product obtained by multi-
24 plying—

1 “(i) the quantity of sulfur dioxide al-
2 lowances to be allocated to the new af-
3 fected unit under subparagraph (C) for the
4 calendar year; and

5 “(ii) the proportion that—

6 “(I) the quantity of sulfur diox-
7 ide allowances to be allocated to the
8 new affected unit under subparagraph
9 (C) for the calendar year; bears to

10 “(II) the total quantity of sulfur
11 dioxide allowances to be allocated to
12 all new affected units under subpara-
13 graph (C) for the calendar year.

14 “(E) USE OF OTHER EXCESS SULFUR DI-
15 OXIDE ALLOWANCES.—The Administrator shall
16 allocate to new affected units any excess allow-
17 ance provided pursuant to paragraph (2)(E) in
18 accordance with subparagraphs (C) and (D).

19 “(F) REMAINING SULFUR DIOXIDE ALLOW-
20 ANCES.—The Administrator shall allocate, on a
21 pro rata basis in accordance with paragraphs
22 (1) and (2), any sulfur dioxide allowance that
23 is available for allocation, but that is not allo-
24 cated, for a calendar year under subparagraph
25 (C) to—

1 “(i) appropriate accounts of the allow-
2 ance tracking system under section 403(d);
3 and

4 “(ii) existing affected units (as de-
5 fined in paragraph (2)(A)).

6 “(4) DETERMINATION OF BASELINE HEAT
7 INPUT.—For purposes of calculations under para-
8 graphs (2)(C) and (3)(C), the baseline heat input of
9 an existing affected unit (as defined in paragraph
10 (2)(A)) or a new affected unit (as defined in para-
11 graph (3)(A)) shall be equal to the quotient obtained
12 by dividing—

13 “(A) the sum of the heat input of the af-
14 fected unit for each of calendar years 2005
15 through 2007; by

16 “(B) 3.

17 “(5) WITHDRAWAL OF ALLOWANCES.—After
18 completing the allocations of sulfur dioxide allow-
19 ances under paragraphs (1), (2), and (3), the Ad-
20 ministrator shall withdraw from each compliance ac-
21 count and general account in the allowance tracking
22 system under section 403(d), and from the special
23 allowance reserve under section 416, all sulfur diox-
24 ide allowances allocated or deposited for calendar
25 year 2015 or any calendar year thereafter.

1 “(6) TIMING OF ALLOCATIONS.—The Adminis-
2 trator shall carry out each allocation of sulfur diox-
3 ide allowances required under this subsection for cal-
4 endar year 2015 or any calendar year thereafter by
5 not later than December 31, 2011.

6 “(7) NO JUDICIAL REVIEW.—An allocation of
7 sulfur dioxide allowances by the Administrator under
8 this subsection, and the determination of a value
9 used in calculating such an allocation, shall not be
10 subject to judicial review.”.

11 (b) DEFINITIONS.—Section 402 of the Clean Air Act
12 (relating to acid deposition control) (42 U.S.C. 7651a) is
13 amended—

14 (1) by striking paragraph (2) and inserting the
15 following:

16 “(2) AFFECTED UNIT.—

17 “(A) IN GENERAL.—The term ‘affected
18 unit’ means—

19 “(i) for a calendar year before cal-
20 endar year 2015, a unit that is subject to
21 emission reduction requirements or limita-
22 tions under section 404, 405, 406, 409, or
23 410; and

24 “(ii) subject to subparagraph (B), for
25 calendar year 2015 and each calendar year

1 thereafter, a fossil fuel-fired electric gener-
2 ating unit that, on or after January 1,
3 1985, served a generator with a nameplate
4 capacity greater than 25 megawatts pro-
5 ducing electricity for sale.

6 “(B) EXCLUSION.—For purposes of sub-
7 paragraph (A)(ii), the term ‘affected unit’ does
8 not include a unit that—

9 “(i) cogenerates steam and electricity;
10 but

11 “(ii) is not a cogeneration unit.

12 “(C) RELATED DEFINITIONS.—For pur-
13 poses of this paragraph, the terms ‘cogeneration
14 unit’, ‘fossil fuel-fired’, and ‘unit’ have the
15 meanings given the terms in section 701.”; and
16 (2) by striking paragraph (3) and inserting the
17 following:

18 “(3) ALLOWANCE.—

19 “(A) IN GENERAL.—Notwithstanding any
20 other provision of this title, the term ‘allowance’
21 or ‘sulfur dioxide allowance’ means—

22 “(i) except as provided in clause (ii),
23 an authorization allocated by the Adminis-
24 trator under this title to an affected unit
25 to emit, during or after a specified cal-

1 endar year, a quantity of sulfur dioxide
2 emissions equal to 1 ton of sulfur dioxide;
3 and

4 “(ii) with respect to a sulfur dioxide
5 allowance allocated to a unit in a CAIR
6 State for any of calendar years 2010
7 through 2014, an authorization allocated
8 by the Administrator under this title, or
9 under CAIR, to a unit to emit, during or
10 after the applicable calendar year, a quan-
11 tity of sulfur dioxide emissions equal to $\frac{1}{2}$
12 ton of sulfur dioxide.

13 “(B) RELATED DEFINITIONS.—For pur-
14 poses of subparagraph (A), the terms ‘CAIR’
15 and ‘CAIR State’ have the meanings given the
16 terms in section 701.”.

17 (c) COMPLIANCE.—

18 (1) PROHIBITION.—Section 403(g) of the Clean
19 Air Act (relating to acid deposition control) (42
20 U.S.C. 7651b(g)) is amended by striking the second
21 sentence and inserting the following: “It shall be un-
22 lawful for the affected units of any affected source
23 to emit sulfur dioxide during a calendar year in ex-
24 cess of the tons of sulfur dioxide emissions author-
25 ized by the allowances held by the owner or operator

1 of the affected source for the affected source for the
2 calendar year.”.

3 (2) PERMITS AND COMPLIANCE PLANS.—Sec-
4 tion 408 of the Clean Air Act (relating to acid depo-
5 sition control) (42 U.S.C. 7651g) is amended—

6 (A) in subsection (a), by striking para-
7 graph (1) and inserting the following:

8 “(1) annual emissions of sulfur dioxide in ex-
9 cess of the tons of sulfur dioxide emissions author-
10 ized by the allowances held by the owner or oper-
11 ator, or the designated representative of an owner or
12 operator, of the affected source for the affected
13 source for the calendar year,”; and

14 (B) in subsection (b), in the fourth sen-
15 tence, by striking “to emit not less than the
16 total annual emissions of the unit” and insert-
17 ing “authorizing tons of emissions not less than
18 the total annual emissions of the unit”.

19 (d) EXCESS EMISSIONS.—Section 411 of the Clean
20 Air Act (relating to acid deposition control) (42 U.S.C.
21 7651j) is amended by striking subsection (e) and inserting
22 the following:

23 “(e) EXCESS EMISSIONS OF SULFUR DIOXIDE.—

24 “(1) PENALTY.—

1 “(A) IN GENERAL.—Notwithstanding sub-
2 sections (a), (b), and (c), the owner and oper-
3 ator of an affected source the affected units of
4 which emit, during calendar year 2007 or any
5 calendar year thereafter, sulfur dioxide in ex-
6 cess of the tons of sulfur dioxide emissions au-
7 thorized by the allowances held for use by the
8 affected source for that calendar year shall off-
9 set, and pay an excess emissions penalty for,
10 the excess emissions by surrendering to the Ad-
11 ministrator a quantity of sulfur dioxide allow-
12 ances for the following calendar year, or such
13 earlier period as the Administrator may pre-
14 scribe, authorizing a number of tons of sulfur
15 dioxide emissions equal to the product obtained
16 by multiplying—

17 “(i) subject to subparagraph (B), the
18 number of tons of the excess emissions;

19 and

20 “(ii) 2.

21 “(B) TREATMENT OF CERTAIN QUAN-
22 TITIES OF EMISSIONS.—For purposes of sub-
23 paragraph (A)(i), a quantity of excess emissions
24 equal to less than 1 ton shall be considered to

1 be a quantity of excess emissions equal to 1
2 ton.

3 “(2) TREATMENT OF PENALTY.—An offset and
4 penalty imposed under paragraph (1) shall be in lieu
5 of any offset and penalty required under subsection
6 (a), (b), or (c) with respect to sulfur dioxide emis-
7 sions.

8 “(f) SAVINGS PROVISION.—Nothing in this section
9 limits or otherwise affects the application of section 113,
10 114, 120, or 304.”.

11 (e) TECHNICAL AMENDMENTS.—

12 (1) Title IV of the Clean Air Act (relating to
13 noise pollution) (42 U.S.C. 7641 et seq.)—

14 (A) is amended by redesignating sections
15 401 through 403 as sections 801 through 803,
16 respectively; and

17 (B) is redesignated as title VIII and moved
18 to appear at the end of that Act.

19 (2) The table of contents for title IV of the
20 Clean Air Act (relating to acid deposition control)
21 (42 U.S.C. prec. 7651) is amended by adding at the
22 end the following:

“Sec. 417. Revisions to sulfur dioxide allowance program.”.

23 **SEC. 105. AIR QUALITY FORECASTS AND WARNINGS.**

24 (a) REQUIREMENT FOR FORECASTS AND WARN-
25 INGS.—The Secretary of Commerce, acting through the

1 Administrator of the National Oceanic and Atmospheric
2 Administration, in cooperation with the Administrator of
3 the Environmental Protection Agency, shall issue air qual-
4 ity forecasts and air quality warnings as part of the mis-
5 sion of the Department of Commerce.

6 (b) REGIONAL WARNINGS.—In carrying out sub-
7 section (a), the Secretary of Commerce shall establish
8 within the National Oceanic and Atmospheric Administra-
9 tion a program to provide region-oriented forecasts and
10 warnings regarding air quality for each of the following
11 regions of the United States:

12 (1) The Northeast, composed of Connecticut,
13 Maine, Massachusetts, New Hampshire, New York,
14 Rhode Island, and Vermont.

15 (2) The Mid-Atlantic, composed of Delaware,
16 the District of Columbia, Maryland, New Jersey,
17 Pennsylvania, Virginia, and West Virginia.

18 (3) The Southeast, composed of Alabama, Flor-
19 ida, Georgia, North Carolina, and South Carolina.

20 (4) The South, composed of Arkansas, Lou-
21 isiana, Mississippi, Oklahoma, Tennessee, and
22 Texas.

23 (5) The Midwest, composed of Illinois, Indiana,
24 Iowa, Kentucky, Michigan, Minnesota, Missouri,
25 Ohio, and Wisconsin.

1 (6) The High Plains, composed of Kansas, Ne-
2 braska, North Dakota, and South Dakota.

3 (7) The Northwest, composed of Idaho, Mon-
4 tana, Oregon, Washington, and Wyoming.

5 (8) The Southwest, composed of Arizona, Cali-
6 fornia, Colorado, New Mexico, Nevada, and Utah.

7 (9) Alaska.

8 (10) Hawaii.

9 (c) PRIORITY AREA.—In establishing the program
10 described in subsection (a), the Secretary of Commerce
11 and the Administrator shall identify and expand, to the
12 maximum extent practicable, Federal air quality forecast
13 and warning programs in effect as of the date of establish-
14 ment of the program.

15 (d) AUTHORIZATION OF APPROPRIATIONS.—There
16 are authorized to be appropriated such sums as are nec-
17 essary to carry out this section.

18 **SEC. 106. RELATIONSHIP TO OTHER LAW.**

19 (a) REGULATION OF HAZARDOUS AIR POLLUT-
20 ANTS.—Section 112(n)(1) of the Clean Air Act (42 U.S.C.
21 7412(n)(1)) is amended by striking subparagraph (A) and
22 inserting the following:

23 “(A) REGULATIONS.—

24 “(i) IN GENERAL.—Not later than 18
25 months after the date of enactment of the

1 Clean Air/Climate Change Act of 2007, the
2 Administrator shall promulgate regulations
3 under this section limiting the emission
4 from electric utility steam generating units
5 of hazardous air pollutants, other than
6 mercury, as the Administrator determines
7 to be appropriate and necessary in accord-
8 ance with the standards under this section,
9 including subsections (b)(2) and (f).

10 “(ii) REQUIREMENTS.—The regula-
11 tions under clause (i) shall—

12 “(I) require compliance with ap-
13 plicable standards as expeditiously as
14 practicable, but not later than 3 years
15 after the effective date of the regula-
16 tions; and

17 “(II) be in accordance with other
18 applicable requirements under this
19 section.

20 “(iii) EFFECTIVE DATE.—The regula-
21 tions under clause (i) shall be effective on
22 the date of promulgation of the regula-
23 tions.”.

1 (b) SAFE DRINKING WATER ACT.—Section 1412(b)
2 of the Safe Drinking Water Act (42 U.S.C. 300g–1(b))
3 is amended by adding at the end the following:

4 “(16) CARBON DIOXIDE.—Not later than 2
5 years after the date of enactment of the Clean Air/
6 Climate Change Act of 2007, the Administrator
7 shall promulgate regulations establishing standards
8 for underground injection of carbon dioxide in a
9 manner that protects human health and the environ-
10 ment.”.

11 (c) NO EFFECT ON OTHER FEDERAL AND STATE
12 REQUIREMENTS.—Except as otherwise specifically pro-
13 vided in this Act, nothing in this Act or an amendment
14 made by this Act—

15 (1) affects any permitting, monitoring, or en-
16 forcement obligation of the Administrator of the En-
17 vironmental Protection Agency under the Clean Air
18 Act (42 U.S.C. 7401 et seq.) or any remedy pro-
19 vided under that Act;

20 (2) affects any requirement applicable to, or li-
21 ability of, an electric generating unit under that Act;

22 (3) requires a change in, affects, or limits any
23 State law that regulates electric utility rates or
24 charges, including prudence review under State law;
25 or

1 (4) precludes a State or political subdivision of
 2 a State from adopting and enforcing any require-
 3 ment for the control or abatement of air pollution,
 4 except that a State or political subdivision may not
 5 adopt or enforce any emission standard or limitation
 6 that is less stringent than the requirements imposed
 7 under that Act.

8 **TITLE II—GREENHOUSE GAS**
 9 **OFFSETS**

10 **SEC. 201. GREENHOUSE GAS OFFSETS.**

11 The Clean Air Act (42 U.S.C. 7401 et seq.) (as
 12 amended by section 101) is amended by adding at the end
 13 the following:

14 **“TITLE VIII—GREENHOUSE GAS**
 15 **OFFSETS**

“TITLE VIII—GREENHOUSE GAS OFFSETS

“Sec. 801. Definitions.

“Sec. 802. General requirements.

“Sec. 803. Standards for offset allowances.

16 **“SEC. 801. DEFINITIONS.**

17 “In this title:

18 “(1) ALLOWANCE.—The term ‘allowance’
 19 means—

20 “(A) a carbon dioxide allowance, as defined
 21 in section 701; and

22 “(B) an offset allowance.

23 “(2) ANAEROBIC DIGESTER.—

1 “(A) IN GENERAL.—The term ‘anaerobic
2 digester’ means a device that promotes the de-
3 composition of organic material to simple or-
4 ganic and gaseous biogas products, usually by
5 collecting the material under controlled tem-
6 perature and volume.

7 “(B) INCLUSION.—The term ‘anaerobic di-
8 gester’ includes a biogas recovery system.

9 “(3) ANAEROBIC STORAGE.—The term ‘anaer-
10 obic storage’ means storage of organic material in
11 an oxygen-free environment or under oxygen-free
12 conditions, including by using holding tanks, ponds,
13 or lagoons.

14 “(4) ANSI.—The term ‘ANSI’ means the
15 American National Standards Institute.

16 “(5) ASHRAE.—The term ‘ASHRAE’ means
17 the American Society of Heating, Refrigerating and
18 Air Conditioning Engineers.

19 “(6) BIOGAS.—The term ‘biogas’ means a
20 gas—

21 “(A) the principal components of which are
22 methane and carbon dioxide; and

23 “(B) that results from the decomposition
24 of organic matter under anaerobic conditions.

1 “(7) BOILER.—The term ‘boiler’ means a self-
2 contained, low-pressure appliance for supplying heat
3 in the form of steam or hot water to a residential
4 building or commercial building.

5 “(8) COMMERCIAL BUILDING.—The term ‘com-
6 mercial building’ means a building to which ANSI/
7 ASHRAE/IESNA Standard 90.1 applies.

8 “(9) ELIGIBLE BIOMASS.—The term ‘eligible
9 biomass’ includes sustainable harvested woody or
10 herbaceous fuel sources that are available on a re-
11 newable or recurring basis (excluding old-growth
12 timber), as determined by the Administrator, includ-
13 ing—

14 “(A) dedicated energy crops and trees;

15 “(B) agricultural food and feed crop resi-
16 dues;

17 “(C) aquatic plants;

18 “(D) unadulterated wood and wood resi-
19 dues;

20 “(E) animal wastes;

21 “(F) other clean organic wastes not mixed
22 with other solid wastes;

23 “(G) biogas; and

1 “(H) other neat liquid biofuels derived
2 from any fuel source described in subpara-
3 graphs (A) through (G).

4 “(10) ENERGY CONSERVATION MEASURE.—The
5 term ‘energy conservation measure’ means an activ-
6 ity the purpose of which is to increase the energy ef-
7 ficiency of a building or to improve the management
8 of energy demand, including through—

9 “(A) physical changes to equipment;

10 “(B) modifications to the building;

11 “(C) revisions of operating and mainte-
12 nance procedures;

13 “(D) software changes; and

14 “(E) new methods of training or managing
15 users of the building or operations and mainte-
16 nance staff.

17 “(11) ENERGY PERFORMANCE.—The term ‘en-
18 ergy performance’ means the relative energy effi-
19 ciency of a building, building equipment, or building
20 component, measured based on—

21 “(A) for a building, the quantity of energy
22 required to provide building services; and

23 “(B) for building equipment and compo-
24 nents, the impact of equipment or components
25 on energy usage.

1 “(12) FORESTED CONDITION.—The term ‘for-
2 ested condition’, with respect to land, means land—

3 “(A) the area of which is at least 1 acre,
4 with strips of forest at least 120 feet wide,
5 measured stem-to-stem from the outer-most
6 edge, for a continuous length of at least 363
7 feet; and

8 “(B)(i) at least 10 percent of the area of
9 which is stocked by trees of any size, or has
10 been at least 10-percent stocked by trees at any
11 time, and that is not subject to any nonforest-
12 related use that prevents normal tree regenera-
13 tion and succession, such as regular mowing,
14 intensive grazing, or recreation activities; or

15 “(ii) for any western woodland species for
16 which the stocking described in clause (i) can-
17 not be determined, at least 5 percent of which
18 has a crown cover of trees of any size, or has
19 had at least 5-percent cover at any time, and
20 that is not subject to any nonforest-related use
21 that prevents normal tree regeneration and suc-
22 cession, such as regular mowing, intensive graz-
23 ing, or recreation activities.

24 “(13) FURNACE.—The term ‘furnace’ means a
25 self-contained, indirect-fired appliance that—

1 “(A) supplies heated air to a residential
2 building or commercial building through ducts
3 to conditioned spaces; and

4 “(B) has a heat input rate of less than
5 225,000 Btu per hour.

6 “(14) HVAC SYSTEM.—

7 “(A) IN GENERAL.—The term ‘HVAC sys-
8 tem’ means any system or combination of sys-
9 tems that provides, collectively or individually,
10 heating, ventilation, or air conditioning to a
11 building.

12 “(B) INCLUSIONS.—The term ‘HVAC sys-
13 tem’ includes equipment, distribution networks,
14 and terminals for a system described in sub-
15 paragraph (A).

16 “(15) IESNA.—The term ‘IESNA’ means the
17 Illuminating Engineering Society of North America.

18 “(16) MARKET PENETRATION RATE.—The term
19 ‘market penetration rate’ means, as determined by
20 the Administrator, the rate of diffusion of a tech-
21 nology, product, or practice in a defined market, ex-
22 pressed as—

23 “(A) a percentage of annual sales of the
24 technology, product, or practice; or

1 “(B) a percentage of existing installed
2 stock—

3 “(i) for a product or category of prod-
4 ucts; or

5 “(ii) that uses a technology, product,
6 or practice.

7 “(17) OFFSET ALLOWANCE.—The term ‘offset
8 allowance’ means an allowance awarded under this
9 title for—

10 “(A) each sequestration of, reduction in, or
11 prevention of, 1 ton of carbon dioxide or carbon
12 dioxide-equivalent emissions, as determined by
13 the Administrator; or

14 “(B) an eligible emission credit retirement
15 under section 802(a).

16 “(18) OFFSET PROJECT.—The term ‘offset
17 project’ means a project that—

18 “(A) provides for a reduction in green-
19 house gases or greenhouse gas emissions
20 through—

21 “(i) the capture and destruction of
22 methane from a landfill;

23 “(ii) a reduction in emissions of sulfur
24 hexafluoride;

1 “(iii) the sequestration of carbon
2 through afforestation;

3 “(iv) a reduction or avoidance of car-
4 bon dioxide emissions from natural gas, oil,
5 or propane end-use combustion through
6 end-use energy efficiency; or

7 “(v) the prevention of methane emis-
8 sions through the use of agricultural ma-
9 nure management operations;

10 “(B) is carried out in any State or other
11 United States jurisdiction pursuant to a memo-
12 randum of understanding between the project
13 sponsor and the Administrator; and

14 “(C) begins operation on or after the date
15 of enactment of this title.

16 “(19) RESIDENTIAL BUILDING.—The term ‘res-
17 idential building’ means a low-rise building (includ-
18 ing a single family home, a multifamily structure of
19 3 stories or less above grade, and a manufactured
20 modular or mobile home) to which ANSI/ASHRAE/
21 IESNA Standard 90.1 does not apply.

22 “(20) RESNET.—The term ‘RESNET’ means
23 the Residential Energy Services Network.

1 “(21) SF₆-CONTAINING OPERATING EQUIP-
2 MENT.—The term ‘SF₆-containing operating equip-
3 ment’ means any equipment that—

4 “(A) is used for the transmission or dis-
5 tribution of electricity; and

6 “(B) contains sulfur hexafluoride.

7 “(22) TOTAL SOLIDS.—The term ‘total solids’
8 means the content of solid materials in a given sam-
9 ple, including suspended solids, dissolved solids, and
10 suspended volatile solids.

11 “(23) TRANSMISSION OR DISTRIBUTION ENTI-
12 TY.—

13 “(A) IN GENERAL.—The term ‘trans-
14 mission or distribution entity’ means an entity
15 that transmits or distributes electricity from an
16 electric generator to the electrical load of a cus-
17 tomer.

18 “(B) INCLUSIONS.—The term ‘trans-
19 mission or distribution entity’ includes all re-
20 lated assets and equipment of an entity de-
21 scribed in subparagraph (A) that are located
22 within the service area of the entity, as defined
23 by the applicable State regulatory agency.

24 “(24) VERIFICATION.—The term ‘verification’
25 means any activity conducted by a project sponsor to

1 ensure the adequacy and consistency of a component
2 of an offset project, including monitoring and re-
3 porting to the Administrator on any violation of this
4 title.

5 “(25) UNFCCC.—The term ‘UNFCCC’ means
6 the United Nations Framework Convention on Cli-
7 mate Change, done at New York on May 9, 1992.

8 “(26) VOLATILE SOLIDS.—The term ‘volatile
9 solids’ means the fraction of total solids of a given
10 sample that is comprised primarily of organic mat-
11 ter.

12 **“SEC. 802. GENERAL REQUIREMENTS.**

13 “(a) ELIGIBLE CARBON DIOXIDE EMISSION OFFSET
14 PROJECTS AND ELIGIBLE EMISSION CREDIT RETIRE-
15 MENTS.—Subject to subsection (c) and in accordance with
16 the calculations and other requirements of section 803, the
17 Administrator may award offset allowances to the sponsor
18 of any offset project or eligible emission credit retirement
19 if the sponsor has met all applicable requirements of this
20 title.

21 “(b) PROJECT SPONSOR.—Any person may act as the
22 sponsor of an offset project or eligible emission credit re-
23 tirement if the person meets all the requirements estab-
24 lished by the Administrator.

1 “(c) REQUIREMENTS FOR THE AWARD OF OFFSET
2 ALLOWANCES.—Except as provided in section 803, with
3 respect to the awarding of offset allowances under this sec-
4 tion—

5 “(1) an offset allowance may not be awarded
6 for an offset project that is required to be carried
7 out pursuant to any Federal, State, or local law (in-
8 cluding a regulation), other than this Act, or admin-
9 istrative or judicial order;

10 “(2) offset allowances shall not be awarded to
11 an offset project that includes an electric generation
12 component; and

13 “(3) an offset allowance shall not be awarded to
14 an offset project that is awarded credits or allow-
15 ances under any other mandatory or voluntary
16 greenhouse gas program, as determined by the Ad-
17 ministrator.

18 “(d) OFFSET PROJECT AUDIT.—The sponsor of an
19 offset project shall provide to the Administrator (or a des-
20 ignee) access to the physical location at which the offset
21 project is carried out to ensure compliance with this title.

22 “(e) INELIGIBILITY BECAUSE OF NONCOMPLI-
23 ANCE.—If the Administrator determines that an offset
24 project or sponsor of an offset project has not complied,

1 or is not in compliance, with this title, the Administrator
2 may—

3 “(1) revoke and retire any offset allowances in
4 the account of the sponsor of the offset project; and

5 “(2) revoke any other approvals issued by the
6 Administrator with respect to the offset project.

7 “(f) REGULATIONS.—

8 “(1) IN GENERAL.—Not later than 2 years
9 after the date of enactment of this title, the Admin-
10 istrator shall promulgate regulations to carry out
11 this title.

12 “(2) INTERACTION WITH DEPARTMENT OF AG-
13 RICULTURE.—

14 “(A) IN GENERAL.—Except as provided in
15 subparagraph (B), the Administrator shall pro-
16 mulgate all regulations relating to greenhouse
17 gas offsets under this title.

18 “(B) OFFSETS.—The Administrator, in
19 consultation with the Secretary of Agriculture,
20 shall promulgate regulations, in accordance
21 with the requirements of this title, relating to
22 greenhouse gas offsets produced by agricultural
23 sequestration practices.

24 “(3) ADDITIONAL PROJECT TYPES.—In promul-
25 gating regulations pursuant to this subsection, the

1 Administrator shall establish requirements, in ac-
2 cordance with the requirements of this title, relating
3 to types of greenhouse gas offset projects not other-
4 wise addressed under this title.

5 **“SEC. 803. STANDARDS FOR OFFSET ALLOWANCES.**

6 “(a) LANDFILL METHANE CAPTURE AND DESTRUC-
7 TION OFFSET PROJECTS.—

8 “(1) IN GENERAL.—An offset project for the
9 capture and destruction of methane shall be eligible
10 to receive allowances under this title if the offset
11 project—

12 “(A) captures and destroys methane from
13 a landfill that is not subject to—

14 “(i) the regulations entitled ‘Stand-
15 ards of Performance for New Stationary
16 Sources; Municipal Solid Waste Landfills’
17 under subpart www of part 60 of title 40,
18 Code of Federal Regulations (or successor
19 regulations); or

20 “(ii) any other relevant Federal regu-
21 lations, including emissions guidelines for
22 municipal solid waste landfills under—

23 “(I) subpart cc of part 60 of that
24 title; or

1 “(II) subpart aaaa of part 63 of
2 that title; and

3 “(B) meets the requirements of this sub-
4 section.

5 “(2) REQUIREMENT.—To be eligible to receive
6 an allowance under this subsection, an offset project
7 described in paragraph (1) shall use a landfill gas
8 collection system that provides for continuous meter-
9 ing and data computation of—

10 “(A) the landfill gas volumetric flow rate;
11 and

12 “(B) methane concentration.

13 “(3) EMISSIONS CALCULATIONS.—

14 “(A) EMISSIONS BASELINE.—

15 “(i) IN GENERAL.—The emissions
16 baseline of an offset project that receives
17 allowances under this subsection shall be
18 the potential fugitive landfill emissions of
19 methane (measured in tons of carbon diox-
20 ide equivalent), as calculated based on the
21 quantity of methane collected and metered
22 for thermal destruction as part of the off-
23 set project in accordance with the following
24 formula: Emissions (tons of carbon dioxide

1 equivalent) = $(V \times M \times (1-OX) \times GWP)/$
2 2000.

3 “(ii) ABBREVIATIONS.—In the for-
4 mula contained in clause (i)—

5 “(I) ‘V’ represents the volume of
6 methane collected (expressed in cubic
7 feet);

8 “(II) ‘M’ represents the mass of
9 methane per cubic foot (with a default
10 value of 0.04246 pounds per cubic
11 foot at 1 atmosphere and 20 °C);

12 “(III) ‘OX’ represents the oxida-
13 tion factor, which is the estimated
14 portion of collected methane that
15 would have oxidized to carbon dioxide
16 if not collected (with a default value
17 of 0.10); and

18 “(IV) ‘GWP’ represents the car-
19 bon dioxide-equivalent global warming
20 potential of methane (with a default
21 value of 23).

22 “(B) EMISSIONS REDUCTIONS.—

23 “(i) IN GENERAL.—The emissions re-
24 ductions of an offset project under this
25 subsection shall be the potential fugitive

1 landfill emissions of methane (measured in
2 tons of carbon dioxide equivalent) that
3 would have occurred if metered methane
4 collected from the landfill for thermal de-
5 struction as part of the offset project was
6 not collected and destroyed, as calculated
7 in accordance with the following formula:
8 Emissions reductions (tons of carbon diox-
9 ide equivalent) = $(V \times M \times (1-OX) \times C_{ef}$
10 $\times GWP)/2000$.

11 “(ii) ABBREVIATIONS.—In the for-
12 mula contained in clause (i)—

13 “(I) ‘V’ represents the volume of
14 methane collected (expressed in cubic
15 feet);

16 “(II) ‘M’ represents the mass of
17 methane per cubic foot (with a default
18 value of 0.04246 pounds per cubic
19 foot at 1 atmosphere and 20 °C);

20 “(III) ‘OX’ represents the oxida-
21 tion factor, which is the estimated
22 portion of collected methane that
23 would have oxidized to carbon dioxide
24 if not collected (with a default value
25 of 0.10);

1 “(IV) ‘C_{ef}’ represents the com-
2 bustion efficiency of methane control
3 technology (with a default value of
4 0.98); and

5 “(V) ‘GWP’ represents the car-
6 bon dioxide-equivalent global warming
7 potential of methane (with a default
8 value of 23).

9 “(4) MONITORING AND VERIFICATION.—Not
10 less frequently than once each year, the sponsor of
11 an offset project that receives an allowance under
12 this subsection shall submit to the Administrator a
13 monitoring and verification report, including—

14 “(A) data relating to monthly volumetric
15 flow rate and methane concentration of the off-
16 set project, including documentation that the
17 methane was actually supplied to an applicable
18 combustion source; and

19 “(B) verification of landfill gas methane
20 composition through landfill gas sampling and
21 independent laboratory analysis using applicable
22 laboratory test methods of the Environmental
23 Protection Agency.

24 “(b) SULFUR HEXAFLUORIDE OFFSET PROJECTS.—

1 “(1) IN GENERAL.—An offset project to pre-
2 vent, through capture and storage, recycling, or de-
3 struction, the emission into the atmosphere of sulfur
4 hexafluoride from equipment in the electricity trans-
5 mission and distribution sector shall be eligible to re-
6 ceive allowances under this title.

7 “(2) REQUIREMENTS.—

8 “(A) IN GENERAL.—To be eligible to re-
9 ceive an allowance under this subsection, an off-
10 set project described in paragraph (1) shall in-
11 clude incremental action beyond action taken
12 with respect to the offset project during the cal-
13 endar year preceding the year in which an ap-
14 plication is submitted (referred to in this sub-
15 section as the ‘baseline year’) to achieve a re-
16 duction in sulfur hexafluoride emissions, in ac-
17 cordance with the guidance under—

18 “(i) the International Electrotechnical
19 Commission document numbered 1634 and
20 entitled ‘High-voltage switchgear and con-
21 trol gear—Use and handling of sulfur
22 hexafluoride (SF₆) in high-voltage
23 switchgear and control gear’ (CEI/IEC
24 1634, 1995–04); and

1 “(ii) the Electric Power Research In-
2 stitute document entitled ‘Practical Guide
3 to SF₆ Handling Practices’ (TR-113933,
4 2002).

5 “(B) ENTITY-WIDE EMISSIONS RATES.—

6 “(i) CALCULATION.—

7 “(I) IN GENERAL.—The entity-
8 wide sulfur hexafluoride emissions
9 rate of an offset project, measured as
10 a percentage, shall be calculated in ac-
11 cordance with the following formula:
12 SF₆ emissions rate (%) = (total SF₆
13 emissions for reporting year)/(total
14 SF₆ nameplate capacity at end of re-
15 porting year).

16 “(II) DESCRIPTION.—In the for-
17 mula contained in subclause (I), ‘SF₆
18 nameplate capacity’ means the capac-
19 ity of all SF₆-containing operating
20 equipment owned or operated as part
21 of the offset project, measured at the
22 full and proper SF₆-charge of that
23 equipment, rather than the actual
24 charge of the equipment, which may
25 reflect leakage.

1 “(ii) REQUIREMENT.—

2 “(I) IN GENERAL.—Subject to
3 subclauses (II) and (III) and except
4 as provided in clause (iii), to be eligi-
5 ble to receive allowances under this
6 subsection, the entity-wide emissions
7 rate for the baseline year of an offset
8 project shall be lower than the appli-
9 cable emissions rate contained in the
10 following table:

“Emissions Rates by Region

A	9.68%
B	5.22%
C	9.68%
D	5.77%
E	3.65%
National	9.68%

11 “(II) ADJUSTMENT.—

12 “(aa) FINDING.—Congress
13 finds that the emissions rates
14 contained in the table under sub-
15 clause (I) are based on weighted
16 average emissions rates for cal-
17 endar year 2004 for the Environ-
18 mental Protection Agency sulfur
19 hexafluoride partnership utilities
20 in each region.

1 “(bb) DETERMINATION.—If
2 the Administrator determines
3 that an emissions rate contained
4 in the table under subclause (I)
5 for any region is in error and is
6 higher than the national weighted
7 average emissions rate, the na-
8 tional emissions rate contained in
9 that table shall apply with re-
10 spect to the region.

11 “(III) REGION DESCRIPTIONS.—
12 For purposes of the table under in
13 subclause (I)—

14 “(aa) Region A is comprised
15 of the States of Connecticut,
16 Delaware, Maine, Massachusetts,
17 New Jersey, New York, New
18 Hampshire, Pennsylvania, Rhode
19 Island, and Vermont;

20 “(bb) Region B is comprised
21 of the States of Alabama, Flor-
22 ida, Georgia, Kentucky, Mary-
23 land, Mississippi, North Carolina,
24 South Carolina, Tennessee, Vir-

1 ginia, West Virginia, and the
2 District of Columbia;

3 “(cc) Region C is comprised
4 of the States of Colorado, Illi-
5 nois, Indiana, Michigan, Min-
6 nesota, Montana, North Dakota,
7 Ohio, South Dakota, Utah, Wis-
8 consin, and Wyoming;

9 “(dd) Region D is comprised
10 of the States of Arkansas, Iowa,
11 Kansas, Louisiana, Missouri, Ne-
12 braska, New Mexico, Oklahoma,
13 and Texas; and

14 “(ee) Region E is comprised
15 of the States of Alaska, Arizona,
16 California, Hawaii, Idaho, Ne-
17 vada, Oregon, and Washington.

18 “(iii) EXCEPTION.—Notwithstanding
19 clause (ii), an offset project shall be eligi-
20 ble to receive allowances under this sub-
21 section regardless of the entity-wide emis-
22 sions rate for the baseline year of the off-
23 set project if the sponsor of the offset
24 project demonstrates to the satisfaction of

1 the Administrator that each of the fol-
2 lowing conditions is met:

3 “(I) The offset project is being
4 carried out at a transmission or dis-
5 tribution entity the service area of
6 which is predominantly urban.

7 “(II) The optimal management of
8 sulfur hexafluoride is prevented by at
9 least 2 of the following factors:

10 “(aa) The transmission or
11 distribution entity for which the
12 offset project is being carried out
13 is comprised of older-than-aver-
14 age installed transmission or dis-
15 tribution equipment compared to
16 the national average age of the
17 equipment.

18 “(bb) A majority of the elec-
19 tricity load of the transmission or
20 distribution entity for which the
21 offset project is being carried out
22 is served by equipment that is lo-
23 cated underground, precluding
24 management of sulfur

1 hexafluoride emissions through
2 regular ongoing maintenance.

3 “(cc) The transmission or
4 distribution entity for which the
5 offset project is being carried out
6 is unable to remove a substantial
7 portion of equipment from service
8 because doing so would impair
9 system reliability.

10 “(dd) The required equip-
11 ment purpose or design for a
12 substantial portion of the equip-
13 ment of the transmission or dis-
14 tribution entity for which the off-
15 set project is being carried out
16 results in inherently leak-prone
17 equipment.

18 “(3) EMISSIONS CALCULATIONS.—

19 “(A) IN GENERAL.—To be eligible to re-
20 ceive allowances under this subsection, the
21 sponsor of an offset project shall submit to the
22 Administrator an annual report describing the
23 sulfur hexafluoride emissions of the offset
24 project (including such supporting documenta-
25 tion as the Administrator determines to be ap-

1 appropriate), calculated in accordance with this
2 paragraph.

3 “(B) DETERMINATION OF BASELINE EMIS-
4 SIONS.—

5 “(i) IN GENERAL.—The baseline sul-
6 fur hexafluoride emissions of an offset
7 project that receives an allowance under
8 this subsection shall be determined based
9 on the sulfur hexafluoride emissions emit-
10 ted by the transmission or distribution en-
11 tity for the baseline year of the offset
12 project.

13 “(ii) LIMITATION.—The baseline year
14 for an offset project an application of
15 which is submitted before January 1,
16 2009, shall be not earlier than 2005.

17 “(iii) MONITORING.—The sponsor of
18 an offset project that receives an allowance
19 under this subsection shall systematically
20 track and account for all uses of sulfur
21 hexafluoride by the transmission or dis-
22 tribution entity for which the offset project
23 is being carried out to determine entity-
24 wide emissions of sulfur hexafluoride, in-
25 cluding monitoring all electric transmission

1 and distribution assets and all SF₆-con-
2 taining operating equipment owned or op-
3 erated by the transmission or distribution
4 entity.

5 “(C) MASS BALANCE METHOD.—

6 “(i) IN GENERAL.—For purposes of
7 this paragraph, the sulfur hexafluoride
8 emissions of an offset project for a cal-
9 endar year shall be determined based on
10 the following mass balance formula: SF₆
11 emissions (lbs) = (SF₆ change in inven-
12 tory) + (SF₆ purchases and acquisitions)
13 – (SF₆ sales and disbursements) – (change
14 in total SF₆ nameplate capacity of equip-
15 ment).

16 “(ii) DESCRIPTION.—In the formula
17 contained in clause (i)—

18 “(I) ‘SF₆ change in inventory’
19 means the difference between, with re-
20 spect to the applicable offset project—

21 “(aa) the quantity of sulfur
22 hexafluoride gas in storage (in-
23 cluding gas held in cylinders and
24 gas carts, but not including gas
25 held in SF₆-containing operating

1 equipment) on January 1 of the
2 applicable calendar year; and

3 “(bb) the quantity of sulfur
4 hexafluoride gas in storage on
5 December 31 of the applicable
6 calendar year;

7 “(II) ‘SF₆ purchases and acquisi-
8 tions’ means the total quantity of sul-
9 fur hexafluoride gas acquired from
10 other entities during the applicable
11 calendar year, as contained in storage
12 containers or SF₆-containing oper-
13 ating equipment;

14 “(III) ‘SF₆ sales and disburse-
15 ments’ means the total quantity of
16 sulfur hexafluoride gas sold or other-
17 wise distributed to other entities dur-
18 ing the applicable calendar year, as
19 contained in storage containers or
20 SF₆-containing operating equipment;
21 and

22 “(IV) ‘change in total SF₆ name-
23 plate capacity of equipment’ (meas-
24 ured at the full and proper SF₆-
25 charge of that equipment, rather than

1 the actual charge of the equipment,
 2 which may reflect leakage), means the
 3 net change in the total volume of SF₆-
 4 containing operating equipment dur-
 5 ing the applicable calendar year, equal
 6 to the difference between—

7 “(aa) the total volume of
 8 SF₆-containing operating equip-
 9 ment obtained during the appli-
 10 cable calendar year; and

11 “(bb) the total volume of
 12 SF₆-containing operating equip-
 13 ment retired during the applica-
 14 ble calendar year.

15 “(D) EMISSIONS.—

16 “(i) IN GENERAL.—The sulfur
 17 hexafluoride emissions of an offset project
 18 for a calendar year shall be calculated in
 19 accordance with the following formula:
 20 Emissions (tons of carbon dioxide equiva-
 21 lent) = [(V_{iby} - V_{iey}) + (PA_{psd} + PA_e +
 22 PA_{rre}) - (SD_{op} + SD_{rs} + SD_{df} + SD_{sor})
 23 - (CNP_{ne} - CNP_{rse})] × GWP/2000.

24 “(ii) DESCRIPTION.—In the formula
 25 contained in clause (i), in which each sul-

1 fur hexafluoride value shall be expressed in
2 pounds—

3 “(I) ‘ V_{iby} ’ represents the sulfur
4 hexafluoride inventory of the offset
5 project in cylinders, gas carts, and
6 other storage containers (not includ-
7 ing SF₆-containing operating equip-
8 ment) on January 1 of the applicable
9 calendar year;

10 “(II) ‘ V_{iey} ’ represents the sulfur
11 hexafluoride inventory of the offset
12 project in cylinders, gas carts, and
13 other storage containers (not includ-
14 ing SF₆-containing operating equip-
15 ment) on December 31 of the applica-
16 ble calendar year;

17 “(III) ‘ PA_{psd} ’ represents the
18 quantity of sulfur hexafluoride pur-
19 chased from suppliers and distributors
20 in cylinders for the offset project dur-
21 ing the applicable calendar year;

22 “(IV) ‘ PA_e ’ represents the quan-
23 tity of sulfur hexafluoride provided by
24 equipment manufacturers in SF₆-con-

1 taining operating equipment during
2 the applicable calendar year;

3 “(V) ‘PA_{rre}’ represents the quan-
4 tity of sulfur hexafluoride returned to
5 the offset project entity after off-site
6 recycling during the applicable cal-
7 endar year;

8 “(VI) ‘SD_{op}’ represents sales of
9 sulfur hexafluoride by the offset
10 project to other entities during the ap-
11 plicable calendar year, including
12 through sulfur hexafluoride gas re-
13 maining in SF₆-containing operating
14 equipment sold by the offset project;

15 “(VII) ‘SD_{rs}’ represents the
16 quantity of sulfur hexafluoride re-
17 turned by the offset project to the
18 supplier during the applicable cal-
19 endar year;

20 “(VIII) ‘SD_{df}’ represents the
21 quantity of sulfur hexafluoride sent by
22 the offset project to destruction facili-
23 ties during the applicable calendar
24 year;

1 “(IX) ‘SD_{sor}’ represents the
2 quantity of sulfur hexafluoride sent
3 off-site for recycling by the offset
4 project during the applicable calendar
5 year;

6 “(X) ‘CNP_{ne}’ represents the total
7 sulfur hexafluoride nameplate capacity
8 (measured at full and proper charge)
9 of SF₆-containing operating equip-
10 ment of the offset project acquired
11 during the applicable calendar year;

12 “(XI) ‘CNP_{rse}’ represents the
13 total sulfur hexafluoride nameplate
14 capacity (measured at full and proper
15 charge) of SF₆-containing operating
16 equipment retired or sold by the offset
17 project during the applicable calendar
18 year; and

19 “(XII) ‘GWP’ represents the car-
20 bon dioxide equivalent global warming
21 potential of sulfur hexafluoride (the
22 default value of which is 22,200).

23 “(E) EMISSIONS REDUCTIONS.—

24 “(i) IN GENERAL.—The emissions re-
25 duction of an offset project for a calendar

1 year shall be determined in accordance
2 with the following formula: Emissions re-
3 duction (tons of carbon dioxide equivalent)
4 = (total pounds of SF₆ emissions in base-
5 line year) – (total pounds of SF₆ emissions
6 in reporting year) × GWP/2000.

7 “(ii) DESCRIPTION.—For purposes of
8 the formula contained in clause (i)—

9 “(I) each value shall be deter-
10 mined in accordance with the calcula-
11 tions described in this paragraph; and

12 “(II) ‘GWP’ represents the car-
13 bon dioxide equivalent global warming
14 potential of sulfur hexafluoride (the
15 default value of which is 22,200).

16 “(4) MONITORING AND VERIFICATION.—

17 “(A) IN GENERAL.—Not less frequently
18 than once each year, the sponsor of an offset
19 project that receives an allowance under this
20 subsection shall submit to the Administrator a
21 monitoring and verification report that in-
22 cludes—

23 “(i) the information and documenta-
24 tion described in paragraph (3)(A);

1 “(ii) an identification of each facility
2 managed by the transmission or distribu-
3 tion entity for which the offset project is
4 being carried out from which sulfur
5 hexafluoride gas is acquired or disbursed,
6 including—

7 “(I) a log of each such acquisi-
8 tion or dispersal describing—

9 “(aa) the weight of each cyl-
10 inder transported before ship-
11 ment from the facility; and

12 “(bb) the weight of each cyl-
13 inder after return to the facility;
14 and

15 “(II) a cylinder-specific log (in-
16 cluding the location, weight, and spe-
17 cific identifying information of any
18 applicable equipment) for each cyl-
19 inder used at the facility—

20 “(aa) to fill equipment with
21 sulfur hexafluoride; or

22 “(bb) to reclaim sulfur
23 hexafluoride from equipment; and

24 “(iii) an inventory of all SF₆-con-
25 taining operating equipment and all other

1 sulfur hexafluoride-related items (including
2 cylinders, gas carts, and other storage con-
3 tainers) used by the transmission or dis-
4 tribution entity for which the offset project
5 is being carried out.

6 “(B) RETURN OF LOGS.—The project
7 sponsor shall submit to the facility in control of
8 each applicable cylinder a copy of each log de-
9 scribed in subparagraph (A)(ii)(II) relating to
10 the cylinder by not later than the earlier of—

11 “(i) the date on which the sponsor
12 completes use of the cylinder; and

13 “(ii) the date on which the cylinder is
14 empty.

15 “(c) SEQUESTRATION OF CARBON DUE TO
16 AFFORESTATION OR REFORESTATION.—

17 “(1) IN GENERAL.—An offset project that se-
18 questers carbon through the conversion of nonfor-
19 ested land to a forested condition may receive allow-
20 ances under this title if—

21 “(A) the offset project occurs on land that
22 has been in a nonforested state for at least 10
23 years immediately preceding the date of imple-
24 mentation of the offset project;

1 “(B) the offset project is, as determined by
2 the Administrator—

3 “(i) not common practice in the geo-
4 graphic area in which the offset project
5 will occur;

6 “(ii) managed in accordance with
7 widely-accepted environmentally sustain-
8 able forestry practices; and

9 “(iii) designed to promote restoration
10 of native forests by using mainly native
11 species and avoiding the introduction of
12 invasive nonnative species; and

13 “(iv) before any commercial timber
14 harvest-related activity occurs pursuant to
15 the offset project, an appropriate certifi-
16 cation is obtained by the sponsor of the
17 offset project through—

18 “(I) the Forest Stewardship
19 Council;

20 “(II) the Sustainable Forestry
21 Institute;

22 “(III) the American Tree Farm
23 System; or

1 “(IV) such other similar organi-
2 zation as the Administrator deter-
3 mines to be appropriate.

4 “(2) CARBON SEQUESTRATION BASELINE.—

5 “(A) IN GENERAL.—To be eligible to re-
6 ceive allowances under this subsection, the
7 sponsor of an offset project shall determine,
8 using data from the 1-year period ending on the
9 date on which the offset project begins oper-
10 ation, the carbon content of certain carbon
11 pools in accordance with this paragraph.

12 “(B) CARBON POOLS.—

13 “(i) MANDATORY.—As a condition of
14 receiving allowances under this subsection,
15 the sponsor of an offset project shall deter-
16 mine the carbon content of the following
17 carbon pools:

18 “(I) Live above-ground tree bio-
19 mass.

20 “(II) Live below-ground tree bio-
21 mass.

22 “(III) Soil carbon.

23 “(IV)(aa) Except as provided in
24 item (bb), dead organic matter and
25 coarse woody debris.

1 “(bb) If the Administrator deter-
2 mines that the baseline measurement
3 of the dead organic matter or coarse
4 woody debris carbon pool for an offset
5 project is at or near zero, the deter-
6 mination of the carbon content of that
7 carbon pool shall be discretionary
8 under clause (ii).

9 “(ii) DISCRETIONARY.—The sponsor
10 of an offset project may elect to determine
11 the carbon content of the following carbon
12 pools:

13 “(I) Live above-ground non-tree
14 biomass.

15 “(II) Dead organic matter and
16 forest floor.

17 “(iii) DIVISION INTO SUBPOPULA-
18 TIONS.—

19 “(I) IN GENERAL.—To increase
20 the accuracy of the calculation of car-
21 bon content under this subparagraph,
22 the sponsor of the offset project shall
23 divide the land within the jurisdiction
24 of the offset project into subpopula-

1 tions that form relatively homogenous
2 units.

3 “(II) FACTORS FOR CONSIDER-
4 ATION.—In dividing land of the offset
5 project under subclause (I), the spon-
6 sor shall take into consideration—

7 “(aa) vegetation and tree
8 species (including existing vegeta-
9 tion and trees and vegetation and
10 trees to be used as part of the
11 offset project); and

12 “(bb) site-specific factors,
13 such as soil type, elevation, slope,
14 and age class.

15 “(iv) SUBPOPULATION CALCULA-
16 TION.—

17 “(I) IN GENERAL.—The carbon
18 content of each subpopulation of a
19 carbon pool under this subparagraph
20 shall be calculated in accordance with
21 the following formula: carbon dioxide
22 (tons) = $[(A \times C/\text{ha})(44/12)] /$
23 0.9072.

24 “(II) DESCRIPTION.—In the for-
25 mula contained in subclause (I)—

1 “(aa) ‘A’ represents the area
2 in hectares of the applicable sub-
3 population; and

4 “(bb) ‘C/ha’ represents the
5 average carbon content per hec-
6 tare of each carbon pool.

7 “(v) CARBON POOL CALCULATIONS.—

8 “(I) IN GENERAL.—The carbon
9 content of each carbon pool shall be
10 calculated using a measurement pro-
11 tocol and sample size that achieves
12 demonstrated, quantified accuracy for
13 the combined carbon pool calculation
14 under subparagraph (C), such that
15 the Administrator is 95-percent con-
16 fident that the calculated value is
17 within 10 percent of the true mean.

18 “(II) REQUIREMENTS.—Measure-
19 ment and sampling practices under
20 this subparagraph shall meet the fol-
21 lowing requirements:

22 “(aa) Adequate sample size
23 that meets each applicable re-
24 quirement with respect to each
25 applicable subpopulation.

1 “(bb) Minimum required
2 number of sampling plots for
3 each subpopulation, as deter-
4 mined in accordance with the for-
5 mula contained in subclause
6 (III).

7 “(III) FORMULA.—

8 “(aa) IN GENERAL.—The
9 formula referred to in subclause
10 (II)(bb) is the following: $n = (s$
11 $\times 1.960)/(\text{mean} \times \text{re})^2$.

12 “(bb) DESCRIPTION.—In the
13 formula contained in item (aa)—

14 “(AA) ‘n’ represents
15 the required number of sam-
16 ple plots for each applicable
17 subpopulation;

18 “(BB) ‘s’ represents
19 the standard deviation;

20 “(CC) ‘mean’ rep-
21 represents the average carbon
22 content calculated for the
23 sample population; and

24 “(DD) ‘re’ represents
25 the level of sampling error

1 (with a default value of
 2 0.08) to ensure a total max-
 3 imum error of not more
 4 than 10 percent, assuming a
 5 total error due to measure-
 6 ment error of 0.02.

7 “(C) TOTAL CARBON CONTENT CALCULA-
 8 TION.—

9 “(i) IN GENERAL.—The carbon con-
 10 tent of all carbon pools within the jurisdic-
 11 tion of an offset project shall be deter-
 12 mined, based on the values calculated
 13 under subparagraph (B)(iv), in accordance
 14 with the following formula: $TC_{pb} = TC_{latb}$
 15 $+ TC_{lbtb} + TC_s$ [$+ TC_{lantb} + TC_{doff} +$
 16 TC_{docwd}].

17 “(ii) DESCRIPTION.—In the formula
 18 contained in clause (i)—

19 “(I) ‘ TC_{pb} ’ represents the total
 20 carbon content of all carbon pools
 21 within the jurisdiction of an offset
 22 project;

23 “(II) ‘ TC_{latb} ’ represents the total
 24 carbon content of live above-ground

1 tree biomass in all applicable sub-
2 populations;

3 “(III) ‘TC_{lbtb}’ represents the
4 total carbon content of live below-
5 ground tree biomass in all applicable
6 subpopulations;

7 “(IV) ‘TC_s’ represents the total
8 carbon content of soil carbon in all
9 applicable subpopulations;

10 “(V) ‘TC_{lantb}’ represents the total
11 carbon content of live above-ground
12 non-tree biomass in all applicable sub-
13 populations;

14 “(VI) ‘TC_{doff}’ represents the
15 total carbon content of dead organic
16 matter and forest floor in all applica-
17 ble subpopulations; and

18 “(VII) ‘TC_{docwd}’ represents the
19 total carbon content of dead organic
20 matter and coarse woody debris in all
21 applicable subpopulations.

22 “(D) REQUIREMENT.—Calculations under
23 this paragraph shall be in accordance with ap-
24 plicable forestry best practices and guidance
25 contained in section 3 of part 1 of chapter 1 of

1 the technical guidelines for the voluntary re-
2 porting of greenhouse gases program of the De-
3 partment of Energy, dated March 2006 (or suc-
4 cessor guidelines).

5 “(3) CALCULATING SEQUESTRATION ALLOW-
6 ANCES.—

7 “(A) IN GENERAL.—For any year, the Ad-
8 ministrator shall allocate allowances under this
9 subsection based on the quantity of carbon se-
10 questered as a result of the applicable offset
11 project, based on the difference between, ex-
12 pressed as tons of carbon dioxide—

13 “(i) the aggregate carbon uptake and
14 carbon emissions of the carbon pools of the
15 offset project during the applicable year;
16 and

17 “(ii) the carbon content of the carbon
18 pools of the offset project for the preceding
19 year or the baseline year, as appropriate.

20 “(B) FORMULA.—

21 “(i) IN GENERAL.—For purposes of
22 allocating allowances under this subsection,
23 the quantity of carbon sequestered shall be
24 calculated using a stock-change approach,

1 in accordance with the following formula:

2
$$\text{NCS}_t = I_t - I_{t-1}.$$

3 “(ii) DESCRIPTION.—In the formula
4 contained in clause (i)—

5 “(I) ‘NCS_t’ represents the net
6 carbon sequestered during reporting
7 period *t*;

8 “(II) ‘I_t’ represents the inventory
9 of carbon stock for all carbon pools in
10 all applicable subpopulations within
11 the jurisdiction of the offset project
12 during reporting period *t*; and

13 “(III) ‘I_{t-1}’ represents the inven-
14 tory of carbon stock for all carbon
15 pools in all applicable subpopulations
16 within the jurisdiction of the offset
17 project during the reporting period
18 immediately preceding reporting pe-
19 riod *t*.

20 “(C) REQUIREMENTS.—

21 “(i) REMEASUREMENT.—Except as
22 provided in paragraph (2)(B)(i)(IV)(bb),
23 the carbon content of each carbon pool cal-
24 culated under paragraph (2) shall be re-
25 measured for each year during which the

1 applicable offset project receives an allow-
2 ance under this subsection, with equal or
3 greater precision, in accordance with that
4 paragraph.

5 “(ii) DETERMINATION OF CARBON
6 STOCK.—Each calculation of the carbon
7 stock of a subpopulation of a carbon pool
8 under this paragraph shall be made in ac-
9 cordance with paragraph (2).

10 “(iii) POTENTIAL LOSSES.—

11 “(I) IN GENERAL.—Subject to
12 subclause (II), the sponsor of an off-
13 set project shall decrease the net value
14 of change in carbon stock calculated
15 in accordance with this paragraph by
16 not more than 10 percent of the value
17 to account for potential losses of se-
18 questered carbon in any carbon pool
19 of the offset project.

20 “(II) INSURANCE.—The require-
21 ment under subclause (I) shall not
22 apply to any offset project that ob-
23 tains long-term insurance approved by
24 the Administrator to guarantee re-
25 placement of any lost sequestered car-

1 bon for which an allowance is issued
2 under this subsection.

3 “(4) MONITORING AND VERIFICATION.—Not
4 less frequently than once every 5 years, the sponsor
5 of an offset project that receives allowances under
6 this subsection shall submit to the Administrator a
7 monitoring and verification report, including—

8 “(A) a calculation of total carbon stock
9 within the jurisdiction of the offset project; and

10 “(B) data from the direct measurement of
11 carbon content for each carbon pool used to de-
12 termine the baseline and reporting period car-
13 bon content of the offset project.

14 “(5) CARBON SEQUESTRATION PERMANENCE.—

15 “(A) IN GENERAL.—To address the per-
16 manence of sequestered carbon, the sponsor of
17 each offset project that receives an allowance
18 under this subsection shall place land within the
19 jurisdiction of the offset project under a legally-
20 binding permanent conservation easement, ap-
21 proved by the Administrator, that requires the
22 land to be maintained in a forested condition in
23 perpetuity.

1 “(B) REQUIREMENTS.—A conservation
2 easement under subparagraph (A) shall include
3 a requirement that—

4 “(i) the carbon density within the ju-
5 risdiction of the offset project shall be
6 maintained at long-term levels; and

7 “(ii) land within the jurisdiction of
8 the offset project shall be managed in ac-
9 cordance with environmentally sustainable
10 forestry practices.

11 “(d) REDUCTION AND AVOIDANCE OF CARBON DIOX-
12 IDE EMISSIONS FROM NATURAL GAS, OIL, AND PROPANE
13 END-USE COMBUSTION DUE TO END-USE ENERGY EFFI-
14 CIENCY.—

15 “(1) DEFINITIONS.—In this subsection:

16 “(A) BUILDING ENVELOPE.—The term
17 ‘building envelope’ means the elements of a
18 building that separate conditioned space from
19 unconditioned space, or that enclose semiheated
20 space, through which thermal energy may be
21 transferred to or from the exterior,
22 unconditioned space, or conditioned space, in-
23 cluding any element that separates the interior
24 of a building from the outdoor environment

1 (such as walls, windows, foundation, basement
2 slab, ceiling, roof, and insulation).

3 “(B) PASSIVE SOLAR.—The term ‘passive
4 solar’, with respect to a building, means a com-
5 bination of building design features and build-
6 ing components that use solar energy to reduce
7 or eliminate the need for—

8 “(i) mechanical heating and cooling;
9 and

10 “(ii) daytime artificial lighting.

11 “(C) WHOLE-BUILDING RETROFIT.—The
12 term ‘whole-building retrofit’ means any build-
13 ing project that—

14 “(i) involves the replacement of more
15 than 1 building system or set of building
16 components; and

17 “(ii) requires a building permit.

18 “(D) ZERO-NET ENERGY BUILDING.—The
19 term ‘zero-net energy building’ means a build-
20 ing designed to produce as much energy, using
21 renewable energy sources, as the building is
22 projected to use, as measured on an annual
23 basis.

1 “(2) ELIGIBILITY.—An offset project shall be
2 eligible to receive allowances under this title if the
3 offset project—

4 “(A) reduces carbon dioxide emissions by
5 reducing on-site combustion of natural gas, oil,
6 or propane for end-use in a commercial building
7 or a residential building by improving the en-
8 ergy efficiency of fuel usage or the energy-effi-
9 cient delivery of energy services; and

10 “(B) meets the other requirements of this
11 subsection.

12 “(3) REQUIREMENTS.—

13 “(A) IN GENERAL.—To be eligible to re-
14 ceive allowances under this subsection, an offset
15 project shall reduce carbon dioxide emissions
16 through 1 or more of the following measures:

17 “(i) Measures to improve the energy
18 efficiency of combustion equipment that
19 provide space heating and hot water, in-
20 cluding a reduction in fossil fuel consump-
21 tion through the use of renewable energy.

22 “(ii) Measures to improve the effi-
23 ciency of a heating distribution system, in-
24 cluding proper sizing and commissioning of
25 heating systems.

1 “(iii) Installation or improvement of
2 energy management systems.

3 “(iv) Measures to improve the effi-
4 ciency of hot water distribution systems
5 and reduction in demand for hot water.

6 “(v) Measures to improve the thermal
7 performance of the building envelope or re-
8 duce building envelope air leakage.

9 “(vi) Measures to improve the passive
10 solar performance of buildings and use of
11 active heating systems using renewable en-
12 ergy.

13 “(vii) Use of a less carbon-intensive
14 fuel in combustion systems, including the
15 use of liquid or gaseous renewable fuels,
16 but not including a conversion to elec-
17 tricity.

18 “(B) NEW BUILDINGS.—To be eligible to
19 receive allowances under this subsection for an
20 offset project a component of which is a new
21 building, the new building shall be designed—

22 “(i) to replace an existing building on
23 the offset project site; or

24 “(ii) to be a zero-net energy building.

25 “(C) PERFORMANCE STANDARDS.—

1 “(i) IN GENERAL.—To be eligible to
2 receive allowances under this subsection,
3 an offset project shall meet the applicable
4 performance requirements of this subpara-
5 graph.

6 “(ii) SIZING AND INSTALLATION.—
7 Any combustion equipment and related air
8 handling equipment (including any HVAC
9 system) installed as part of an offset
10 project shall be sized and installed in ac-
11 cordance with—

12 “(I) for commercial HVAC sys-
13 tems—

14 “(aa) ANSI/ASHRAE/
15 IESNA Standard 90.1–2004, en-
16 titled ‘Energy Standard for
17 Buildings Except Low-Rise Resi-
18 dential Buildings’ (or a successor
19 standard); and

20 “(bb) ANSI/ASHRAE
21 Standard 62.1–2004, entitled
22 ‘Ventilation for Acceptable In-
23 door Air Quality’ (or a successor
24 standard); and

1 “(II) for residential HVAC sys-
2 tems—

3 “(aa) for sizing specifica-
4 tions, the eighth edition of the
5 Air Conditioner Contractors of
6 America Manual J, entitled ‘Res-
7 idential Load Calculation’ (or
8 successor specifications); and

9 “(bb) for applicable installa-
10 tion specifications, the document
11 of the Consortium for Energy Ef-
12 ficiency entitled ‘Specification of
13 Energy-Efficient Installation and
14 Maintenance Practices for Resi-
15 dential HVAC Systems’ and
16 dated 2000 (or a successor docu-
17 ment).

18 “(iii) WHOLE-BUILDING ENERGY PER-
19 FORMANCE.—Any eligible new building or
20 whole-building retrofit that is part of an
21 offset project shall meet the following re-
22 quirements:

23 “(I) COMMERCIAL BUILDINGS.—

24 “(aa) IN GENERAL.—Except
25 as provided in item (bb), com-

1 commercial buildings shall exceed by
2 at least 30 percent the energy
3 performance requirements of
4 ANSI/ASHRAE/IESNA Stand-
5 ard 90.1–2004, entitled ‘Energy
6 Standard for Buildings Except
7 Low-Rise Residential Buildings’
8 (or a successor standard).

9 “(bb) EXCEPTION.—A mul-
10 tifamily residential building clas-
11 sified as a commercial building
12 under ANSI/ASHRAE/IESNA
13 Standard 90.1–2004 (or a suc-
14 cessor standard) shall exceed the
15 energy performance requirements
16 described in item (aa) by at least
17 20 percent.

18 “(II) RESIDENTIAL BUILD-
19 INGS.—Residential buildings shall ex-
20 ceed the energy performance require-
21 ments of the 2004 International En-
22 ergy Conservation Code (or a suc-
23 cessor code) by at least 30 percent.

24 “(D) OFFSET PROJECTS INITIATED BE-
25 FORE JANUARY 1, 2009.—To be eligible to re-

1 ceive allowances under this subsection, each en-
2 ergy conservation measure implemented as part
3 of an offset project initiated before January 1,
4 2009, shall meet the following requirements:

5 “(i) COMBUSTION EQUIPMENT.—

6 “(I) IN GENERAL.—Combustion
7 equipment installed as part of the off-
8 set project shall meet the energy effi-
9 ciency performance standards re-
10 quired under this clause.

11 “(II) COMMERCIAL BOILERS.—

12 “(aa) IN GENERAL.—Com-
13 mercial boilers shall meet or ex-
14 ceed the energy efficiency criteria
15 specified in the following table:

“Minimum Commercial Boiler Energy Efficiency

Technology	Size (Btu/hour)	Rating method	Minimum efficiency
Gas-fired	125,000–300,000	AFUE	88%
Gas-fired	300,000–12,500,000	Thermal effi- ciency.	90%
Oil-fired	300,000 or more	Thermal effi- ciency.	88%

16 “(bb) GAS-FIRED BOIL-
17 ERS.—A gas-fired boiler installed
18 as part of the offset project shall
19 be installed with—

1 “(AA) controls allowing
2 the gas-fired boiler to oper-
3 ate in condensing mode,
4 such that the design and op-
5 eration of the boiler leads to
6 the production of condensate
7 in flue gases; and

8 “(BB) vents designed
9 for positive vent static pres-
10 sure and vent gas tempera-
11 ture that leads to conden-
12 sate production in the vent.

13 “(cc) THERMAL EFFI-
14 CIENCY.—For purposes of the
15 table contained in item (aa), the
16 term ‘thermal efficiency’ means
17 the percentage obtained by divid-
18 ing (as measured under steady-
19 state conditions, at full-rated use-
20 ful thermal output, with 140°F
21 supply from, and 120°F return
22 water temperature to, the boil-
23 er)—

1 “(AA) the useful energy
 2 output of a boiler, expressed
 3 in Btus; by

4 “(BB) the energy input
 5 of the boiler, expressed in
 6 Btus.

7 “(III) RESIDENTIAL COMBUS-
 8 TION EQUIPMENT.—

9 “(aa) IN GENERAL.—Resi-
 10 dential combustion equipment,
 11 including furnaces, boilers, and
 12 water heaters, shall meet or ex-
 13 ceed the energy efficiency criteria
 14 specified in the following table:

“Minimum Residential Combustion Equipment Energy Efficiency

Technology	Rating method	Minimum efficiency
Gas-fired furnace	AFUE	94%
Oil-fired furnace	AFUE	92%
Gas- or oil-fired boiler	AFUE	90%
Gas- or oil-fired water heater	Energy factor	0.62

15 “(bb) DEFINITIONS.—In the
 16 table contained in item (aa):

17 “(AA) BOILER.—The
 18 term ‘boiler’ means any
 19 equipment with a heat input
 20 rate of less than 300,000
 21 Btu per hour.

1 “(BB) FURNACE.—The
2 term ‘furnace’ means any
3 equipment with a heat input
4 rate of less than 225,000
5 Btu per hour.

6 “(CC) WATER HEAT-
7 ER.—The term ‘water heat-
8 er’ has the meaning given
9 the term in section 430.2 of
10 title 10, Code of Federal
11 Regulations (or a successor
12 regulation).

13 “(ii) OTHER ENERGY CONSERVATION
14 MEASURES.—Each other energy conserva-
15 tion measure carried out as part of the off-
16 set project shall meet—

17 “(I) subject to subclause (II), the
18 more stringent energy performance re-
19 quirements of, as applicable—

20 “(aa) the requirements of
21 the document entitled ‘Energy
22 Benchmark for High Perform-
23 ance Buildings, Version 1.1, New
24 Buildings Institute’ and dated

1 2005 (or a successor document);

2 or

3 “(bb) the requirements of
4 State building energy codes; and

5 “(II) for energy conservation
6 measures not subject to the require-
7 ments of the document described in
8 subclause (I)(aa), the more stringent
9 energy performance requirements of,
10 as applicable—

11 “(aa) the requirements of
12 the document entitled ‘Federal
13 Energy Management Program
14 Product Energy Efficiency Rec-
15 ommendations’, issued pursuant
16 to Executive orders 13123 and
17 13221 (64 Fed. Reg. 30851
18 (June 8, 1999); 66 Fed. Reg.
19 40571 (August 2, 2001)) (or a
20 successor document); or

21 “(bb) the Energy Star cri-
22 teria issued jointly by the Admin-
23 istrator and the Secretary of En-
24 ergy.

1 “(E) MAXIMUM MARKET PENETRATION
2 RATE FOR OFFSET PROJECTS COMMENCED ON
3 OR AFTER JANUARY 1, 2009.—To be eligible to
4 receive allowances under this subsection for an
5 offset project initiated on or after January 1,
6 2009, the sponsor of the offset project shall
7 demonstrate to the satisfaction of the Adminis-
8 trator that the energy conservation measures
9 implemented as part of the offset project have
10 a market penetration rate of less than 5 per-
11 cent.

12 “(4) EMISSIONS BASELINE DETERMINATION.—

13 “(A) ENERGY USAGE, EMISSIONS FACTORS,
14 AND OXIDATION FACTORS.—

15 “(i) IN GENERAL.—The emissions
16 baseline of an offset project that receives
17 allowances under this subsection shall be
18 determined by multiplying—

19 “(I) the energy usage (measured
20 in MMBtus), by fuel type, for each
21 energy conservation measure carried
22 out under the offset project, as deter-
23 mined using historic fuel use data
24 from the most recent calendar year
25 for which data is available; and

1 “(II) the applicable emissions
 2 factor (measured in pounds of carbon
 3 dioxide per MMBtu) and oxidation
 4 factor for each fuel type, in accord-
 5 ance with the following table:

“Emissions and Oxidation Factors

Fuel type	Emissions factor	Oxidation factor
Natural gas	116.98	0.995
Propane	139.04	0.995
Distillate fuel oil	161.27	0.99
Kerosene	159.41	0.99

6 “(ii) ENERGY USAGE DETERMINA-
 7 TION.—

8 “(I) IN GENERAL.—For purposes
 9 of the calculation under clause (i), the
 10 energy usage for each energy con-
 11 servation measure carried out under
 12 the offset project shall be determined
 13 in accordance with the following for-
 14 mula: Energy usage (MMBtu) =
 15 $BEU_{AECM} \times A$.

16 “(II) DESCRIPTION.—In the for-
 17 mula contained in subclause (I)—

18 “(aa) ‘ BEU_{AECM} ’ represents
 19 the annual pre-installation base-
 20 line energy use (measured in
 21 MMBtus), by fuel type, attrib-

1 utable to each application to be
2 targeted by the energy conserva-
3 tion measure, as determined in
4 accordance with paragraph (6);
5 and

6 “(bb) ‘A’ represents adjust-
7 ments required to account for
8 differing conditions during the
9 pre-installation and post-installation
10 periods, such as weather,
11 building occupancy, and changes
12 in building use or function, as
13 adjusted in accordance with para-
14 graph (6).

15 “(III) ADDITIONAL REQUIRE-
16 MENTS.—

17 “(aa) IN GENERAL.—Sub-
18 ject to item (bb), for purposes of
19 determining the variable under
20 subclause (II)(aa), if a building
21 code or equipment standard re-
22 quires that equipment or mate-
23 rials installed as part of the off-
24 set project meet certain minimum
25 energy performance require-

1 ments, the annual pre-installation
2 baseline energy usage for the ap-
3 plicable application shall be de-
4 termined based on the assump-
5 tion that the equipment or mate-
6 rials are installed in accordance
7 with those requirements.

8 “(bb) REPLACEMENT OF
9 COMBUSTION EQUIPMENT.—For
10 an offset project under which ex-
11 isting combustion equipment is
12 replaced, the minimum energy
13 performance required by a build-
14 ing code or equipment standard
15 shall be considered to be the min-
16 imum energy performance stand-
17 ard that applies to new equip-
18 ment that uses the same fuel
19 type as the equipment being re-
20 placed.

21 “(B) ANNUAL BASELINE EMISSIONS.—

22 “(i) IN GENERAL.—The annual base-
23 line emissions of an offset project that re-
24 ceives allowances under this subsection
25 shall be calculated in accordance with the

1 following formula: Emissions (pounds of
2 carbon dioxide) = Σ BEU_{*i*} × EF_{*i*} × OF_{*i*}.

3 “(ii) DESCRIPTION.—In the formula
4 contained in clause (i)—

5 “(I)(aa) the figure above the
6 sigma shall be ‘n’; and

7 “(bb) the figure below the sigma
8 shall be ‘*i* = 1’;

9 “(II) ‘BEU_{*i*}’ represents the an-
10 nual baseline energy usage for fuel
11 type *i* (measured in MMBtus), as de-
12 termined in accordance with para-
13 graph (6);

14 “(III) ‘EF_{*i*}’ represents the emis-
15 sions factor (measured in pounds of
16 carbon dioxide per MMBtu) for fuel
17 type *i*, as determined in accordance
18 with the table contained in subpara-
19 graph (A)(i)(II); and

20 “(IV) ‘OF_{*i*}’ represents the oxida-
21 tion factor for fuel type *i*, as deter-
22 mined in accordance with the table
23 contained in subparagraph (A)(i)(II).

24 “(5) CALCULATING EMISSIONS REDUCTIONS.—

1 “(A) IN GENERAL.—The emissions reduc-
 2 tions of an offset project that receives allow-
 3 ances under this subsection shall be determined,
 4 based on the annual energy savings, by fuel
 5 type, for each energy conservation measure car-
 6 ried out under the offset project, in accordance
 7 with this paragraph.

8 “(B) ANNUAL ENERGY SAVINGS.—

9 “(i) IN GENERAL.—The annual en-
 10 ergy savings of an offset project that re-
 11 ceives allowances under this subsection
 12 shall be determined in accordance with the
 13 following formula: Energy savings
 14 (MMBtu) = (BEU_{AECM} × A) -
 15 (PIEU_{ECM} × A).

16 “(ii) DESCRIPTION.—In the formula
 17 contained in clause (i)—

18 “(I) ‘BEU_{AECM}’ represents the
 19 annual pre-installation baseline energy
 20 use (measured in MMBtus), by fuel
 21 type, of an application subject to an
 22 energy conservation measure under
 23 the offset project, as determined sub-
 24 ject to clause (iii);

1 “(II) ‘PIEU_{ECM}’ represents the
2 annual post-installation energy use
3 (measured in MMBtus), by fuel type,
4 attributable to the energy conserva-
5 tion measure, as verified in accord-
6 ance with ASHRAE Guideline 14–
7 2002, entitled ‘Measurement of En-
8 ergy and Demand Savings’ (or a suc-
9 cessor guideline); and

10 “(III) ‘A’ represents adjustments
11 required to account for differing con-
12 ditions during the pre-installation and
13 post-installation periods, such as
14 weather, building occupancy, and
15 changes in building use or function,
16 as adjusted in accordance with—

17 “(aa) for commercial build-
18 ings, ASHRAE Guideline 14–
19 2002, entitled ‘Measurement of
20 Energy and Demand Savings’,
21 and section 11 and appendix G of
22 ANSI/ASHRAE/IESNA Stand-
23 ard 90.1–2004 (or successor
24 specifications); and

1 “(bb) for residential build-
2 ings, RESNET National Home
3 Energy Rating Technical Guide-
4 lines, 2006 (Chapter 3 and Ap-
5 pendix A of 2006 Mortgage In-
6 dustry National Home Energy
7 Rating System Standards) (or
8 successor guidelines).

9 “(iii) PRE-INSTALLATION BASELINE
10 ENERGY USE DETERMINATIONS FOR NEW
11 BUILDINGS.—The pre-installation baseline
12 energy use of any new building in which an
13 energy conservation measure will be car-
14 ried out under an offset project shall be
15 determined based on a reference building
16 that is equivalent in basic configuration,
17 orientation, and location to the new build-
18 ing, in accordance with ASHRAE Guide-
19 line 14–2002, entitled ‘Measurement of
20 Energy and Demand Savings’ and section
21 11 and appendix G of ANSI/ASHRAE/
22 IESNA Standard 90.1–2004 (or successor
23 specifications).

24 “(C) ANNUAL EMISSIONS REDUCTIONS.—

1 “(i) IN GENERAL.—The annual emis-
2 sions reductions of an offset project that
3 receives allowances under this subsection
4 shall be determined in accordance with the
5 following formula: Emissions reduction
6 (pounds of carbon dioxide) = $\Sigma ES_i \times EF_i$
7 $\times OF_i$.

8 “(ii) DESCRIPTION.—In the formula
9 contained in clause (i)—

10 “(I)(aa) the figure above the
11 sigma shall be ‘n’; and

12 “(bb) the figure below the sigma
13 shall be ‘ $i = 1$ ’;

14 “(II) ‘ ES_i ’ represents the energy
15 savings for fuel type i (measured in
16 MMBtus), as determined in accord-
17 ance with paragraph (6);

18 “(III) ‘ EF_i ’ represents the emis-
19 sions factor (measured in pounds of
20 carbon dioxide per MMBtu) for fuel
21 type i , as determined in accordance
22 with the table contained in subpara-
23 graph (A)(i)(II); and

24 “(IV) ‘ OF_i ’ represents the oxida-
25 tion factor for fuel type i , as deter-

1 mined in accordance with the table
2 contained in subparagraph (A)(i)(II).

3 “(6) MONITORING AND VERIFICATION.—

4 “(A) IN GENERAL.—Not less frequently
5 than once each year, the sponsor of each offset
6 project that receives an allowance under this
7 subsection shall submit to the Administrator a
8 monitoring and verification report.

9 “(B) CERTIFICATION.—Each report under
10 subparagraph (A) shall be certified.

11 “(C) GENERAL ENERGY REQUIREMENTS.—
12 Monitoring and verification of energy usage
13 under this paragraph shall be conducted in ac-
14 cordance with the following protocols and proce-
15 dures, as applicable:

16 “(i) COMMERCIAL BUILDINGS.—

17 “(I) EXISTING BUILDINGS.—For
18 commercial buildings in existence on
19 the date on which the applicable offset
20 project enters operation, baseline en-
21 ergy usage shall be determined in ac-
22 cordance with—

23 “(aa) the detailed specifica-
24 tions in ASHRAE Guideline 14–
25 2002, entitled ‘Measurement of

1 Energy and Demand Savings’, as
2 applicable (or successor specifica-
3 tions); and

4 “(bb)(AA) volume I of the
5 International Performance Meas-
6 urement and Verification Pro-
7 tocol, entitled ‘Concepts and Op-
8 tions for Determining Energy
9 and Water Savings’, specifically
10 the documents entitled ‘Option
11 B. Retrofit Isolation’ and ‘Option
12 D. Calibrated Simulation’ (or
13 successor specifications); or

14 “(BB) if a building project
15 carried out under the offset
16 project involves only energy con-
17 servation measures implemented
18 as part of a carbon dioxide emis-
19 sions offset project, the document
20 of the volume referred to in
21 subitem (AA) entitled ‘Option C.
22 Whole Facility’ (or successor
23 specifications).

24 “(II) NEW BUILDINGS.—For new
25 commercial buildings constructed

1 under the applicable offset project,
2 baseline energy usage shall be deter-
3 mined in accordance with—

4 “(aa) the detailed specifica-
5 tions in ASHRAE Guideline 14–
6 2002, entitled ‘Measurement of
7 Energy and Demand Savings’, as
8 applicable (or successor specifica-
9 tions); and

10 “(bb) volume III of the
11 International Performance Meas-
12 urement and Verification Pro-
13 tocol, entitled ‘Concepts and Op-
14 tions for Determining Energy
15 Savings in New Construction’,
16 specifically the document entitled
17 ‘Option D. Calibrated Simula-
18 tion’ (or successor specifications).

19 “(ii) RESIDENTIAL BUILDINGS.—For
20 any residential building relating to the ap-
21 plicable offset project, baseline energy
22 usage shall be determined in accordance
23 with the RESNET National Home Energy
24 Rating Technical Guidelines, 2006 (Chap-
25 ter 3 and Appendix A of 2006 Mortgage

1 Industry National Home Energy Rating
2 System Standards) (or successor guide-
3 lines).

4 “(D) ISOLATION OF ENERGY CONSERVA-
5 TION MEASURES.—

6 “(i) IN GENERAL.—For purposes of
7 calculating baseline energy usage and en-
8 ergy savings under this subsection, the
9 sponsor of the offset project shall isolate
10 the impact of each eligible energy con-
11 servation measure, to the maximum extent
12 practicable, through direct metering or,
13 subject to subparagraph (E), energy sim-
14 ulation modeling.

15 “(ii) PROJECTS WITH MULTIPLE
16 MEASURES.—

17 “(I) IN GENERAL.—For offset
18 projects under which multiple energy
19 conservation measures are carried out,
20 and for which individual energy con-
21 servation measures could affect the
22 performance of other energy conserva-
23 tion measures, the total energy sav-
24 ings due to individual energy con-
25 servation measures shall be adjusted

1 to account for the interaction of the
2 energy conservation measures in ac-
3 cordance with this clause.

4 “(II) COMMERCIAL BUILDINGS.—

5 For commercial buildings, the adjust-
6 ment under subclause (I) shall be in
7 accordance with ASHRAE Guideline
8 14–2002, entitled ‘Measurement of
9 Energy and Demand Savings’, and
10 ANSI/ASHRAE/IESNA Standard
11 90.1–2004, entitled ‘Energy Standard
12 for Buildings Except Low-Rise Resi-
13 dential Buildings’ (or successor speci-
14 fications).

15 “(III) RESIDENTIAL BUILD-

16 INGS.—For residential buildings, the
17 adjustment under subclause (I) shall
18 be in accordance with RESNET Na-
19 tional Home Energy Rating Technical
20 Guidelines, 2006 (Chapter 3 and Ap-
21 pendix A of 2006 Mortgage Industry
22 National Home Energy Rating Sys-
23 tem Standards) (or successor guide-
24 lines).

25 “(E) SIMULATION MODELING.—

1 “(i) IN GENERAL.—Any reduction in
2 energy usage due to an energy conserva-
3 tion measure under an offset project shall
4 be calculated based only on actual energy
5 usage data.

6 “(ii) LIMITATION.—Energy simulation
7 modeling—

8 “(I) shall only be used to deter-
9 mine the relative percentage contribu-
10 tion to total fuel usage, for each fuel
11 type, of an application targeted by an
12 energy conservation measure under an
13 offset project; and

14 “(II) shall be carried out under
15 subclause (I) in accordance with—

16 “(aa) for commercial build-
17 ings in existence on the date on
18 which the applicable offset
19 project is commenced, ASHRAE
20 Guideline 14–2002, entitled
21 ‘Measurement of Energy and De-
22 mand Savings’ and section 11
23 and appendix G of ANSI/
24 ASHRAE/IESNA Standard

1 90.1–2004 (or successor speci-
2 fications); and

3 “(bb) for residential build-
4 ings, RESNET National Home
5 Energy Rating Technical Guide-
6 lines, 2006 (Chapter 3 and Ap-
7 pendix A of 2006 Mortgage In-
8 dustry National Home Energy
9 Rating System Standards) (or
10 successor guidelines).

11 “(F) SAMPLING FOR RESIDENTIAL BUILD-
12 INGS.—

13 “(i) IN GENERAL.—The sponsor of
14 any offset project that carries out similar
15 energy conservation measures in multiple
16 residential buildings may use representa-
17 tive sampling of the residential buildings to
18 determine the aggregate baseline energy
19 usage and energy savings of the offset
20 projects.

21 “(ii) REQUIREMENTS.—Representa-
22 tive sampling carried out under clause (i)
23 shall be in accordance with sound statis-
24 tical methods, such that there is 95 per-

1 cent confidence that the reported value is
2 within 10 percent of the true mean.

3 “(e) AVOIDED METHANE EMISSIONS FROM AGRICULTURAL MANURE MANAGEMENT OPERATIONS.—

5 “(1) IN GENERAL.—An offset project that captures and destroys methane from animal manure
6 and organic food waste using an anaerobic digester
7 in accordance with this subsection shall be eligible to
8 receive allowances under this title.

10 “(2) REQUIREMENTS.—

11 “(A) IN GENERAL.—To be eligible to receive allowances under this subsection, an offset
12 project described in paragraph (1) shall—

14 “(i) involve the destruction of the portion of methane generated by an anaerobic
15 digester that would have been generated in
16 the absence of the offset project through
17 the uncontrolled anaerobic storage of manure or organic food waste;

20 “(ii) use only manure-based anaerobic digester systems, using livestock manure to
21 provide greater than 50 percent of annual
22 digester feedstock; and

24 “(iii) use organic food waste for anaerobic digesters only in a quantity that
25

1 would have been stored in anaerobic condi-
2 tions in the absence of the offset project.

3 “(B) DETERMINATION OF MARKET PENE-
4 TRATION RATE.—

5 “(i) IN GENERAL.—The market pene-
6 tration rate of a State shall be determined
7 using the most recent market data avail-
8 able on the date of submission of an appli-
9 cation, in accordance with the following
10 formula: $MP (\%) = MG_{AD} / MG_{STATE}$.

11 “(ii) DESCRIPTION.—In the formula
12 contained in clause (i)—

13 “(I) ‘ MG_{AD} ’ represents the aver-
14 age annual manure production for the
15 number of dairy cows and swine serv-
16 ing all anaerobic digester projects in
17 the applicable State on the date of
18 submission of an application; and

19 “(II) ‘ MG_{STATE} ’ represents the
20 average annual manure production of
21 all dairy cows and swine in the State
22 on the date of submission of the appli-
23 cation).

24 “(3) EMISSIONS BASELINE.—

1 “(A) IN GENERAL.—The emissions base-
 2 line of an offset project that receives allowances
 3 under this subsection shall represent the poten-
 4 tial emissions of the methane that, in the ab-
 5 sence of the offset project, would have been—

6 “(i) produced in a baseline scenario
 7 under uncontrolled anaerobic storage con-
 8 ditions; and

9 “(ii) released directly into the atmos-
 10 phere.

11 “(B) CALCULATION.—

12 “(i) IN GENERAL.—The baseline
 13 methane emissions of an offset project
 14 under this subsection shall be calculated in
 15 accordance with the following formula:
 16 $\text{CO}_2\text{e (tons)} = (\text{V}_m \times \text{M})/2000 \times \text{GWP}.$

17 “(ii) DESCRIPTION.—In the formula
 18 contained in clause (i)—

19 “(I) ‘CO₂e’ represents the poten-
 20 tial carbon dioxide-equivalent emis-
 21 sions due to calculated methane pro-
 22 duction under site-specific anaerobic
 23 storage and weather conditions;

24 “(II) ‘V_m’ (expressed in cubic
 25 feet) represents the volume of meth-

1 ane produced each month from deg-
2 radation of volatile solids in a baseline
3 uncontrolled anaerobic storage sce-
4 nario (as calculated under clauses (iii)
5 and (iv)) under site-specific storage
6 and weather conditions for the facility
7 at which the manure or organic food
8 waste is generated;

9 “(III) ‘M’ represents the mass of
10 methane per cubic foot (with a default
11 value of 0.04246 pounds per cubic
12 foot at 1 atmosphere and 20 °C); and

13 “(IV) ‘GWP’ represents the glob-
14 al warming potential of methane (with
15 a default value of 23).

16 “(iii) VOLATILE SOLIDS.—

17 “(I) IN GENERAL.—For purposes
18 of clause (ii)(II), the estimated quan-
19 tity of volatile solids degraded each
20 month under the baseline uncontrolled
21 anaerobic storage scenario (measured
22 in kilograms) shall be calculated in ac-
23 cordance with the following formula:

24
$$VS_{\text{deg}} = VS_{\text{avail}} \times f.$$

1 “(II) VOLATILE SOLIDS AVAIL-
2 ABLE FOR DEGRADATION.—

3 “(aa) IN GENERAL.—In the
4 formula contained in subclause
5 (I), ‘VS_{avail}’ represents the quan-
6 tity of volatile solids available for
7 degradation in manure or organic
8 food waste storage each month,
9 determined in accordance with
10 the following formula: $VS_{avail} =$
11 $VS_p + \frac{1}{2} VS_{in} - VS_{out}$.

12 “(bb) DESCRIPTION.—In the
13 formula contained in item (aa)—

14 “(AA) ‘VS_p’ represents
15 the quantity of volatile solids
16 (expressed in kilograms)
17 present in manure or or-
18 ganic food waste storage at
19 the beginning of the applica-
20 ble month (including any
21 manure or waste remaining
22 from a preceding month);

23 “(BB) ‘VS_{in}’ represents
24 the quantity of volatile solids
25 (expressed in kilograms)

1 added to manure or organic
2 food waste storage during
3 the course of the applicable
4 month, which is halved to
5 represent the average mass
6 of volatile solids available for
7 degradation for the month;
8 and

9 “(CC) ‘VS_{out}’ rep-
10 represents the quantity (ex-
11 pressed in kilograms) of
12 volatile solids removed from
13 the manure or organic food
14 waste storage for land appli-
15 cation or export, which may
16 be assumed based on stand-
17 ard farm practice.

18 “(III) VAN’T HOFF-ARRHENIUS
19 FACTOR.—

20 “(aa) IN GENERAL.—In the
21 formula contained in subclause
22 (I), ‘f’ represents the van’t Hoff-
23 Arrhenius factor, which measures
24 the conversion efficiency of vola-
25 tile solids to methane, for a given

1 month, determined using a base
2 temperature of 30 °C in accord-
3 ance with the following formula: f
4 $= \exp[E(T_2 - T_1)]/[(GC \times T_1 \times$
5 $T_2)]$.

6 “(bb) DESCRIPTION.—In the
7 formula contained in item (aa)—

8 “(AA) ‘E’ represents
9 the activation energy con-
10 stant (with a default value
11 of 15,175 cal/mol);

12 “(BB) ‘T₂’ represents
13 the average monthly ambient
14 temperature for the facility
15 at which manure or organic
16 food waste is generated (as
17 converted from Celsius to
18 Kelvin), as determined by
19 the nearest National Weath-
20 er Service-certified weather
21 station (if reported tempera-
22 ture °C > 5 °C; if reported
23 temperature °C < 5 °C,
24 then $F = 0.104$);

1 “(CC) ‘T₁’ equals
2 303.16; and

3 “(DD) ‘GC’ represents
4 the ideal gas constant (with
5 a default value of 1.987 cal/
6 K mol).

7 “(IV) GENERAL VOLATILE SOL-
8 IDS CALCULATIONS.—

9 “(aa) IN GENERAL.—For
10 purposes of this clause, a quan-
11 tity of volatile solids may be de-
12 termined in accordance with the
13 following formula: $VS = M_m \times$
14 $TS_{\neq} \times VS_{\neq}$.

15 “(bb) DESCRIPTION.—In the
16 formula contained in item (aa)—

17 “(AA) ‘M_m’ represents
18 the mass (expressed in kilo-
19 grams) of manure or organic
20 food waste produced per
21 month;

22 “(BB) ‘TS_≠’ represents
23 the concentration (expressed
24 as a percentage) of total sol-
25 ids in manure or organic

1 food waste, as determined in
2 accordance with the testing
3 method of the Environ-
4 mental Protection Agency
5 numbered 160.3 (as con-
6 tained in the document of
7 the Environmental Protec-
8 tion Agency entitled ‘Meth-
9 ods for the Chemical Anal-
10 ysis of Water and Wastes’
11 (EPA/600/4-79/020)) (or a
12 successor document); and

13 “(CC) ‘VS_z’ represents
14 the concentration (expressed
15 as a percentage) of volatile
16 solids in total solids, as de-
17 termined in accordance with
18 the testing method of the
19 Environmental Protection
20 Agency numbered 160.4 (as
21 contained in the document
22 of the Environmental Pro-
23 tection Agency entitled
24 ‘Methods for the Chemical
25 Analysis of Water and

1 Wastes' (EPA/600/4-79/
2 020)) (or a successor docu-
3 ment).

4 “(iv) VOLUME OF METHANE PRO-
5 DUCED.—

6 “(I) IN GENERAL.—For purposes
7 of clause (ii)(II), the volume of meth-
8 ane produced each month from deg-
9 radation of volatile solids in a baseline
10 uncontrolled anaerobic storage sce-
11 nario (measured in cubic feet) shall be
12 calculated in accordance with the fol-
13 lowing formula: $V_m = (VS_{deg} \times B_o) \times$
14 35.3147.

15 “(II) DESCRIPTION.—In the for-
16 mula contained in subclause (I)—

17 “(aa) ‘ VS_{deg} ’ represents the
18 quantity (measured in kilograms)
19 of volatile solids degraded, as de-
20 termined in accordance with
21 clause (iii); and

22 “(bb) ‘ B_o ’ represents the
23 quantity of manure or organic
24 food waste type-specific max-
25 imum methane generation con-

1 stant (expressed as cubic meters
2 of methane per kilogram of vola-
3 tile solids degraded), as deter-
4 mined in accordance with sub-
5 clause (III).

6 “(III) METHANE GENERATION
7 CONSTANT.—For purposes of sub-
8 clause (II)(bb), the quantity of ma-
9 nure or organic food waste type-spe-
10 cific maximum methane generation
11 constant shall be—

12 “(aa) for dairy cow manure,
13 0.24 cubic meters of methane per
14 kilogram of volatile solids de-
15 graded; and

16 “(bb) for any other type of
17 manure—

18 “(AA) the constant
19 specified in the document of
20 the Environmental Protec-
21 tion Agency entitled ‘Inven-
22 tory of United States Green-
23 house Gas Emissions and
24 Sinks: 1990–2004, Annex
25 3.10, Table 3–89’ and dated

1 April 2006 (or a successor
2 document); or

3 “(BB) such other meth-
4 ane generation constant as
5 the sponsor of the applicable
6 offset project may specify, if
7 the sponsor provides to the
8 Administrator appropriate
9 justification and documenta-
10 tion for the constant.

11 “(4) EMISSIONS REDUCTIONS.—

12 “(A) IN GENERAL.—The emissions reduc-
13 tions of an offset project that receives allow-
14 ances under this subsection shall be determined
15 based on the potential emissions (measured in
16 tons of carbon dioxide equivalent) of methane
17 that would have been produced, and released di-
18 rectly into the atmosphere, in the absence of
19 the offset project under a baseline scenario that
20 represents uncontrolled anaerobic storage condi-
21 tions, as determined in accordance with para-
22 graph (3), taking into account fugitive methane
23 emissions that may be released into the atmos-
24 phere through leaks in the anaerobic digester
25 equipment.

1 “(B) LIMITATION.—The emissions reduc-
2 tions of an offset project shall not exceed the
3 potential emissions of the anaerobic digester of
4 the offset project, as determined based on the
5 annual volume of methane produced by the an-
6 aerobic digester and monitored in accordance
7 with paragraph (5).

8 “(C) REGIONAL-TYPE DIGESTER OFFSET
9 PROJECTS.—

10 “(i) IN GENERAL.—If an offset
11 project is a regional-type digester offset
12 project, as determined by the Adminis-
13 trator, carbon dioxide emissions due to
14 transportation of manure and organic food
15 waste from the site at which the manure
16 and organic food waste was generated to
17 the anaerobic digester shall be subtracted
18 from the emissions reduction value deter-
19 mined under paragraph (3) for the offset
20 project.

21 “(ii) DETERMINATION OF CARBON DI-
22 OXIDE EMISSIONS.—For purposes of clause
23 (i), carbon dioxide emissions due to trans-
24 portation of manure and organic food
25 waste from the site at which the manure

1 and organic food waste was generated to
2 the anaerobic digester shall be determined
3 in accordance with 1 of the following meth-
4 ods:

5 “(I) Documentation of all quan-
6 tities of fuel used to transport from
7 off-site all shipments of manure and
8 organic food waste to the anaerobic
9 digester of the offset project during
10 the applicable year (including a log of
11 transport miles for each shipment),
12 from which carbon dioxide emissions
13 shall be determined through the appli-
14 cation of the following emissions fac-
15 tors (based on the type of fuel used):

16 “(aa) For diesel fuel, 22.912
17 pounds of carbon dioxide per gal-
18 lon.

19 “(bb) For gasoline, 19.878
20 pounds of carbon dioxide per gal-
21 lon.

22 “(cc) For any other fuel,
23 such emissions factor as the Ad-
24 ministrator determines to be ap-
25 propriate.

1 “(II) Documentation of the total
2 quantity (expressed in tons) of ma-
3 nure and organic food waste trans-
4 ported from off-site for input into the
5 anaerobic digester of the offset project
6 during the applicable year (including
7 a log of transport miles for each ship-
8 ment), as monitored under paragraph
9 (5), from which carbon dioxide emis-
10 sions shall be determined through the
11 application of the following ton-mile
12 transport emission factors (based on
13 the type of fuel used):

14 “(aa) For diesel fuel, 0.131
15 pounds of carbon dioxide per ton-
16 mile.

17 “(bb) For gasoline, 0.133
18 pounds of carbon dioxide per ton-
19 mile.

20 “(cc) For any other fuel,
21 such emissions factor as the Ad-
22 ministrator determines to be ap-
23 propriate.

24 “(5) MONITORING AND VERIFICATION.—

1 “(A) IN GENERAL.—The sponsor of each
2 offset project that receives allowances under
3 this subsection shall—

4 “(i) ensure that the offset project uses
5 a system that provides metering of biogas
6 volumetric flow rate and determination of
7 methane concentration; and

8 “(ii) submit to the Administrator an
9 annual report, including a description of
10 the monthly biogas volumetric flow rate
11 and methane concentration determinations
12 for the offset project.

13 “(B) REGIONAL-TYPE DIGESTER OFFSET
14 PROJECTS.—

15 “(i) IN GENERAL.—The sponsor of an
16 offset project that is a regional-type di-
17 gester offset project, as determined by the
18 Administrator, shall ensure monthly sam-
19 pling of the manure and organic food
20 waste from each distinct source supplying
21 the anaerobic digester to determine the
22 quantity of volatile solids present in the
23 manure and waste.

24 “(ii) SUPPORTING MATERIAL.—In the
25 annual report relating to the offset project

1 submitted under subparagraph (A)(ii), the
2 sponsor shall provide supporting material
3 and receipts tracking the monthly receipt
4 from each supplier to the offset project of
5 quantities of manure and organic food
6 waste (measured in kilograms) for the an-
7 aerobic digester.

8 “(iii) EMISSIONS REDUCTION CAL-
9 CULATION REQUIREMENT.—The emissions
10 reduction of an offset project described in
11 clause (i) shall be calculated according to,
12 and apportioned among sources based on,
13 as determined in accordance with para-
14 graphs (3) and (4)—

15 “(I) the mass (measured in kilo-
16 grams) of manure and organic food
17 waste digested as a result of the offset
18 project; and

19 “(II) the percentage of volatile
20 solids present before digestion.

21 “(C) ADDITIONAL MONTHLY SAMPLES.—

22 The sponsor of an offset project that includes
23 the digestion of organic food waste shall ensure
24 monthly sampling of the organic food waste to
25 determine in accordance with paragraphs (3)

1 and (4), and apportion accordingly, the quan-
 2 tity of volatile solids present in the waste before
 3 digestion.

4 “(D) OTHER MONITORING REQUIRE-
 5 MENTS.—In addition to the requirements of
 6 subparagraphs (A) through (C), an offset
 7 project shall meet the applicable requirements
 8 contained in the following table:

“Input Monitoring Requirements

Input parameter	Measurement unit	Frequency of sampling	Sampling method
Influent flow into digester.	Kilograms per month (wet weight).	Monthly total into digester	Recorded weight; digester influent pump flow; livestock population and application of standard
Influent total solids concentration.	Percent of sample	Monthly, depending on recorded variations	EPA Method Number 160.3, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)
Influent volatile solids concentration.	Percent of total solids.	Monthly, depending on recorded variations	EPA Method Number 160.4, Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020)
Average monthly ambient temperature.	Temperature (Celsius).	Monthly (based on farm averages)	Closest National Weather Service-certified weather station

9 “(f) ELIGIBLE BIOMASS.—

1 “(1) IN GENERAL.—An offset project that co-
2 fires eligible biomass to reduce emissions of carbon
3 dioxide and that meets the requirements of this sub-
4 section shall be eligible to receive allowances under
5 this title.

6 “(2) APPLICATION.—To be eligible to receive an
7 allowance under this subsection, the owner or oper-
8 ator of an offset project described in paragraph (1)
9 shall submit to the Administrator an application at
10 such time, in such manner, and containing such in-
11 formation as the Administrator may require.

12 “(3) EMISSIONS CALCULATIONS.—

13 “(A) AS-FIRED CARBON DIOXIDE EMIS-
14 SIONS FACTOR.—

15 “(i) IN GENERAL.—The as-fired car-
16 bon dioxide emissions factor of an offset
17 project under this subsection may be deter-
18 mined—

19 “(I) as measured and recorded
20 by a continuous emissions monitor of
21 the offset project for each period dur-
22 ing which only eligible biomass was
23 fired by the offset project; or

24 “(II) in accordance with clause
25 (ii) or (iii), as applicable.

1 “(ii) SOLID FUEL.—

2 “(I) IN GENERAL.—The as-fired
3 carbon dioxide emissions factor of an
4 offset project under this subsection
5 that uses solid fuel shall be deter-
6 mined in accordance with the fol-
7 lowing formula: $\text{CO}_2 \text{ lbs/MMBtu} =$
8 $((C \times F_{\text{IN}})/\text{HI}) (44/12)$.

9 “(II) ABBREVIATIONS.—

10 “(aa) IN GENERAL.—In the
11 formula contained in subclause
12 (I)—

13 “(AA) ‘C’ represents
14 the carbon content of bio-
15 mass (expressed as a per-
16 centage by dry weight) for a
17 distinct fuel type;

18 “(BB) ‘ F_{IN} ’ represents
19 the total biomass fuel input
20 (expressed in pounds) for a
21 distinct fuel type; and

22 “(CC) ‘HI’ represents
23 the heat input, as-fired (ex-
24 pressed in MMBtus), as de-
25 termined in accordance with

1 the following formula: $HI =$
 2 $\Sigma (HHV_{\text{DRY}} (1-$
 3 $MCW_{\text{AS-FIRED-}i})) \times F_{\text{IN-}i}.$

4 “(bb) DESCRIPTION.—In the
 5 formula contained in item
 6 (aa)(CC)—

7 “(AA) the figure above
 8 the sigma shall be ‘n’;

9 “(BB) the figure below
 10 the sigma shall be ‘ $i = 1$ ’;

11 “(CC) ‘ HHV_{DRY} ’ rep-
 12 represents the higher heating
 13 value (expressed in Btu/lb)
 14 on a dry basis for a distinct
 15 fuel type fired;

16 “(DD) ‘ $MCW_{\text{AS-FIRED-}i}$ ’
 17 represents the moisture con-
 18 tent on a wet basis (ex-
 19 pressed as a percentage) for
 20 each shipment i fired; and

21 “(EE) ‘ $F_{\text{IN-}i}$ ’ represents
 22 the biomass fuel input (ex-
 23 pressed in pounds) for each
 24 shipment i fired.

25 “(iii) GASEOUS FUEL.—

1 “(I) IN GENERAL.—The as-fired
2 carbon dioxide emissions factor of an
3 offset project under this subsection
4 that uses gaseous fuel shall be deter-
5 mined in accordance with the fol-
6 lowing formula: $\text{CO}_2 \text{ lbs/MMBtu} = (\text{C}$
7 $\times (\text{F}_{\text{IN}} \times \text{D}))/\text{HI}$ (44/12).

8 “(II) ABBREVIATIONS.—

9 “(aa) IN GENERAL.—In the
10 formula contained in subclause
11 (I)—

12 “(AA) ‘C’ represents
13 the carbon content of bio-
14 mass (expressed as a per-
15 centage by weight) for a dis-
16 tinct fuel type;

17 “(BB) ‘ F_{IN} ’ represents
18 the total biomass fuel input
19 (expressed in pounds) for a
20 distinct fuel type;

21 “(CC) ‘D’ represents
22 the density of biogas (ex-
23 pressed in pounds per stand-
24 ard cubic feet) for a distinct
25 fuel type; and

1 “(DD) ‘HI’ represents
 2 the heat input, as-fired (ex-
 3 pressed in MMBtus), as de-
 4 termined in accordance with
 5 the following formula: $HI =$
 6 $HHV \times F_{IN}$.

7 “(bb) DESCRIPTION.—In the
 8 formula contained in item
 9 (aa)(DD)—

10 “(AA) ‘HHV’ rep-
 11 resents the higher heating
 12 value (expressed in Btus per
 13 standard cubic feet) for a
 14 distinct fuel type; and

15 “(BB) ‘ F_{IN} ’ represents
 16 the biogas fuel input (ex-
 17 pressed in standard cubic
 18 feet).

19 “(B) CARBON DIOXIDE EMISSIONS DUE TO
 20 FIRING OF ELIGIBLE BIOMASS.—

21 “(i) IN GENERAL.—The carbon diox-
 22 ide emissions due to firing of eligible bio-
 23 mass of an offset project under this sub-
 24 section shall be determined in accordance

1 with the following formula: $\text{CO}_2 \text{ tons} = \Sigma$
2 $(B_{\text{HI-}i} \times B_{\text{EF-}i} \times B_{\text{OF-}i})/2000$.

3 “(ii) ABBREVIATIONS.—In the for-
4 mula contained in clause (i)—

5 “(I)(aa) the figure above the
6 sigma shall be ‘n’; and

7 “(bb) the figure below the sigma
8 shall be ‘ $i = 1$ ’;

9 “(II) ‘ $B_{\text{HI-}i}$ ’ represents the eligi-
10 ble biomass heat input, as-fired (ex-
11 pressed in MMBtus), for the reporting
12 quarter for each distinct type i of eli-
13 gible biomass fired;

14 “(III) ‘ $B_{\text{EF-}i}$ ’ represents the eligi-
15 ble biomass emissions factor for the
16 reporting quarter (expressed in
17 pounds of carbon dioxide per MMBtu)
18 for each distinct type i of eligible bio-
19 mass fired; and

20 “(IV) ‘ $B_{\text{OF-}i}$ ’ represents the eligi-
21 ble biomass oxidation factor for each
22 distinct type i of eligible biomass
23 fired, derived for solid fuel based on
24 the ash content of the eligible biomass
25 fired and the carbon content of that

1 ash, as determined pursuant to para-
2 graph (4)(A) (with a default value for
3 gaseous biomass fuel of 0.995).

4 “(C) APPLICABLE STANDARDS.—Each fuel
5 sampling method and technology used to make
6 a calculation under this paragraph shall be in
7 accordance with the applicable standards con-
8 tained in the New York State Renewable Port-
9 folio Standard Biomass Guidebook dated May
10 2006 (or successor standards).

11 “(4) MONITORING AND VERIFICATION.—

12 “(A) IN GENERAL.—Not less frequently
13 than once each quarter of each calendar year
14 during which an offset project receives an allow-
15 ance under this title, the owner or operator of
16 the offset project shall submit to the Adminis-
17 trator a report describing—

18 “(i) a chemical analysis (including
19 carbon content and heating value) of eligi-
20 ble biomass fired by the offset project;

21 “(ii) the moisture content of eligible
22 biomass for each shipment received for fir-
23 ing by the offset project;

1 “(iii) the total eligible biomass fuel
2 input (expressed in units of mass or vol-
3 ume, as appropriate) to the offset project;

4 “(iv) the total eligible biomass heat
5 input, on an as-fired basis (expressed in
6 MMBtus), to the offset project;

7 “(v) the heat input rate (expressed in
8 MMBtus per hour) of eligible biomass to
9 the offset project;

10 “(vi) the fuel feed rate of eligible bio-
11 mass to the offset project (expressed in
12 units of mass or volume per hour, as ap-
13 propriate);

14 “(vii) the total number of operating
15 hours during which eligible biomass was
16 fired by the offset project;

17 “(viii) the number of tons of carbon
18 dioxide emitted from the offset project due
19 to firing of eligible biomass;

20 “(ix) the fuel sampling frequency,
21 monitoring technology, and methodology
22 used by the offset project, including sup-
23 porting documentation;

1 “(x) the additional information re-
2 quired under subparagraph (B), if any;
3 and

4 “(xi) the carbon dioxide emissions fac-
5 tor of the offset project, calculated in ac-
6 cordance with paragraph (3).

7 “(B) ADDITIONAL DATA REQUIRE-
8 MENTS.—

9 “(i) INDEPENDENT SYSTEM OPER-
10 ATOR DATA.—The owner or operator of an
11 offset project located in a State that re-
12 quires the use of information submitted to
13 an independent system operator to estab-
14 lish the megawatt-hours of the offset
15 project shall submit to the Administrator,
16 together with the report under subpara-
17 graph (A)—

18 “(I) the megawatt-hour value
19 submitted to the independent system
20 operator; and

21 “(II) a statement certifying that
22 the megawatt-hour value reflects the
23 total actual electrical output for all
24 offset projects at the facility used by
25 the independent system operator to

1 determine the settlement resources of
2 energy market participants.

3 “(ii) GROSS OUTPUT DATA.—The
4 owner or operator of an offset project that
5 submits to the Administrator information
6 described in clause (i), and that is located
7 in a State that requires the use of gross
8 output data with respect to the offset
9 project, shall submit to the Administrator,
10 together with the information under clause
11 (i), an electronic data report describing the
12 gross output (expressed in megawatts) of
13 the offset project, as calculated by adding,
14 for each hour of the applicable quarter
15 during which the offset project was in op-
16 eration, the product obtained by multi-
17 plying—

18 “(I) the gross output (expressed
19 in megawatts) of the offset project for
20 the hour; and

21 “(II) the proportion that—

22 “(aa) the number of minutes
23 of the hour during which the off-
24 set project was in operation;
25 bears to

1

“(bb) 60.”.

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