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1ST SESSION

S. 280

To provide for a program to accelerate the reduction of greenhouse gas emissions in the United States by establishing a market-driven system of greenhouse gas tradeable allowances, to support the deployment of new climate change-related technologies, and to ensure benefits to consumers from the trading in such allowances, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 12, 2007

Mr. LIEBERMAN (for himself, Mr. MCCAIN, Mrs. LINCOLN, Ms. SNOWE, Mr. OBAMA, Ms. COLLINS, and Mr. DURBIN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

A BILL

To provide for a program to accelerate the reduction of greenhouse gas emissions in the United States by establishing a market-driven system of greenhouse gas tradeable allowances, to support the deployment of new climate change-related technologies, and to ensure benefits to consumers from the trading in such allowances, and for other purposes.

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

1 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

2 (a) **SHORT TITLE.**—This Act may be cited as the
3 “Climate Stewardship and Innovation Act of 2007”.

4 (b) **TABLE OF CONTENTS.**—The table of contents for
5 this Act is as follows:

Sec. 1. Short title; table of contents.

Sec. 2. Purposes.

Sec. 3. Definitions.

TITLE I—A MARKET TO REDUCE GREENHOUSE GAS EMISSIONS

SUBTITLE A—TRACKING EMISSIONS

Sec. 101. National greenhouse gas database and registry established.

Sec. 102. Inventory of greenhouse gas emissions for covered entities.

Sec. 103. Greenhouse gas reduction reporting.

Sec. 104. Measurement and verification.

SUBTITLE B—MANDATING EMISSIONS REDUCTIONS

Sec. 121. Covered entities must submit allowances for emissions.

Sec. 122. Compliance.

Sec. 123. Exemption of source categories.

Sec. 124. Establishment of tradeable allowances.

Sec. 125. Penalties.

SUBTITLE C—CONTROLLING COMPLIANCE COSTS

Sec. 141. Trading.

Sec. 142. Banking.

Sec. 143. Borrowing.

Sec. 144. Domestic offsets.

Sec. 145. International credits plan.

SUBTITLE D—ALLOCATING EMISSIONS ALLOWANCES

Sec. 161. Determination of tradeable allowance allocations.

Sec. 162. Allocation of tradeable allowances.

Sec. 163. Ensuring target adequacy.

Sec. 164. Initial allocations for early participation and accelerated participation.

Sec. 165. Bonus for accelerated participation.

TITLE II—CLIMATE CHANGE CREDIT CORPORATION

SUBTITLE A—ESTABLISHMENT AND FUNCTIONS

Sec. 201. Establishment.

Sec. 202. Purposes and functions.

SUBTITLE B—FINANCING

Sec. 251. Climate Technology Financing Board.

Sec. 252. Responsibilities of the Secretary.

- Sec. 253. Limitations.
- Sec. 254. Source of funding for programs.
- Sec. 255. Definitions.

TITLE III—ADVANCED TECHNOLOGIES FOR A PRODUCTIVE,
SECURE, AND CLEAN ENERGY FUTURE

- Sec. 301. Findings.

SUBTITLE A—INNOVATION INFRASTRUCTURE

- Sec. 311. Technology transfer opportunities.
- Sec. 312. Government-sponsored technology investment program.
- Sec. 313. Federal technology innovation personnel incentives.
- Sec. 314. Interdisciplinary research and commercialization.
- Sec. 315. Climate innovation partnerships.
- Sec. 316. National Medal of Climate Stewardship Innovation.
- Sec. 317. Math and science teachers' enhancement program.
- Sec. 318. Patent study.
- Sec. 319. Lessons-learned program.
- Sec. 320. Research grants.
- Sec. 321. Abrupt climate change research.
- Sec. 322. Enhanced environmental measurements and standards.
- Sec. 323. Climate technology challenge program.

SUBTITLE B—DEPLOYING ADVANCED TECHNOLOGIES AND PRACTICES

- Sec. 351. Low- or zero-emissions electricity generation.
- Sec. 352. Low- or zero-emissions transportation.
- Sec. 353. Measures to increase energy efficiency.
- Sec. 354. Geological storage.
- Sec. 355. Agricultural sequestration.

TITLE IV—ADAPTING TO CLIMATE CHANGE IMPACTS

- Sec. 401. Adaptation technologies.
- Sec. 402. Mitigating climate change's impacts on the poor.

1 SEC. 2. PURPOSES.

2 The purposes of this Act are—

- 3 (1) without weakening the economic position of
- 4 the United States or otherwise imposing hardship on
- 5 its citizens, to reduce the Nation's greenhouse gas
- 6 emissions substantially enough and quickly enough
- 7 between 2007 and 2050 to preserve the feasibility of
- 8 forestalling catastrophic, manmade global climate
- 9 change; and

1 (2) to accomplish that purpose while—

2 (A) promoting the rapid and widespread
3 deployment of advanced technologies and prac-
4 tices for reducing greenhouse gas emissions;

5 (B) promoting the economic well-being of
6 low- and middle-income Americans;

7 (C) keeping good jobs in the United
8 States;

9 (D) mitigating climate change’s impacts on
10 low- and middle-income Americans;

11 (E) mitigating climate change’s impacts on
12 low-income populations abroad; and

13 (F) mitigating climate change’s impacts on
14 wildlife.

15 **SEC. 3. DEFINITIONS.**

16 In this Act:

17 (1) ADMINISTRATOR.—The term “Adminis-
18 trator” means the Administrator of the Environ-
19 mental Protection Agency.

20 (2) BASELINE.—The term “baseline” means
21 the historic greenhouse gas emission levels of an en-
22 tity, as adjusted upward by the Administrator to re-
23 flect actual reductions that are verified in accord-
24 ance with—

1 (A) regulations promulgated under section
2 101(c)(1); and

3 (B) relevant standards and methods devel-
4 oped under this title.

5 (3) CARBON DIOXIDE EQUIVALENTS.—The term
6 “carbon dioxide equivalents” means, for each green-
7 house gas, the amount of each such greenhouse gas
8 that makes the same contribution to global warming
9 as one metric ton of carbon dioxide, as determined
10 by the Administrator.

11 (4) COVERED SECTORS.—The term “covered
12 sectors” means the electricity, transportation, indus-
13 try, and commercial sectors, as such terms are used
14 in the Inventory.

15 (5) COVERED ENTITY.—The term “covered en-
16 tity” means an entity (including a branch, depart-
17 ment, agency, or instrumentality of Federal, State,
18 or local government) that—

19 (A) owns or controls a source of green-
20 house gas emissions in the electric power, in-
21 dustrial, or commercial sectors of the United
22 States economy (as defined in the Inventory),
23 refines or imports petroleum products for use in
24 transportation, or produces or imports

1 hydrofluorocarbons, perfluorocarbons, or sulfur
2 hexafluoride; and

3 (B) emits, from any single facility owned
4 by the entity, over 10,000 metric tons of green-
5 house gas per year, measured in units of carbon
6 dioxide equivalents, or produces or imports—

7 (i) petroleum products that, when
8 combusted, will emit,

9 (ii) hydrofluorocarbons, perfluorocar-
10 bons, or sulfur hexafluoride that, when
11 used, will emit, or

12 (iii) other greenhouse gases that,
13 when used, will emit,

14 over 10,000 metric tons of greenhouse gas per
15 year, measured in units of carbon dioxide
16 equivalents.

17 (6) DATABASE.—The term “database” means
18 the national greenhouse gas database established
19 under section 101.

20 (7) DIRECT EMISSIONS.—The term “direct
21 emissions” means greenhouse gas emissions by an
22 entity from a facility that is owned or controlled by
23 that entity.

24 (8) FACILITY.—The term “facility” means a
25 building, structure, or installation located on any 1

1 or more contiguous or adjacent properties of an enti-
2 ty in the United States.

3 (9) GREENHOUSE GAS.—The term “greenhouse
4 gas” means—

5 (A) carbon dioxide;

6 (B) methane;

7 (C) nitrous oxide;

8 (D) hydrofluorocarbons;

9 (E) perfluorocarbons; and

10 (F) sulfur hexafluoride.

11 (10) INDIRECT EMISSIONS.—The term “indirect
12 emissions” means greenhouse gas emissions that
13 are—

14 (A) a result of the activities of an entity;

15 but

16 (B) emitted from a facility owned or con-
17 trolled by another entity.

18 (11) INVENTORY.—The term “Inventory”
19 means the Inventory of U.S. Greenhouse Gas Emis-
20 sions and Sinks, prepared in compliance with the
21 United Nations Framework Convention on Climate
22 Change Decision 3/CP.5).

23 (12) LEAKAGE.—The term “leakage” means—

24 (A) an increase in greenhouse gas emis-
25 sions by one facility or entity caused by a re-

1 duction in greenhouse gas emissions by another
2 facility or entity; or

3 (B) a decrease in sequestration that is
4 caused by an increase in sequestration at an-
5 other location.

6 (13) PERMANENCE.—The term “permanence”
7 means the extent to which greenhouse gases that are
8 sequestered will not later be returned to the atmos-
9 phere.

10 (14) REGISTRY.—The term “registry” means
11 the registry of greenhouse gas emission reductions
12 established under section 101(b)(2).

13 (15) SECRETARY.—The term “Secretary”
14 means the Secretary of Commerce.

15 (16) SEQUESTRATION.—

16 (A) IN GENERAL.—The term “sequestra-
17 tion” means the capture, long-term separation,
18 isolation, or removal of greenhouse gases from
19 the atmosphere.

20 (B) INCLUSIONS.—The term “sequestra-
21 tion” includes—

22 (i) agricultural and conservation prac-
23 tices;

24 (ii) reforestation;

25 (iii) forest preservation; and

1 (iv) any other appropriate method of
2 capture, long-term separation, isolation, or
3 removal of greenhouse gases from the at-
4 mosphere, as determined by the Adminis-
5 trator.

6 (C) EXCLUSIONS.—The term “sequestra-
7 tion” does not include—

8 (i) any conversion of, or negative im-
9 pact on, a native ecosystem; or

10 (ii) any introduction of non-native
11 species.

12 (17) SOURCE CATEGORY.—The term “source
13 category” means a process or activity that leads to
14 direct emissions of greenhouse gases, as listed in the
15 Inventory.

16 (18) STATIONARY SOURCE.—The term “sta-
17 tionary source” means generally any source of
18 greenhouse gases except those emissions resulting di-
19 rectly from an engine for transportation purposes.

1 **TITLE I—A MARKET TO REDUCE**
2 **GREENHOUSE GAS EMISSIONS**
3 **Subtitle A—Tracking Emissions**

4 **SEC. 101. NATIONAL GREENHOUSE GAS DATABASE AND**
5 **REGISTRY ESTABLISHED.**

6 (a) ESTABLISHMENT.—As soon as practicable after
7 the date of enactment of this Act, the Administrator, in
8 coordination with the Secretary, the Secretary of Energy,
9 the Secretary of Agriculture, and private sector and non-
10 governmental organizations, shall establish, operate, and
11 maintain a database, to be known as the “National Green-
12 house Gas Database”, to collect, verify, and analyze infor-
13 mation on greenhouse gas emissions by entities.

14 (b) NATIONAL GREENHOUSE GAS DATABASE COM-
15 PONENTS.—The database shall consist of—

16 (1) an inventory of greenhouse gas emissions;

17 and

18 (2) a registry of greenhouse gas emission reduc-
19 tions and increases in greenhouse gas sequestra-
20 tions.

21 (c) COMPREHENSIVE SYSTEM.—

22 (1) IN GENERAL.—Not later than 2 years after
23 the date of enactment of this Act, the Administrator
24 shall promulgate regulations to implement a com-

1 comprehensive system for greenhouse gas emissions re-
2 porting, inventorying, and reductions registration.

3 (2) REQUIREMENTS.—The Administrator shall
4 ensure, to the maximum extent practicable, that—

5 (A) the comprehensive system described in
6 paragraph (1) is designed to—

7 (i) maximize completeness, trans-
8 parency, and accuracy of information re-
9 ported; and

10 (ii) minimize costs incurred by entities
11 in measuring and reporting greenhouse gas
12 emissions; and

13 (B) the regulations promulgated under
14 paragraph (1) establish procedures and proto-
15 cols necessary—

16 (i) to prevent the double-counting of
17 greenhouse gas emissions or emission re-
18 ductions reported by more than 1 reporting
19 entity;

20 (ii) to provide for corrections to errors
21 in data submitted to the database;

22 (iii) to provide for adjustment to data
23 by reporting entities that have had a sig-
24 nificant organizational change (including
25 mergers, acquisitions, and divestiture), in

1 order to maintain comparability among
2 data in the database over time;

3 (iv) to provide for adjustments to re-
4 flect new technologies or methods for
5 measuring or calculating greenhouse gas
6 emissions;

7 (v) to account for changes in registra-
8 tion of ownership of emission reductions
9 resulting from a voluntary private trans-
10 action between reporting entities; and

11 (vi) to clarify the responsibility for re-
12 porting in the case of any facility owned or
13 controlled by more than 1 entity.

14 (3) SERIAL NUMBERS.—Through regulations
15 promulgated under paragraph (1), the Administrator
16 shall develop and implement a system that pro-
17 vides—

18 (A) for the verification of submitted emis-
19 sions reductions registered under this section;

20 (B) for the provision of unique serial num-
21 bers to identify the registered emission reduc-
22 tions made by an entity relative to the baseline
23 of the entity;

1 (C) for the tracking of the registered re-
2 ductions associated with the serial numbers;
3 and

4 (D) for such action as may be necessary to
5 prevent counterfeiting of the registered reduc-
6 tions.

7 **SEC. 102. INVENTORY OF GREENHOUSE GAS EMISSIONS**
8 **FOR COVERED ENTITIES.**

9 (a) IN GENERAL.—Not later than July 1st of each
10 calendar year after 2010, each covered entity shall submit
11 to the Administrator a report that states, for the pre-
12 ceding calendar year, the entity-wide greenhouse gas emis-
13 sions (as reported at the facility level), including—

14 (1) the total quantity of direct greenhouse gas
15 emissions from stationary sources, expressed in units
16 of carbon dioxide equivalents, except those reported
17 under paragraph (3);

18 (2) the amount of petroleum products sold or
19 imported by the entity and the amount of green-
20 house gases, expressed in units of carbon dioxide
21 equivalents, that would be emitted when these prod-
22 ucts are used for transportation in the United
23 States, as determined by the Administrator under
24 section 121(b);

1 (3) the amount of hydrofluorocarbons,
2 perfluorocarbons, or sulfur hexafluoride, expressed
3 in units of carbon dioxide equivalents, that are sold
4 or imported by the entity and will ultimately be
5 emitted in the United States, as determined by the
6 Administrator under section 121(d); and

7 (4) such other categories of emissions as the
8 Administrator determines in the regulations promul-
9 gated under section 101(c)(1) may be practicable
10 and useful for the purposes of this Act, such as—

11 (A) indirect emissions from imported elec-
12 tricity, heat, and steam;

13 (B) process and fugitive emissions; and

14 (C) production or importation of green-
15 house gases.

16 (b) **COLLECTION AND ANALYSIS OF DATA.**—The Ad-
17 ministrators shall collect and analyze information reported
18 under subsection (a) for use under this title.

19 **SEC. 103. GREENHOUSE GAS REDUCTION REPORTING.**

20 (a) **IN GENERAL.**—Subject to the requirements de-
21 scribed in subsection (b)—

22 (1) a covered entity may register greenhouse
23 gas emission reductions achieved after 1990 and be-
24 fore 2012 under this section; and

1 (2) an entity that is not a covered entity may
2 register greenhouse gas emission reductions achieved
3 at any time since 1990 under this section.

4 (b) REQUIREMENTS.—

5 (1) IN GENERAL.—The requirements referred
6 to in subsection (a) are that an entity (other than
7 an entity described in paragraph (2)) shall—

8 (A) establish a baseline; and

9 (B) submit the report described in sub-
10 section (c)(1).

11 (2) REQUIREMENTS APPLICABLE TO ENTITIES
12 ENTERING INTO CERTAIN AGREEMENTS.—An entity
13 that enters into an agreement with a participant in
14 the registry for the purpose of a carbon sequestra-
15 tion project shall not be required to comply with the
16 requirements specified in paragraph (1) unless that
17 entity is required to comply with the requirements
18 by reason of an activity other than the agreement.

19 (c) REPORTS.—

20 (1) REQUIRED REPORT.—Not later than July
21 1st of the each calendar year beginning more than
22 2 years after the date of enactment of this Act, but
23 subject to paragraph (3), an entity described in sub-
24 section (a) shall submit to the Administrator a re-
25 port that states, for the preceding calendar year, the

1 entity-wide greenhouse gas emissions (as reported at
2 the facility level), including—

3 (A) the total quantity of direct greenhouse
4 gas emissions from stationary sources, ex-
5 pressed in units of carbon dioxide equivalents;

6 (B) the amount of petroleum products sold
7 or imported by the entity and the amount of
8 greenhouse gases, expressed in units of carbon
9 dioxide equivalents, that would be emitted when
10 these products are used for transportation in
11 the United States, as determined by the Admin-
12 istrator under section 121(b);

13 (C) the amount of hydrofluorocarbons,
14 perfluorocarbons, or sulfur hexafluoride, ex-
15 pressed in units of carbon dioxide equivalents,
16 that are sold or imported by the entity and will
17 ultimately be emitted in the United States, as
18 determined by the Administrator under section
19 121(d); and

20 (D) such other categories of emissions as
21 the Administrator determines in the regulations
22 promulgated under section 101(c)(1) may be
23 practicable and useful for the purposes of this
24 Act, such as—

- 1 (i) indirect emissions from imported
2 electricity, heat, and steam;
3 (ii) process and fugitive emissions;
4 and
5 (iii) production or importation of
6 greenhouse gases.

7 (2) VOLUNTARY REPORTING.—An entity de-
8 scribed in subsection (a) may (along with estab-
9 lishing a baseline and reporting emissions under this
10 section)—

11 (A) submit a report described in paragraph
12 (1) before the date specified in that paragraph
13 for the purposes of achieving and
14 commoditizing greenhouse gas reductions
15 through use of the registry and for other pur-
16 poses; and

17 (B) submit to the Administrator, for inclu-
18 sion in the registry, information that has been
19 verified in accordance with regulations promul-
20 gated under section 101(e)(1) and that relates
21 to—

22 (i) any activity that resulted in the
23 net reduction of the greenhouse gas emis-
24 sions of the entity or a net increase in se-
25 questration by the entity that were carried

1 out during or after 1990 and before the es-
2 tablishment of the database, verified in ac-
3 cordance with regulations promulgated
4 under section 101(c)(1), and submitted to
5 the Administrator before the date that is 4
6 years after the date of enactment of this
7 Act; and

8 (ii) with respect to the calendar year
9 preceding the calendar year in which the
10 information is submitted, any project or
11 activity that resulted in the net reduction
12 of the greenhouse gas emissions of the en-
13 tity or a net increase in net sequestration
14 by the entity.

15 (3) PROVISION OF VERIFICATION INFORMATION
16 BY REPORTING ENTITIES.—Each entity that submits
17 a report under this subsection shall provide informa-
18 tion sufficient for the Administrator to verify, in ac-
19 cordance with measurement and verification methods
20 and standards developed under section 104, that the
21 greenhouse gas report of the reporting entity—

22 (A) has been accurately reported; and

23 (B) in the case of each voluntary report
24 under paragraph (2), represents—

- 1 (i) actual reductions in direct green-
2 house gas emissions—
3 (I) relative to historic emission
4 levels of the entity; and
5 (II) after accounting for any in-
6 creases in indirect emissions described
7 in paragraph (1)(C)(i); or
8 (ii) actual increases in net sequestra-
9 tion.

10 (4) FAILURE TO SUBMIT REPORT.—An entity
11 that participates or has participated in the registry
12 and that fails to submit a report required under this
13 subsection shall be prohibited from using, or allow-
14 ing another entity to use, its registered emissions re-
15 ductions or increases in sequestration to satisfy the
16 requirements of section 121.

17 (5) INDEPENDENT THIRD-PARTY
18 VERIFICATION.—To meet the requirements of this
19 section, an entity that is required to submit a report
20 under this section may—

21 (A) obtain independent third-party
22 verification; and

23 (B) present the results of the third-party
24 verification to the Administrator.

25 (6) AVAILABILITY OF DATA.—

1 (A) IN GENERAL.—The Administrator
2 shall ensure that information in the database
3 is—

- 4 (i) published; and
5 (ii) accessible to the public, including
6 in electronic format on the Internet.

7 (B) EXCEPTION.—Subparagraph (A) shall
8 not apply in any case in which the Adminis-
9 trator determines that publishing or otherwise
10 making available information described in that
11 subparagraph poses a risk to national security
12 or discloses confidential business information
13 that can not be derived from information that
14 is otherwise publicly available and that would
15 cause competitive harm if published.

16 (7) DATA INFRASTRUCTURE.—The Adminis-
17 trator shall ensure, to the maximum extent prac-
18 ticable, that the database uses, and is integrated
19 with, Federal, State, and regional greenhouse gas
20 data collection and reporting systems in effect as of
21 the date of enactment of this Act.

22 (8) ADDITIONAL ISSUES TO BE CONSIDERED.—
23 In promulgating the regulations under section
24 101(c)(1) and implementing the database, the Ad-
25 ministrator shall take into consideration a broad

1 range of issues involved in establishing an effective
2 database, including—

3 (A) the data and information systems and
4 measures necessary to identify, track, and
5 verify greenhouse gas emissions in a manner
6 that will encourage private sector trading and
7 exchanges;

8 (B) the greenhouse gas reduction and se-
9 questration measurement and estimation meth-
10 ods and standards applied in other countries, as
11 applicable or relevant;

12 (C) the extent to which available fossil
13 fuels, greenhouse gas emissions, and greenhouse
14 gas production and importation data are ade-
15 quate to implement the database; and

16 (D) the differences in, and potential
17 uniqueness of, the facilities, operations, and
18 business and other relevant practices of persons
19 and entities in the private and public sectors
20 that may be expected to participate in the data-
21 base.

22 (d) ANNUAL REPORT.—The Administrator shall pub-
23 lish an annual report that—

1 (1) describes the total greenhouse gas emissions
2 and emission reductions reported to the database
3 during the year covered by the report;

4 (2) provides entity-by-entity and sector-by-sec-
5 tor analyses of the emissions and emission reduc-
6 tions reported;

7 (3) describes the atmospheric concentrations of
8 greenhouse gases;

9 (4) provides a comparison of current and past
10 atmospheric concentrations of greenhouse gases; and

11 (5) describes the activity during the year cov-
12 ered by the period in the trading of greenhouse gas
13 emission allowances.

14 **SEC. 104. MEASUREMENT AND VERIFICATION.**

15 (a) STANDARDS.—

16 (1) IN GENERAL.—Not later than 1 year after
17 the date of enactment of this Act, the Administrator
18 shall establish by rule, in coordination with the Sec-
19 retary, the Secretary of Energy, and the Secretary
20 of Agriculture, comprehensive measurement and
21 verification methods and standards to ensure a con-
22 sistent and technically accurate record of greenhouse
23 gas emissions, emission reductions, sequestration,
24 and atmospheric concentrations for use in the reg-
25 istry.

1 (2) REQUIREMENTS.—The methods and stand-
2 ards established under paragraph (1) shall include—

3 (A) a requirement that a covered entity
4 use a continuous emissions monitoring system,
5 or another system of measuring or estimating
6 emissions that is determined by the Adminis-
7 trator, in consultation with the Secretary, to
8 provide information with precision, reliability,
9 accessibility, and timeliness similar to that pro-
10 vided by a continuous emissions monitoring sys-
11 tem where technologically feasible;

12 (B) establishment of standardized meas-
13 urement and verification practices for reports
14 made by all entities participating in the reg-
15 istry, taking into account—

16 (i) protocols and standards in use by
17 entities requiring or desiring to participate
18 in the registry as of the date of develop-
19 ment of the methods and standards under
20 paragraph (1);

21 (ii) boundary issues, such as leakage;

22 (iii) avoidance of double counting of
23 greenhouse gas emissions and emission re-
24 ductions;

1 (iv) protocols to prevent a covered en-
2 tity from avoiding the requirements of this
3 Act by reorganization into multiple entities
4 that are under common control; and

5 (v) such other factors as the Adminis-
6 trator, in consultation with the Secretary,
7 determines to be appropriate;

8 (C) establishment of methods of—

9 (i) estimating greenhouse gas emis-
10 sions, for those cases in which the Admin-
11 istrator, in consultation with the Secretary,
12 determines that methods of monitoring,
13 measuring or estimating such emissions
14 with precision, reliability, accessibility, and
15 timeliness similar to that provided by a
16 continuous emissions monitoring system
17 are not technologically feasible at present;
18 and

19 (ii) reporting the accuracy of such es-
20 timations;

21 (D) establishment of measurement and
22 verification standards applicable to actions
23 taken to reduce, avoid, or sequester greenhouse
24 gas emissions;

1 (E) in coordination with the Secretary of
2 Agriculture, standards to measure the results of
3 the use of carbon sequestration and carbon re-
4 capture technologies, including—

5 (i) soil carbon sequestration practices;

6 and

7 (ii) forest preservation and reforest-
8 ation activities that adequately address the
9 issues of permanence, leakage, and
10 verification;

11 (F) establishment of such other measure-
12 ment and verification standards as the Adminis-
13 trator, in consultation with the Secretary, the
14 Secretary of Agriculture, and the Secretary of
15 Energy, determines to be appropriate;

16 (G) establishment of standards for obtain-
17 ing the Administrator's approval of the suit-
18 ability of geological storage sites that include
19 evaluation of both the geology of the site and
20 the entity's capacity to manage the site; and

21 (H) establishment of other features that,
22 as determined by the Administrator, will allow
23 entities to adequately establish a fair and reli-
24 able measurement and reporting system.

1 (b) REVIEW AND REVISION.—The Administrator, in
2 consultation with the Secretary, shall periodically review,
3 and revise as necessary, the methods and standards devel-
4 oped under subsection (a).

5 (c) PUBLIC PARTICIPATION.—The Administrator
6 shall—

7 (1) make available to the public for comment,
8 in draft form and for a period of at least 90 days,
9 the methods and standards developed under sub-
10 section (a); and

11 (2) after the 90-day period referred to in para-
12 graph (1), in coordination with the Secretary of En-
13 ergy, the Secretary of Agriculture, and the Sec-
14 retary, adopt the methods and standards developed
15 under subsection (a) for use in implementing the
16 database.

17 (d) EXPERTS AND CONSULTANTS.—

18 (1) IN GENERAL.—The Administrator may ob-
19 tain the services of experts and consultants in the
20 private and nonprofit sectors in accordance with sec-
21 tion 3109 of title 5, United States Code, in the
22 areas of greenhouse gas measurement, certification,
23 and emission trading.

24 (2) AVAILABLE ARRANGEMENTS.—In obtaining
25 any service described in paragraph (1), the Adminis-

1 trator may use any available grant, contract, cooper-
2 ative agreement, or other arrangement authorized by
3 law.

4 **Subtitle B—Mandating Emissions** 5 **Reductions**

6 **SEC. 121. COVERED ENTITIES MUST SUBMIT ALLOWANCES** 7 **FOR EMISSIONS.**

8 (a) IN GENERAL.—Beginning with calendar year
9 2012—

10 (1) each covered entity in the electric genera-
11 tion, industrial, and commercial sectors shall submit
12 to the Administrator one tradeable allowance for
13 each metric ton of greenhouse gases, measured in
14 units of carbon dioxide equivalents, that it emits
15 from stationary sources, except those described in
16 paragraph (2);

17 (2) each producer or importer of
18 hydrofluorocarbons, perfluorocarbons, or sulfur
19 hexafluoride that is a covered entity shall submit to
20 the Administrator one tradeable allowance for each
21 metric ton of hydrofluorocarbons, perfluorocarbons,
22 or sulfur hexafluoride, measured in units of carbon
23 dioxide equivalents; that it produces or imports and
24 that will ultimately be emitted in the United States,

1 as determined by the Administrator under sub-
2 section (d); and

3 (3) each petroleum refiner or importer that is
4 a covered entity shall submit one tradeable allowance
5 for each unit of petroleum product it sells that will
6 produce one metric ton of greenhouse gases, meas-
7 ured in units of carbon dioxide equivalents, as deter-
8 mined by the Administrator under subsection (b),
9 when used for transportation.

10 (b) DETERMINATION OF TRANSPORTATION SECTOR
11 AMOUNT.—For the transportation sector, the Adminis-
12 trator shall determine the amount of greenhouse gases,
13 measured in units of carbon dioxide equivalents, that will
14 be emitted when petroleum products are used for trans-
15 portation.

16 (c) EXCEPTION FOR CERTAIN DEPOSITED EMIS-
17 SIONS.—Notwithstanding subsection (a), a covered entity
18 is not required to submit a tradeable allowance for any
19 amount of greenhouse gas that would otherwise have been
20 emitted from a facility under the ownership or control of
21 that entity if—

22 (1) the emission is deposited in a geological
23 storage facility approved by the Administrator under
24 section 104(a)(2)(G); and

1 (2) the entity agrees to submit tradeable allow-
2 ances for any portion of the deposited emission that
3 is subsequently emitted from that facility.

4 (d) DETERMINATION OF HYDROFLUOROCARBON,
5 PERFLUOROCARBON, AND SULFUR HEXAFLUORIDE
6 AMOUNT.—The Administrator shall determine the
7 amounts of hydrofluorocarbons, perfluorocarbons, or sul-
8 fur hexafluoride, measured in units of carbon dioxide
9 equivalents, that will be deemed to be emitted for purposes
10 of this Act.

11 **SEC. 122. COMPLIANCE.**

12 (a) SOURCE OF TRADEABLE ALLOWANCES USED.—
13 A covered entity may use a tradeable allowance to meet
14 the requirements of this section without regard to whether
15 the tradeable allowance was allocated to it under subtitle
16 D of this title or acquired from another entity or the Cli-
17 mate Change Credit Corporation established under section
18 201.

19 (b) VERIFICATION BY ADMINISTRATOR.—At various
20 times during each year, the Administrator shall determine
21 whether each covered entity has met the requirements of
22 this section. In making that determination, the Adminis-
23 trator shall—

1 (1) take into account the tradeable allowances
2 submitted by the covered entity to the Adminis-
3 trator; and

4 (2) retire the serial number assigned to each
5 such tradeable allowance.

6 **SEC. 123. EXEMPTION OF SOURCE CATEGORIES.**

7 (a) IN GENERAL.—The Administrator may grant an
8 exemption from the requirements of this Act to a source
9 category if the Administrator determines, after public no-
10 tice and comment, that it is not feasible to measure or
11 estimate emissions from that source category, until such
12 time as measurement or estimation becomes feasible.

13 (b) REDUCTION OF LIMITATIONS.—If the Adminis-
14 trator exempts a source category under subsection (a), the
15 Administrator shall also reduce the total tradeable allow-
16 ances under section 161(a)(1) by the amount of green-
17 house gas emissions that the exempted source category
18 emitted in calendar year 2000, as identified in the 2000
19 Inventory.

20 (c) LIMITATION ON EXEMPTION.—The Administrator
21 may not grant an exemption under subsection (a) to car-
22 bon dioxide produced from fossil fuel.

1 **SEC. 124. ESTABLISHMENT OF TRADEABLE ALLOWANCES.**

2 (a) IN GENERAL.—The Administrator shall promul-
3 gate regulations to establish tradeable allowances, denomi-
4 nated in units of carbon dioxide equivalents, as follows:

5 (1) For calendar years beginning after 2011,
6 the number of tradeable allowances shall be equal to
7 6,130 million metric tons, measured in units of car-
8 bon dioxide equivalents, reduced by the amount of
9 emissions of greenhouse gases in calendar year 2012
10 from non-covered entities.

11 (2) For calendar years beginning after 2019,
12 the number of tradeable allowances shall be equal to
13 5,239 million metric tons, measured in units of car-
14 bon dioxide equivalents, reduced by the amount of
15 emissions of greenhouse gases in calendar year 2020
16 from non-covered entities.

17 (3) For calendar years beginning after 2029,
18 the number of tradeable allowances shall be equal to
19 4,100 million metric tons, measured in units of car-
20 bon dioxide equivalents, reduced by the amount of
21 emissions of greenhouse gases in calendar year 2030
22 from non-covered entities.

23 (4) For calendar years beginning after 2049,
24 the number of tradeable allowances shall be equal to
25 2,096 million metric tons, measured in units of car-
26 bon dioxide equivalents, reduced by the amount of

1 emissions of greenhouse gases in each such calendar
2 year from non-covered entities.

3 (b) SERIAL NUMBERS.—The Administrator shall as-
4 sign a unique serial number to each tradeable allowance
5 established under subsection (a), and shall take such ac-
6 tion as may be necessary to prevent counterfeiting of
7 tradeable allowances.

8 (c) NATURE OF TRADEABLE ALLOWANCES.—A
9 tradeable allowance is not a property right, and nothing
10 in this title or any other provision of law limits the author-
11 ity of the United States to terminate or limit a tradeable
12 allowance.

13 (d) NON-COVERED ENTITY.—

14 (1) IN GENERAL.—In this section the term
15 “non-covered entity” means an entity that—

16 (A) owns or controls a source of green-
17 house gas emissions in the electric power, in-
18 dustrial, or commercial sectors of the United
19 States economy (as defined in the Inventory),
20 refines or imports petroleum products for use in
21 transportation, or produces or imports
22 hydrofluorocarbons, perfluorocarbons, or sulfur
23 hexafluoride; and

24 (B) is not a covered entity.

1 (2) EXCEPTION.—Notwithstanding paragraph
2 (1), an entity that is a covered entity for any cal-
3 endar year beginning after 2011 shall not be consid-
4 ered to be a non-covered entity for purposes of sub-
5 section (a) only because it emitted, or its products
6 would have emitted, 10,000 metric tons or less of
7 greenhouse gas, measured in units of carbon dioxide
8 equivalents, in the year 2006.

9 **SEC. 125. PENALTIES.**

10 Any covered entity that fails to meet the require-
11 ments of section 121 for a year shall be liable for a civil
12 penalty, payable to the Administrator, equal to thrice the
13 market value (determined as of the last day of the year
14 at issue) of the tradeable allowances that would be nec-
15 essary for that covered entity to meet those requirements
16 on the date of the emission that resulted in the violation.

17 **Subtitle C—Controlling**
18 **Compliance Costs**

19 **SEC. 141. TRADING.**

20 (a) IN GENERAL.—Tradeable allowances may be sold,
21 exchanged, purchased, retired, or used as provided in this
22 section.

23 (b) INTERSECTOR TRADING.—Covered entities may
24 purchase or otherwise acquire tradeable allowances from

1 other covered sectors to satisfy the requirements of section
2 121.

3 **SEC. 142. BANKING.**

4 Notwithstanding the requirements of section 121, a
5 covered entity that has more than a sufficient amount of
6 tradeable allowances to satisfy the requirements of section
7 121, may refrain from submitting a tradeable allowance
8 to satisfy the requirements in order to sell, exchange, or
9 use the tradeable allowance in the future.

10 **SEC. 143. BORROWING.**

11 (a) IN GENERAL.—The Administrator shall establish
12 a program under which a covered entity may—

13 (1) borrow credits for use in the current cal-
14 endar year;

15 (2) use the credit in lieu of a tradeable allow-
16 ance to meet the requirements of this Act for the
17 current calendar year, subject to the limitation im-
18 posed by section 122(b); and

19 (3) use those credits to satisfy up to 25 percent
20 of its total allowance submission requirement under
21 section 121 for the current calendar year.

22 (b) DETERMINATION OF TRADEABLE ALLOWANCE
23 CREDITS.—The Administrator may make credits available
24 under subsection (a) that will be repaid within 5 years
25 after the year in which the credit is used.

1 (c) CARRYING COST.—If a covered entity uses a bor-
2 rowed credit under this section to meet the requirements
3 of this Act for a calendar year (referred to as the use
4 year), the tradeable allowance requirement for the year
5 from which the credit was taken (referred to as the source
6 year) shall be increased by an amount equal to—

7 (1) 10 percent for each credit borrowed from
8 the source year; multiplied by

9 (2) the number of years beginning after the use
10 year and before the source year.

11 (d) MAXIMUM BORROWING PERIOD.—A credit from
12 a year beginning more than 5 years after the current year
13 may not be used to meet the requirements of this Act for
14 the current year.

15 (e) FAILURE TO ACHIEVE REDUCTIONS GENER-
16 ATING CREDIT.—If a covered entity that uses a borrowed
17 credit under this section fails to repay the credit for the
18 year from which the credit was taken, then—

19 (1) the covered entity's requirements under this
20 Act for that year shall be increased by the amount
21 of the credit, plus the amount determined under
22 subsection (c);

23 (2) any tradeable allowances submitted by the
24 covered entity for that year shall be counted first
25 against the increase in those requirements; and

1 (3) the covered entity may not use credits
2 under this section to meet the increased require-
3 ments.

4 **SEC. 144. DOMESTIC OFFSETS.**

5 (a) ALTERNATIVE MEANS OF COMPLIANCE.—Begin-
6 ning with calendar year 2012, a covered entity may satisfy
7 up to 30 percent of its total allowance submission require-
8 ment under section 121 by—

9 (1) submitting tradeable allowances from an-
10 other nation’s market in greenhouse gas emissions
11 if—

12 (A) the Administrator determines that the
13 other nation’s system for trading in greenhouse
14 gas emissions is complete, accurate, and trans-
15 parent and reviews that determination at least
16 once every 5 years;

17 (B) the other nation has adopted enforce-
18 able limits on its greenhouse gas emissions
19 which the tradeable allowances were issued to
20 implement; and

21 (C) the covered entity certifies that the
22 tradeable allowance has been retired unused in
23 the other nation’s market;

24 (2) submitting a registered net increase in se-
25 questration, as registered in the database, adjusted,

1 if necessary, to comply with the accounting stand-
2 ards and methods established under subsection (c);

3 (3) submitting a greenhouse gas emissions re-
4 duction (other than a registered net increase in se-
5 questration) that was registered in the database by
6 a person that is not a covered entity; or

7 (4) submitting credits obtained under section
8 145.

9 (b) DEDICATED PROGRAM FOR SEQUESTRATION IN
10 AGRICULTURAL SOILS.—If a covered entity chooses to
11 satisfy more than 15 percent of its total allowance submis-
12 sion requirements under the provisions of subsection (a),
13 it shall satisfy at least 1.5 percent of its total allowance
14 submission requirement by submitting registered net in-
15 creases in sequestration in agricultural soils, as registered
16 in the database, adjusted, if necessary, to comply with the
17 accounting standards and methods established under this
18 section.

19 (c) SEQUESTRATION ACCOUNTING.—

20 (1) IN GENERAL.—If a covered entity uses a
21 registered net increase in sequestration to satisfy the
22 requirements of section 121 for any year, that cov-
23 ered entity shall submit information to the Adminis-
24 trator every 5 years thereafter sufficient to allow the
25 Administrator to determine, using the methods and

1 standards created under section 104, whether that
2 net increase in sequestration still exists. Unless the
3 Administrator determines that the net increase in
4 sequestration continues to exist, the covered entity
5 shall offset any loss of sequestration by submitting
6 additional tradeable allowances of equivalent amount
7 in the calendar year following that determination.

8 (2) REGULATIONS REQUIRED.—The Adminis-
9 trator, in coordination with the Secretary, the Sec-
10 retary of Agriculture, and the Secretary of Energy,
11 shall issue regulations establishing the sequestration
12 accounting rules for all classes of sequestration
13 projects.

14 (3) CRITERIA FOR REGULATIONS.—In issuing
15 regulations under this subsection, the Administrator
16 shall use the following criteria:

17 (A) If the range of possible amounts of net
18 increase in sequestration for a particular class
19 of sequestration project is not more than 10
20 percent of the median of that range, the
21 amount of sequestration awarded shall be equal
22 to the median value of that range.

23 (B) If the range of possible amounts of net
24 increase in sequestration for a particular class
25 of sequestration project is more than 10 percent

1 of the median of that range, the amount of se-
2 questration awarded shall be equal to the fifth
3 percentile of that range.

4 (C) The regulations shall include proce-
5 dures for accounting for potential leakage from
6 sequestration projects and for ensuring that
7 any registered increase in sequestration is in
8 addition that which would have occurred if this
9 Act had not been enacted.

10 (4) UPDATES.—The Administrator shall update
11 the sequestration accounting rules for every class of
12 sequestration project at least once every 5 years.

13 **SEC. 145. INTERNATIONAL CREDITS PLAN.**

14 (a) ESTABLISHMENT.—The Administrator shall es-
15 tablish a program the purposes of which are—

16 (1) to assist developing countries in achieving
17 sustainable development and in contributing to the
18 objective of reducing the greenhouse gas emissions;
19 and

20 (2) to assist covered entities in achieving com-
21 pliance with the requirements of section 121.

22 (b) PROGRAM COMPONENTS.—

23 (1) IN GENERAL.—The program shall provide
24 for the earning of tradable allowances by covered en-
25 tities from project activities in developing countries

1 resulting in certified emission reductions. The Ad-
2 ministrator shall ensure tradability of emission re-
3 ductions earned under this program with reductions
4 earned under other similar international programs.

5 (2) APPROVAL CRITERIA AND REVIEW PROC-
6 ESS.—By no later than 2011, the Administrator
7 shall—

8 (A) develop criteria for the approval of
9 projects submitted for review; and

10 (B) establish a review process for sub-
11 mitted projects that includes a procedure for
12 providing the results of the review, together
13 with an explanation of the reasons for approv-
14 ing or denying approval of a submitted project,
15 to the entity that submitted the project.

16 (3) FEES.—The Administrator may charge an
17 application fee for the review of project proposals to
18 cover the administrative costs of the program.

19 (4) CERTIFICATION OF RESULTS REQUIRED.—
20 The Administrator shall require entities partici-
21 pating in this program to obtain independent third-
22 party verification that—

23 (A) participation by all parties involved in
24 the project is voluntary;

25 (B) the project produces—

1 (i) real, measurable, and long-term
2 benefits related to the mitigation of climate
3 change; and

4 (ii) reductions in emissions that are
5 additional to any that would occur in the
6 absence of the certified project activity.

7 (c) USE OF ALLOWANCES.—Subject to the limitation
8 in section 144(a), tradable allowances earned under the
9 program may be used to meet the requirements of section
10 121.

11 (d) STUDY.—Within 3 years after the date of enact-
12 ment of this Act, the Administrator, in coordination with
13 the Secretary, shall conduct a study of the impacts of the
14 compliance cost reduction measures of this section and
15 section 144 on achieving the purposes of this Act. The
16 Administrator shall submit the results of the study to the
17 Congress along with any recommendations the Adminis-
18 trator deems appropriate.

19 **Subtitle D—Allocating Emissions** 20 **Allowances**

21 **SEC. 161. DETERMINATION OF TRADEABLE ALLOWANCE** 22 **ALLOCATIONS.**

23 (a) IN GENERAL.—The Administrator, in consulta-
24 tion with the Secretary, shall determine—

1 (1) the number of tradeable allowances to be al-
2 located to each covered sector of that sector's allot-
3 ments; and

4 (2) the number of tradeable allowances to be al-
5 located to the Climate Change Credit Corporation
6 established under section 201.

7 (b) ALLOCATION FACTORS.—In making the deter-
8 mination required by subsection (a), the Administrator, in
9 consultation with the Secretary, shall consider—

10 (1) the distributive effect of the allocations on
11 household income and net worth of individuals;

12 (2) the impact of the allocations on corporate
13 income, taxes, and asset value;

14 (3) the impact of the allocations on income lev-
15 els of consumers and on their energy consumption;

16 (4) the effects of the allocations in terms of eco-
17 nomic efficiency;

18 (5) the ability of covered entities to pass
19 through compliance costs to their customers;

20 (6) the degree to which the amount of alloca-
21 tions to the covered sectors should decrease over
22 time;

23 (7) the need to maintain the international com-
24 petitiveness of United States manufacturing and

1 avoid the additional loss of United States manufac-
2 turing jobs; and

3 (8) the necessary funding levels for the initia-
4 tives and programs in section 202.

5 (c) ALLOCATION RECOMMENDATIONS AND IMPLE-
6 MENTATION.—Before allocating or providing tradeable al-
7 lowances under subsection (a) and within 24 months after
8 the date of enactment of this Act, the Administrator shall
9 submit the determinations under subsection (a) to the
10 Senate Committee on Commerce, Science, and Transpor-
11 tation, the Senate Committee on Environment and Public
12 Works, the House of Representatives Committee on
13 Science, and the House of Representatives Committee on
14 Energy and Commerce. The Secretary’s determinations
15 under paragraph (1), including the allocations and provi-
16 sion of tradeable allowances pursuant to that determina-
17 tion, are deemed to be a major rule (as defined in section
18 804(2) of title 5, United States Code), and subject to the
19 provisions of chapter 8 of that title.

20 **SEC. 162. ALLOCATION OF TRADEABLE ALLOWANCES.**

21 (a) IN GENERAL.—Beginning with calendar year
22 2012 and after taking into account any initial allocations
23 under section 164, the Administrator shall—

24 (1) allocate to each covered sector that sector’s
25 allotments determined by the Administrator under

1 section 162 (adjusted for any such initial allocations
2 and the allocation to the Climate Change Credit
3 Corporation established under section 201); and

4 (2) allocate to the Climate Change Credit Cor-
5 poration established under section 201 the tradeable
6 allowances allocable to that Corporation.

7 (b) INTRASECTORIAL ALLOTMENTS.—The Adminis-
8 trator shall, by regulation, establish a process for the allo-
9 cation of tradeable allowances under this section, without
10 cost to covered entities, that will—

11 (1) encourage investments that increase the ef-
12 ficiency of the processes that produce greenhouse
13 gas emissions;

14 (2) minimize the costs to the government of al-
15 locating the tradeable allowances;

16 (3) give credit to covered entities for emissions
17 reductions made before 2012 and registered with the
18 database; and

19 (4) provide sufficient allocation for new en-
20 trants into the sector.

21 (c) POINT SOURCE ALLOCATION.—The Adminis-
22 trator shall allocate the tradeable allowances for the elec-
23 tricity generation, industrial, and commercial sectors to
24 the entities owning or controlling the point sources of
25 greenhouse gas emissions within that sector.

1 (d) HYDROFLUOROCARBONS, PERFLUOROCARBONS,
2 AND SULFUR HEXAFLUORIDE.—The Administrator shall
3 allocate the tradeable allowances for producers or import-
4 ers of hydrofluorocarbons, perfluorocarbons, or sulfur
5 hexafluoride to such producers or importers.

6 (e) SPECIAL RULE FOR ALLOCATION WITHIN THE
7 TRANSPORTATION SECTOR.—The Administrator shall al-
8 locate the tradeable allowances for the transportation sec-
9 tor to petroleum refiners or importers that produce or im-
10 port petroleum products that will be used as fuel for trans-
11 portation.

12 (f) ALLOCATIONS TO RURAL ELECTRIC COOPERA-
13 TIVES.—For each electric generating unit that is owned
14 or operated by a rural electric cooperative, the Adminis-
15 trator shall allocate each year, at no cost, allowances in
16 an amount equal to the greenhouse gas emissions of each
17 such unit in 2006, plus an amount equal to the average
18 emissions growth expected for all such units. The alloca-
19 tions shall be offset from the allowances allocated to the
20 Climate Change Credit Corporation.

21 (g) EARLY AUCTION FOR TECHNOLOGY DEPLOY-
22 MENT AND DISSEMINATION.—

23 (1) IN GENERAL.—Within 1 year after the date
24 of enactment of this Act, the Administrator, in con-
25 sultation with the Secretary of Energy and the Sec-

1 retary of Commerce, shall allocate tradeable allow-
2 ances by the Climate Change Credit Corporation for
3 auction before 2012. The Climate Change Credit
4 Corporation shall use the proceeds of the auction,
5 together with any funds received as reimbursements
6 under subsection (c) or (d) of section 351 of this
7 Act, to support the programs established by that
8 section until the secretary of Energy and the Cor-
9 poration jointly determine that the purposes of those
10 programs have been accomplished. The Corporation
11 shall also use the proceeds of the auction to support
12 the programs established by section 323 of this Act
13 until 2012.

14 (2) DETERMINATION OF ALLOCATION.—In de-
15 termining the amount of tradeable allowances to be
16 allocated to the Climate Change Credit Corporation
17 under this subsection, the Administrator shall con-
18 sider—

19 (A) the expected market value of tradeable
20 allowances for auction;

21 (B) the annual funding required for the
22 programs established by subsections (c) and (d)
23 of section 351 of this Act;

24 (C) the repayment provisions of those pro-
25 grams; and

1 (D) the allocation factors in section
2 161(b).

3 (3) LIMITATION.—In allocating tradeable allow-
4 ances under paragraph (1) the Administrator shall
5 take into account the purposes of this Act and the
6 impact, if any, the allocation under paragraph (1)
7 may have on achieving those purposes.

8 (h) ALLOCATION TO COVERED ENTITIES IN STATES
9 ADOPTING MANDATORY GREENHOUSE GAS EMISSIONS
10 REDUCTION PROGRAMS.—For a covered entity operating
11 in any State that has adopted a legally binding and en-
12 forceable program to achieve and maintain reductions that
13 are consistent with, or more stringent than, reductions
14 mandated by this Act, and which requirements are effec-
15 tive prior to 2012, the Administrator shall consider such
16 binding state actions in making the final determination
17 of allocation to such covered entities.

18 **SEC. 163. ENSURING TARGET ADEQUACY.**

19 (a) IN GENERAL.—Beginning 2 years after the date
20 of enactment of this Act, the Under Secretary of Com-
21 merce for Oceans and Atmosphere shall review the allow-
22 ances established by section 124 no less frequently than
23 biennially—

24 (1) to re-evaluate the levels established by that
25 subsection, after taking into account the best avail-

1 able science and the most currently available data,
2 and

3 (2) to re-evaluate the environmental and public
4 health impacts of specific concentration levels of
5 greenhouse gases,
6 to determine whether the allowances established by section
7 124 continue to be consistent with the purposes of this
8 Act and the objective of the United Nations' Framework
9 Convention on Climate Change of stabilizing levels of
10 greenhouse gas emissions at a level that will prevent dan-
11 gerous anthropogenic interference with the climate system.

12 (b) REVIEW OF 2012 LEVELS.—The Under Secretary
13 shall specifically review in 2012 the level established under
14 section 124(a)(1), and transmit a report on his reviews,
15 together with any recommendations, including legislative
16 recommendations, for modification of the levels, to the
17 Senate Committee on Commerce, Science, and Transpor-
18 tation, the Senate Committee on Environment and Public
19 Works, the House of Representatives Committee on
20 Science, and the House of Representatives Committee on
21 Energy and Commerce.

22 **SEC. 164. INITIAL ALLOCATIONS FOR EARLY PARTICIPA-**
23 **TION AND ACCELERATED PARTICIPATION.**

24 (a) IN GENERAL.—Before making any allocations
25 under section 162, the Administrator shall allocate—

1 (1) to any covered entity an amount of
2 tradeable allowances equivalent to the amount of
3 greenhouse gas emissions reductions registered by
4 that covered entity in the national greenhouse gas
5 database if—

6 (A) the covered entity has requested to use
7 the registered reduction in the year of alloca-
8 tion;

9 (B) the reduction was registered prior to
10 2012; and

11 (C) the Administrator retires the unique
12 serial number assigned to the reduction under
13 section 101(c)(3); and

14 (2) to any covered entity that has entered into
15 an accelerated participation agreement under section
16 165, such tradeable allowances as the Administrator
17 has determined to be appropriate under that section.

18 (b) **ELIGIBILITY UNDER STATE PROGRAMS.**—Any
19 covered entity that is subject to a State mandatory green-
20 house gas emissions reduction program that meets the re-
21 quirements of subsection (h) of section 162 shall be eligi-
22 ble for the allocation of allowances under this section and
23 section 165 if the requirements of the State mandatory
24 greenhouse gas emission reduction program are consistent

1 with, or more stringent than, the emission targets estab-
2 lished by this Act.

3 **SEC. 165. BONUS FOR ACCELERATED PARTICIPATION.**

4 (a) IN GENERAL.—If a covered entity executes an
5 agreement with the Administrator under which it agrees
6 to reduce its level of greenhouse gas emissions to a level
7 no greater than the level of its greenhouse gas emissions
8 for calendar year 1990 by the year 2012, then, for the
9 6-year period beginning with calendar year 2012, the Ad-
10 ministrator shall—

11 (1) provide additional tradeable allowances to
12 that entity when allocating allowances under section
13 163 in order to recognize the additional emissions
14 reductions that will be required of the covered entity;
15 and

16 (2) allow that entity to satisfy 40 percent of its
17 requirements under section 121 by the means set
18 forth in section 144(a) and 145.

19 (b) TERMINATION.—An entity that executes an
20 agreement described in subsection (a) may terminate the
21 agreement at any time.

22 (c) FAILURE TO MEET COMMITMENT.—If an entity
23 that executes an agreement described in subsection (a)
24 fails to achieve the level of emissions to which it committed
25 by calendar year 2012—

1 (1) its requirements under section 121 shall be
2 increased by the amount of any tradeable allowances
3 provided to it under subsection (a)(1); and

4 (2) any tradeable allowances submitted there-
5 after shall be counted first against the increase in
6 those requirements.

7 **TITLE II—CLIMATE CHANGE**
8 **CREDIT CORPORATION**
9 **Subtitle A—Establishment and**
10 **Functions**

11 **SEC. 201. ESTABLISHMENT.**

12 (a) IN GENERAL.—The Climate Change Credit Cor-
13 poration is established as a nonprofit corporation without
14 stock. The Corporation shall not be considered to be an
15 agency or establishment of the United States Government.

16 (b) APPLICABLE LAWS.—The Corporation shall be
17 subject to the provisions of this title and, to the extent
18 consistent with this title, to the District of Columbia Busi-
19 ness Corporation Act.

20 (c) BOARD OF DIRECTORS.—The Corporation shall
21 have a board of directors of 5 individuals who are citizens
22 of the United States, of whom 1 shall be elected annually
23 by the board to serve as chairman. No more than 3 mem-
24 bers of the board serving at any time may be affiliated
25 with the same political party. The members of the board

1 shall be appointed by the President of the United States,
2 by and with the advice and consent of the Senate and shall
3 serve for terms of 5 years.

4 **SEC. 202. PURPOSES AND FUNCTIONS.**

5 (a) **TRADING.**—The Corporation—

6 (1) shall receive and manage tradeable allow-
7 ances allocated to it under section 163(a)(2); and

8 (2) shall buy and sell tradeable allowances,
9 whether allocated to it under that section or ob-
10 tained by purchase, trade, or donation from other
11 entities; but

12 (3) may not retire tradeable allowances unused.

13 (b) **USE OF TRADEABLE ALLOWANCES AND PRO-**
14 **CEEDS.**—

15 (1) **IN GENERAL.**—The Corporation shall use
16 the tradeable allowances, and proceeds derived from
17 its trading activities in tradeable allowances, to re-
18 duce costs borne by consumers as a result of the
19 greenhouse gas reduction requirements of this Act.
20 The reductions—

21 (A) may be obtained by buy-down, subsidy,
22 negotiation of discounts, consumer rebates, or
23 otherwise;

1 (B) shall be, as nearly as possible, equi-
2 tably distributed across all regions of the
3 United States; and

4 (C) may include arrangements for pref-
5 erential treatment to consumers who can least
6 afford any such increased costs.

7 (2) TRANSITION ASSISTANCE TO DISLOCATED
8 WORKERS AND COMMUNITIES.—The Corporation
9 shall allocate a percentage of the proceeds derived
10 from its trading activities in tradeable allowances to
11 provide transition assistance to dislocated workers
12 and communities. Transition assistance may take
13 the form of—

14 (A) grants to employers, employer associa-
15 tions, and representatives of employees—

16 (i) to provide training, adjustment as-
17 sistance, and employment services to dis-
18 located workers; and

19 (ii) to make income-maintenance and
20 needs-related payments to dislocated work-
21 ers; and

22 (B) grants to State and local governments
23 to assist communities in attracting new employ-
24 ers or providing essential local government serv-
25 ices.

1 (3) PHASE-OUT OF TRANSITION ASSISTANCE.—

2 The percentage allocated by the Corporation under
3 paragraph (2)—

4 (A) shall be 20 percent for 2012;

5 (B) shall be reduced by 2 percentage
6 points each year thereafter; and

7 (C) may not be reduced below zero.

8 (4) ADAPTATION AND MITIGATION ASSISTANCE
9 FOR LOW-INCOME PERSONS AND COMMUNITIES.—

10 The Corporation shall allocate at least 10 percent of
11 the proceeds derived from its trading activities to
12 funding climate change adaptation and mitigation
13 programs to assist low-income populations identified
14 in the report submitted under section 106(b) as hav-
15 ing particular needs in addressing the impact of cli-
16 mate change.

17 (5) ADAPTATION ASSISTANCE FOR FISH AND
18 WILDLIFE HABITAT.—The Corporation shall fund ef-
19 forts to strengthen and restore habitat that improves
20 the ability of fish and wildlife to adapt successfully
21 to climate change. The Corporation shall deposit the
22 proceeds from no less than 10 percent of the total
23 allowances allocated to it in the wildlife restoration
24 fund subaccount known as the Wildlife Conservation
25 and Restoration Account established under section 3

1 of the Pittman-Robertson Wildlife Restoration Act
2 (16 U.S.C. 669b). Amounts deposited in the sub-
3 account under this paragraph shall be available
4 without further appropriation for obligation and ex-
5 penditure under that Act.

6 (6) TECHNOLOGY DEPLOYMENT PROGRAMS.—
7 The Corporation shall establish and carry out a pro-
8 gram, through direct grants, revolving loan pro-
9 grams, or other financial measures, to provide sup-
10 port for the deployment of technology to assist in
11 compliance with this Act by distributing the pro-
12 ceeds from no less than 50 percent of the total al-
13 lowances allocated in support of the program estab-
14 lished under section 323.

15 **Subtitle B—Financing**

16 **SEC. 251. CLIMATE TECHNOLOGY FINANCING BOARD.**

17 (a) PURPOSE.—The Climate Technology Financing
18 Board shall work with the Secretary of Energy to make
19 financial assistance available to joint venture partnerships
20 and promote private sector participation in financing eligi-
21 ble projects under this subtitle.

22 (b) ESTABLISHMENT.—

23 (1) IN GENERAL.—Not later than 90 days after
24 the date of enactment of this Act, the Secretary of
25 Energy shall establish within the Department of En-

1 ergy a Climate Technology Financing Board, which
2 shall be responsible for assisting the Secretary in
3 carrying out this subtitle.

4 (2) MEMBERSHIP.—The Climate Technology
5 Financing Board shall be comprised of—

6 (A) the Secretary of Energy, who shall
7 serve as chair; and

8 (B) 6 additional members appointed by the
9 Secretary, including—

10 (i) the Chief Financial Officer of the
11 Department of Energy;

12 (ii) at least 1 representative of the
13 Corporation; and

14 (iii) other members with experience in
15 corporate and project finance in the energy
16 sector as deemed necessary by the Sec-
17 retary to carry out the functions of the
18 Board.

19 (3) REPRESENTATION OF FEDERAL INTER-
20 EST.—The Climate Technology Financing Board
21 shall represent the Federal government’s interest in
22 all negotiations with project developers interested in
23 forming joint venture partnerships and obtaining se-
24 cured loans or loan guarantees under this subtitle.

25 (c) REGULATIONS.—

1 (1) IN GENERAL.—Not later than 12 months
2 after the date of enactment of this Act, the Climate
3 Technology Financing Board, through the Secretary
4 of Energy, shall publish in the Federal Register such
5 final regulations as may be necessary to implement
6 section 252.

7 (2) PROJECT SELECTION CRITERIA.—In select-
8 ing eligible projects for financial assistance under
9 this subtitle, the Board shall consider, among other
10 relevant criteria—

11 (A) the extent to which the project reduces
12 greenhouse gases, demonstrates new tech-
13 nologies, meets other clean air attainment
14 goals, generates economic benefits, contributes
15 to energy security, contributes to fuel and tech-
16 nology diversity, and maintains price stability,
17 cost effectiveness, and economic competitive-
18 ness;

19 (B) the extent to which assistance under
20 this subtitle would foster innovative public-pri-
21 vate partnerships and attract private equity in-
22 vestment;

23 (C) the likelihood that assistance under
24 this subtitle would enable the project to proceed

1 at an earlier date than the project would other-
2 wise be able to proceed without such assistance;

3 (D) the extent to which the project rep-
4 represents the construction of the first generation
5 of facilities that use substantially new tech-
6 nology; and

7 (E) any other criteria deemed necessary by
8 the Secretary for the promotion of long-term
9 cost effective climate change-related tech-
10 nologies.

11 (3) MANDATORY REGULATORY PROVISIONS.—

12 The regulations required by paragraph (1) shall in-
13 clude the following:

14 (A) The general terms and conditions
15 under which non-recourse financial assistance
16 will be provided. Those terms shall include—

17 (i) a debt-to-equity ratio of up to 80
18 percent debt from the Corporation, ap-
19 proved by the Secretary, and no less than
20 20 percent equity from the project devel-
21 oper;

22 (ii) a pledge of the eligible project's
23 assets to the Secretary and the project de-
24 veloper to secure their respective loan and
25 equity contributions; and

1 (iii) loan repayment terms generally
2 consistent with financial terms available to
3 project developers in the United States
4 power generation industry.

5 (B) The general terms and conditions
6 under which loan guarantees will be provided,
7 which shall be consistent with section 253(c).

8 (C) The procedures by which project own-
9 ers and project developers may request such fi-
10 nancial assistance.

11 (D) A process under which the Climate
12 Technology Financing Board, the joint venture
13 partnership, and the project developer shall ne-
14 gotiate commercially reasonable terms con-
15 sistent with terms generally available in the
16 United States power generation industry re-
17 garding cost, construction schedule, and other
18 conditions under which the project developer
19 shall acquire the loan from the joint venture
20 partnership and repay the secured loan and ac-
21 quire an undivided interest in the eligible
22 project when the project achieves commercial
23 operation. Terms prescribed under this sub-
24 paragraph shall include—

1 (i) a defined right of the joint venture
2 partnership to terminate the loan agree-
3 ment upon a date certain for project delays
4 that are not the fault of the project devel-
5 oper; and

6 (ii) may not refer to the Federal Ac-
7 quisition Regulations.

8 (E) Provisions to retain independent third-
9 party engineering assistance, satisfactory to the
10 Climate Technology Financing Board, the
11 project developer, and the joint venture partner-
12 ship, to verify and validate construction costs
13 and construction schedules, to monitor con-
14 struction, and authorize draws on financing
15 during construction to ensure that construction
16 is consistent with generally accepted utility
17 practice, and to make recommendations as to
18 the cause of delay or cost increases should such
19 delays or cost increases occur.

20 (F) Provisions to ensure—

21 (i) continued project development and
22 construction in the event of a delay to
23 achieving commercial operation caused by
24 an event outside the control of the joint de-

1 velopment partners and the project devel-
2 oper; and

3 (ii) continued project operations in the
4 event the sale of the eligible project to the
5 project developer is not executed due to an
6 event outside the control of the project de-
7 veloper.

8 (G) Any other information necessary for
9 the Secretary of Energy to discharge fully the
10 obligation conferred under this subtitle, includ-
11 ing a process for negotiating the terms and con-
12 ditions of such financial assistance.

13 (d) COMPREHENSIVE IMPLEMENTATION PLAN.—Not
14 later than 12 months after the date of enactment of this
15 Act, the Climate Technology Financing Board shall pre-
16 pare and transmit to the President and Congress a com-
17 prehensive plan for implementation of this subtitle.

18 (e) PROGRESS REPORTS.—Not later than 12 months
19 after the comprehensive plan required by subsection (d)
20 and annually thereafter the Secretary shall prepare and
21 transmit to the President and the Congress a report sum-
22 marizing progress in satisfying the requirements estab-
23 lished by the subtitle.

1 **SEC. 252. RESPONSIBILITIES OF THE SECRETARY.**

2 (a) FINANCIAL ASSISTANCE.—Subject to the require-
3 ments of the Federal Credit Reform Act of 1990 (2 U.S.C.
4 661 et seq.), the Secretary, in coordination with the Cor-
5 poration, may make available to joint venture partnerships
6 for eligible project costs such Federal financial assistance
7 as the Climate Technology Financing Board determines
8 is necessary to enable access to, or to supplement, private
9 sector financing for projects if the Board determines that
10 such projects are needed to reduce greenhouse gas emis-
11 sions, contribute to energy security, fuel or technology di-
12 versity, or clean air attainment goals. The Secretary, in
13 coordination with the Corporation, shall prescribe such
14 terms and conditions for financial assistance as the Sec-
15 retary deems necessary or appropriate to protect the fi-
16 nancial interests of the United States.

17 (b) REQUIREMENTS.—Approval criteria for financial
18 assistance under subsection (a) shall include—

- 19 (1) the creditworthiness of the project;
- 20 (2) the extent to which Federal financial assist-
21 ance would encourage public-private partnerships,
22 attract private-sector investment, and demonstrate
23 safe and secure electric generation or fuel production
24 technology;
- 25 (3) the likelihood that Federal financial assist-
26 ance would hasten commencement of the project;

1 (4) in the case of a nuclear power plant, wheth-
2 er the project developer provides reasonable assur-
3 ance to the Secretary that the project developer can
4 successfully manage nuclear power plant operations;

5 (5) the extent to which the project will dem-
6 onstrate safe and secure reduced or zero greenhouse
7 gas emitting electric generating or fuel production
8 technology; and

9 (6) any other criteria the Secretary deems nec-
10 essary or appropriate.

11 (c) RESERVE AMOUNT.—Before entering into any
12 agreements under this subtitle, the Secretary, in consulta-
13 tion with the Director of the Office of Management and
14 Budget, shall determine an appropriate capital reserve
15 subsidy amount for any loan or loan guarantee provided
16 by the agreement. The Secretary, in consultation with the
17 project developer, shall determine the appropriate type of
18 Federal financial assistance to be provided for eligible
19 projects.

20 (d) CONFIDENTIALITY.—The Secretary and the Cor-
21 poration shall protect the confidentiality of any informa-
22 tion that is certified by a project developer to be commer-
23 cially sensitive.

24 (e) FULL FAITH AND CREDIT.—All loans or loan
25 guarantees provided by the Secretary under this subtitle

1 shall be general obligations of the United States backed
2 by the full faith and credit of the United States.

3 **SEC. 253. LIMITATIONS.**

4 (a) SECURED LOANS.—

5 (1) IN GENERAL.—The financial assistance pro-
6 vided by this subtitle for secured loans or loan guar-
7 antees—

8 (A) shall be available for new low or zero
9 greenhouse gas emitting energy generating or
10 fuel production facilities, including—

11 (i) no more than 3 integrated gasifi-
12 cation combined cycle coal power plants
13 with carbon capture and geological storage
14 of greenhouse gases;

15 (ii) no more than the first of each of
16 the 3 advanced reactor design projects for
17 which applications for combined construc-
18 tion and operating licenses have been filed
19 on or before December 31, 2015;

20 (iii) no more than 3 large scale
21 biofuels production facilities that encour-
22 age a diversity of pioneer projects relying
23 on different feedstocks in different regions
24 of the country and maximizing the use of
25 cellulosic biomass; and

1 (iv) no more than 3 large scale solar
2 facilities of greater than 5 megawatts ca-
3 pacity which begin operation after Decem-
4 ber 31, 2007, and before January 1, 2011;
5 and

6 (B) may not exceed 80 percent of eligible
7 project costs for each project.

8 (2) GOVERNMENT-CAUSED DELAYS.—Para-
9 graph (1)(B) of this subsection does not apply if—

10 (A) with respect to a nuclear power
11 plant—

12 (i) the conditions specified in the con-
13 struction and operation license issued by
14 the Nuclear Regulatory Commission
15 change; and

16 (ii) the changed conditions result in
17 project delays or changes in project scope
18 after the start of construction that are not
19 attributable to private sector project man-
20 agement, construction, or variances from
21 the Nuclear Regulatory Commission's ap-
22 proved design criteria or safety require-
23 ments; or

1 (B) with respect to an advanced coal power
2 plant, biofuels production facility, solar power
3 facility, or other eligible facility—

4 (i) the conditions specified in the con-
5 struction permit change; and

6 (ii) the changed conditions result in
7 project delays or changes in project scope
8 after the start of construction that are not
9 attributable to private sector project man-
10 agement, construction, or variances from
11 the approved design criteria or safety re-
12 quirements.

13 (3) ADDITIONAL ASSISTANCE.—If paragraph
14 (1)(B) of this subsection does not apply for reasons
15 described in paragraph (2), then the financial assist-
16 ance payable to the project developer shall include
17 additional capital costs, costs of project oversight,
18 lost replacement power, and calculated interest, as
19 determined appropriate by the Secretary of Energy.

20 (b) LOAN REPAYMENT TERMS.—

21 (1) The repayment terms for non-recourse se-
22 cured loans made under this subtitle shall be nego-
23 tiated among the Climate Technology Financing
24 Board, the joint venture partnership, and the project

1 developer prior to issuance of the loan and com-
2 mencement of construction.

3 (2) The project developer shall purchase the
4 joint venture partnership's interest in the project
5 after the start of the eligible project's commercial
6 operation pursuant to the conditions of the loan with
7 the proceeds of refinancing from non-Federal fund-
8 ing sources.

9 (3) The value of the joint venture partnership's
10 interest in the eligible project shall be determined in
11 negotiations prior to issuance of a secured loan
12 under the subtitle.

13 (4) The interest rate on loans made under this
14 subtitle shall not be less than the yield on United
15 States Treasury securities of a similar maturity to
16 the maturity of the loan on the date of execution of
17 the loan agreement.

18 (5) A secured loan for an eligible project under
19 this subtitle shall be non-recourse to the joint ven-
20 ture partnership in the event of bankruptcy, insol-
21 vency, liquidation, or failure of the project to start
22 commercial operation when the project is ready for
23 commercial operation.

24 (c) LOAN GUARANTEES.—

1 (1) IN GENERAL.—A loan guarantee shall apply
2 only when a project developer defaults on a loan
3 solely as a result of the regulatory actions, directly
4 applied to the project, of a State, Federal or local
5 government.

6 (2) LIMITATION.—Nothing in this subsection
7 shall obligate the Corporation or Secretary to pro-
8 vide payments in the event of a default that results
9 from a project developer’s malfeasance, misfeasance,
10 or mismanagement of the construction or operation
11 of the project, or from conduct or circumstances un-
12 related to the regulatory actions of any govern-
13 mental entity.

14 **SEC. 254. SOURCE OF FUNDING FOR PROGRAMS.**

15 Notwithstanding any other provision of law, or any
16 other provision of this Act, authorizing or appropriating
17 funds to carry out the provisions of this Act, no funds
18 may be made available to carry out any activity under this
19 subtitle except proceeds from the auction authorized by
20 section 162(g) of this Act, subject to the limitation in sec-
21 tion 162(g)(3).

22 **SEC. 255. DEFINITIONS.**

23 In this subtitle:

24 (1) ADVANCED REACTOR DESIGN.—The term
25 “advanced reactor design” means any reactor design

1 approved and certified by the Nuclear Regulatory
2 Commission.

3 (2) CELLULOSIC ETHANOL.—The term “cel-
4 lulosic ethanol” means ethanol produced from fi-
5 brous or woody plant materials.

6 (3) COMMERCIAL OPERATION.—

7 (A) NUCLEAR POWER FACILITY.—With re-
8 spect to a nuclear power plant, the term “com-
9 mercial operation” means the date—

10 (i) on which a new nuclear power
11 plant has received a full power 40-year op-
12 erating license from the Nuclear Regu-
13 latory Commission; and

14 (ii) by which all Federal, State, and
15 local appeals and legal challenges to such
16 operating license have become final.

17 (B) ADVANCED COAL POWER PLANTS.—

18 With respect to an advanced coal power plant,
19 the term “commercial operation” means the
20 date—

21 (i) on which a new power plant has
22 received a full power rating; and

23 (ii) by which all Federal, State, and
24 local appeals and legal challenges to the

1 operating license for the power plant have
2 become final.

3 (4) CORPORATION.—The term “Corporation”
4 means the Climate Change Credit Corporation.

5 (5) ELIGIBLE PROJECT.—The term “eligible
6 project” means—

7 (A) any commercial nuclear power facility
8 for the production of electricity that uses one or
9 more advanced reactor designs;

10 (B) any advanced coal power plant uti-
11 lizing the integrated gasification combined cycle
12 technology with carbon capture and geological
13 storage of greenhouse gases;

14 (C) any biofuels production facility which
15 uses cellulosic feedstock; or

16 (D) any power facility which uses solar en-
17 ergy for the production of more than 75 percent
18 of its annual output, which output capacity
19 shall not be less than 10 megawatts as deter-
20 mined by common engineering practice.

21 (6) ELIGIBLE PROJECT COSTS.—The term “eli-
22 gible project costs” means all costs related to the de-
23 velopment and construction of an eligible project
24 under this subtitle, including, without limitation, the
25 cost of—

1 (A) development phase activities, including
2 site acquisition and related real property agree-
3 ments, environmental reviews, licensing and
4 permitting, engineering and design work, off-
5 taker agreements and arrangements, and other
6 preconstruction activities;

7 (B) fabrication and acquisition of equip-
8 ment, project construction activities and con-
9 struction contingencies, project overheads,
10 project management costs, and labor and engi-
11 neering costs incurred during construction;

12 (C) capitalized interest necessary to meet
13 market requirements, reasonably required re-
14 serve funds, capital issuance expenses, and
15 other carrying costs during construction; and

16 (D) any other costs that the Climate Tech-
17 nology Financing Board deems reasonable and
18 appropriate as eligible project costs.

19 (7) FEDERAL FINANCIAL ASSISTANCE.—The
20 term “Federal financial assistance” means project
21 construction financing of up to 80 percent of a
22 project’s eligible project costs in the form of a non-
23 recourse secured loan or loan guarantee.

24 (8) FIRST-OF-A-KIND ENGINEERING COSTS.—
25 The term “first-of-a-kind engineering costs” means

1 the extra costs associated with the first units of a
2 design category for engineering work that develops
3 the design details that finish plant standardization
4 up to a complete plant design and that can be re-
5 used for building subsequent units.

6 (9) JOINT VENTURE PARTNERSHIP.—The term
7 “joint venture partnership” means a special purpose
8 entity, including corporations, partnerships, or other
9 legal entities established to develop, construct, and
10 finance an eligible project and to receive financing
11 proceeds in the form of non-recourse secured loans
12 provided by the Secretary and private equity pro-
13 vided by project developers.

14 (10) LOAN.—The term “loan” means a direct
15 non-recourse loan issued to a joint venture partner-
16 ship engaged in developing an eligible project and
17 funded by the Secretary under this subtitle, which is
18 subject to repayment by the joint venture partner-
19 ship under terms and conditions to be negotiated
20 among the project developer, joint venture partner-
21 ship, and the Secretary before the start of construc-
22 tion on the project.

23 (11) LOAN GUARANTEE.—The term “loan guar-
24 antee” means any guarantee or other pledge by the
25 Secretary to pay all or part of the principle and in-

1 terest on a loan or other debt obligation issued by
2 a project developer related to its equity investment
3 and funded by a lender.

4 (12) PROJECT DEVELOPER.—The term “project
5 developer” means a corporation, partnership, or lim-
6 ited liability company that—

7 (A) provides reasonable assurance to the
8 Secretary that the project developer can suc-
9 cessfully manage plant operations;

10 (B) has the financial capability to con-
11 tribute 20 percent equity to the development of
12 the project; and

13 (C) upon commercial operation, will pur-
14 chase the project from the joint venture part-
15 nership.

16 (13) SECRETARY.—The term “Secretary”
17 means the Secretary of Energy.

18 (14) SUBSIDY AMOUNT.—The term “subsidy
19 amount” means the amount of budget authority suf-
20 ficient to cover the estimated long-term cost to the
21 Federal government of a loan, calculated on a net
22 present value basis, excluding administrative costs
23 and any incidental effects on governmental receipts
24 or outlays, in accordance with the provisions of the

1 Federal Credit Reform Act of 1990 (2 U.S.C. 661
2 et seq.).

3 **TITLE III—ADVANCED TECH-**
4 **NOLOGIES FOR A PRODUC-**
5 **TIVE, SECURE, AND CLEAN**
6 **ENERGY FUTURE**

7 **SEC. 301. FINDINGS.**

8 The Congress finds the following:

9 (1) Innovation, the process that ultimately pro-
10 vides new and improved products, manufacturing
11 processes, and services, is the basis for technological
12 progress. This technological advancement is a key
13 element of sustained economic growth.

14 (2) The innovation economy is fundamentally
15 different from the industrial or even the information
16 economy. It requires a new vision and new ap-
17 proaches.

18 (3) Changing innovation processes and the evo-
19 lution of the relative contribution made by the pri-
20 vate and public sectors have emphasized the need for
21 strong industry-science linkages.

22 (4) Patent regimes play an increasingly complex
23 role in encouraging innovation, disseminating sci-
24 entific and technical knowledge, and enhancing mar-
25 ket entry and firm creation.

1 (5) Increasing participation and maintaining
2 quality standards in tertiary education in science
3 and technology are imperative to meet growing de-
4 mand for workers with scientific and technological
5 knowledge and skills.

6 (6) Research, innovation, and human capital
7 are our principal strengths. By sustaining United
8 States investments in research and finding collabo-
9 rative arrangements to leverage existing resources
10 and funds in a scarce budget environment, we en-
11 sure that America remains at the forefront of sci-
12 entific and technological capability.

13 (7) Technology transfer of publicly funded re-
14 search is a critical mechanism for optimizing the re-
15 turn on taxpayer investment, particularly where
16 other benefits are not measurable at all or are very
17 long-term.

18 (8) Identifying metrics to quantify program ef-
19 fectiveness is of increasing importance because the
20 entire innovation process is continuing to evolve in
21 an arena of increasing global competition. Metrics
22 need to take into account a wide range of steps in
23 a highly complex process, as well as the ultimate
24 product or service, but should not constrain the con-

1 tinued evolution or development of new technology
2 transfer approaches.

3 (9) The United States lacks a national innova-
4 tion strategy and agenda, including an aggressive
5 public policy strategy that energizes the environment
6 for national innovation, and no Federal agency is re-
7 sponsible for developing national innovation policy.

8 **Subtitle A—Innovation** 9 **Infrastructure**

10 **SEC. 311. TECHNOLOGY TRANSFER OPPORTUNITIES.**

11 (a) IN GENERAL.—The Secretary of Commerce shall
12 conduct a study of technology transfer barriers, best prac-
13 tices, and outcomes of technology transfer activities at
14 Federal laboratories related to the licensing and commer-
15 cialization of energy efficient technologies, and other tech-
16 nologies that, compared to similar technology in commer-
17 cial use, result in reduced emissions of greenhouse gases,
18 increased ability to adapt to climate change impacts, or
19 increased sequestration of greenhouse gases. The Sec-
20 retary shall submit a report setting forth the findings and
21 conclusions of the study to the Senate Committee on Com-
22 merce, Science, and Transportation and the House of Rep-
23 resentatives Committee on Science within 6 months after
24 the date of enactment of this Act. The Secretary shall

1 work with the existing interagency working group to ad-
2 dress identified barriers to technology transfer.

3 (b) BUSINESS OPPORTUNITIES STUDY.—The Sec-
4 retary of Commerce shall perform an analysis of business
5 opportunities, both domestically and internationally, avail-
6 able for climate change technologies. The Secretary shall
7 transmit the Secretary’s findings and recommendations
8 from the first such analysis to the Senate Committee on
9 Commerce, Science, and Transportation and the House of
10 Representatives Committee on Science within 6 months
11 after the date of enactment of this Act, and shall transmit
12 a revised report of such findings and recommendations to
13 those Committees annually thereafter.

14 (c) AGENCY REPORT TO INCLUDE INFORMATION ON
15 TECHNOLOGY TRANSFER INCOME AND ROYALTIES.—
16 Paragraph (2)(B) of section 11(f) of the Stevenson-
17 Wydler Technology Innovation Act of 1980 (15 U.S.C.
18 3710(f)) is amended—

19 (1) by striking “and” after the semicolon in
20 clause (vi);

21 (2) by redesignating clause (vii) as clause (ix);

22 and

23 (3) by inserting after clause (vi) the following:

24 “(vii) the number of fully-executed li-
25 censes which received royalty income in the

1 preceding fiscal year for climate-change or
2 energy-efficient technology;

3 “(viii) the total earned royalty income
4 for climate-change or energy-efficient tech-
5 nology; and”.

6 (d) INCREASED INCENTIVES FOR DEVELOPMENT OF
7 CLIMATE-CHANGE OR ENERGY-EFFICIENT TECH-
8 NOLOGY.—Section 14(a) of the Stevenson-Wydler Tech-
9 nology Innovation Act of 1980 (15 U.S.C. 3710c(a)) is
10 amended—

11 (1) by striking “15 percent,” in paragraph
12 (1)(A) and inserting “15 percent (25 percent for cli-
13 mate change-related technologies),”; and

14 (2) by inserting “(\$250,000 for climate change-
15 related technologies)” after “\$150,000” each place
16 it appears in paragraph (3).

17 **SEC. 312. GOVERNMENT-SPONSORED TECHNOLOGY IN-**
18 **VESTMENT PROGRAM.**

19 (a) PURPOSE.—It is the purpose of this section to
20 provide financial support for the development, through
21 private enterprise, of technology that has potential appli-
22 cation to climate change adaptation and mitigation.

23 (b) FINANCIAL SUPPORT.—The Secretary of Com-
24 merce may establish a nonprofit government sponsored en-
25 terprise for the purpose of providing investment in private

1 sector technologies that show promise for climate change
2 adaptation and mitigation applications.

3 (c) **TERMS; CONDITIONS; TRANSPARENCY.**—The Sec-
4 retary shall report within 30 days after the end of each
5 calendar quarter to the Senate Committee on Commerce,
6 Science, and Transportation and the House of Represent-
7 atives Committee on Science on its operations during that
8 preceding calendar quarter.

9 (d) **AUTHORIZATION OF APPROPRIATIONS.**—There
10 are authorized to be appropriated to the Secretary of Com-
11 merce for the use of the enterprise established under sub-
12 section (b) such sums as may be necessary to carry out
13 the purpose of this section.

14 **SEC. 313. FEDERAL TECHNOLOGY INNOVATION PER-**
15 **SONNEL INCENTIVES.**

16 The Stevenson-Wydler Technology Innovation Act of
17 1980 (15 U.S.C. 3701 et seq.) is amended by adding at
18 the end the following:

19 **“SEC. 24. FEDERAL TECHNOLOGY INNOVATION PERSONNEL**
20 **INCENTIVES.**

21 “(a) **IN GENERAL.**—The head of a Federal labora-
22 tory may authorize the participation by any employee of
23 the laboratory in an activity described in subsection (b)
24 in order to achieve the purposes of this Act.

25 “(b) **AUTHORIZED ACTIVITIES.**—

1 “(1) COMMERCIAL DEVELOPMENT PARTICIPA-
2 TION ARRANGEMENTS.—

3 “(A) IN GENERAL.—The head of a Federal
4 laboratory may, under the authority provided by
5 section 12(b)(5) of this Act, authorize an em-
6 ployee to participate, as an officer or employee,
7 in the creation of an enterprise established to
8 commercially exploit research work realized in
9 carrying out that employee’s responsibilities as
10 an employee of that laboratory for a period of
11 up to 24 months. The authority may be re-
12 newed for an additional 12-month period.

13 “(B) LIMITATIONS.—In addition to the re-
14 quirements set forth in section 12, an employee
15 may not be authorized under subparagraph (A)
16 to participate in such an enterprise if—

17 “(i) it would be prejudicial to the nor-
18 mal functioning of the laboratory;

19 “(ii) by its nature, terms and condi-
20 tions, or the manner in which the authority
21 would be exercised, participation by that
22 employ would reflect adversely on the func-
23 tions exercised by that employee as an em-
24 ployee of the laboratory, or risk compro-

1 mising or calling in question the independ-
2 ence or neutrality of the laboratory; or

3 “(iii) the interests of the enterprise
4 are of such a nature as to be prejudicial to
5 the mission or integrity of the laboratory
6 or employee.

7 “(C) RELATIONSHIP TO LABORATORY EM-
8 PLOYMENT.—

9 “(i) REPRESENTATION.—The em-
10 ployee may not represent the employee’s
11 official position or the laboratory while
12 participating in the creation of the enter-
13 prise.

14 “(ii) FEDERAL EMPLOYMENT STA-
15 TUS.—Beginning with the effective date of
16 the authorization under subsection (a), an
17 employee shall be placed in a temporary
18 status without duties or pay and shall
19 cease all duties in connection with the lab-
20 oratory.

21 “(iii) RETURN TO SERVICE.—At the
22 end of the authorization period, the em-
23 ployee may be restored to his former posi-
24 tion in the laboratory upon termination of

1 any employment or professional relation-
2 ship with the enterprise.

3 “(2) SERVICE IN PRIVATE SECTOR ADVISORY
4 CAPACITY.—

5 “(A) IN GENERAL.—The head of a Federal
6 laboratory may, under the authority provided by
7 section 12(b)(5) of this Act, authorize an em-
8 ployee to serve, as a member of the board of di-
9 rectors of, as a member of an advisory com-
10 mittee to, or in any similar capacity with a cor-
11 poration, partnership, joint venture, or other
12 business enterprise for a period of not more
13 than 5 years in order to provide advice and
14 counsel on ways to improve the diffusion and
15 use of an invention or other intellectual prop-
16 erty of a Federal laboratory.

17 “(B) QUALIFYING INVESTMENT.—Under
18 the authorization, an employee authorized to
19 serve on the board of directors of a corporation
20 may purchase and hold the number of quali-
21 fying shares of stock needed to serve as a mem-
22 ber of that board.

23 “(C) PARTICIPATION IN CERTAIN PRO-
24 CEEDINGS.—An employee authorized under
25 subparagraph (A) may not participate in any

1 grant evaluation, contract negotiation, or other
2 proceeding in which the corporation, partner-
3 ship, joint venture, or other business enterprise
4 has an interest during the authorization pe-
5 riod.”.

6 **SEC. 314. INTERDISCIPLINARY RESEARCH AND COMMER-**
7 **IALIZATION.**

8 (a) IN GENERAL.—The Director of the National
9 Science Foundation shall develop and implement a plan
10 to increase and establish priorities for funding for multi-
11 disciplinary and interdisciplinary research at universities
12 in support of the adaptation to and mitigation of climate
13 change. The plan shall—

14 (1) address the cross-fertilization and fusion of
15 research within and across the biological and phys-
16 ical sciences, the spectrum of engineering disciplines,
17 and entirely new fields of scientific exploration; and

18 (2) include the area of emerging service
19 sciences.

20 (b) REPORT TO CONGRESS.—The Director shall
21 transmit a copy of the plan to the Senate Committee on
22 Commerce, Science, and Transportation and the House of
23 Representatives Committee on Science within 6 months
24 after the date of enactment of this Act.

1 (c) SERVICE SCIENCE DEFINED.—In this section, the
2 term “service science” means the melding together of the
3 fields of computer science, operations research, industrial
4 engineering, mathematics, management science, decision
5 sciences, social sciences, and legal sciences in a manner
6 that may transform entire enterprises and drive innova-
7 tion at the intersection of business and technology exper-
8 tise.

9 **SEC. 315. CLIMATE INNOVATION PARTNERSHIPS.**

10 (a) IN GENERAL.—The Secretary of Commerce, in
11 consultation with the Director of the National Science
12 Foundation, shall create a program of public-private part-
13 nerships that—

14 (1) focus on supporting climate change related
15 regional innovation;

16 (2) bridge the gap between the long-term re-
17 search and commercialization;

18 (3) focus on deployment of technologies needed
19 by a particular region in adapting or mitigating the
20 impacts of climate change; and

21 (4) support activities that are selected from
22 proposals submitted in merit-based competitions.

23 (b) INSTITUTIONAL DIVERSITY.—In creating the pro-
24 gram, the Secretary and the Administrator shall—

25 (1) encourage institutional diversity; and

1 (2) provide that universities, research centers,
2 national laboratories, and other non-profit organiza-
3 tions are allowed to partner with private industry in
4 submitting applications.

5 (c) GRANTS.—The Secretary may make grants under
6 the program to the partnerships, but the Federal share
7 of funding for any project may not exceed 50 percent of
8 the total investment in any fiscal year.

9 (d) AUTHORIZATION OF APPROPRIATIONS.—There
10 are authorized to be appropriated to the Secretary such
11 sums as may be necessary to carry out this section.

12 **SEC. 316. NATIONAL MEDAL OF CLIMATE STEWARDSHIP IN-**
13 **NOVATION.**

14 (a) IN GENERAL.—There is established a National
15 Medal of Climate Stewardship Innovation, which shall be
16 of such design and materials, and bear such inscription,
17 as the President may prescribe. The President shall award
18 the medal on the basis of recommendations submitted by
19 the National Science Foundation and the Secretary of
20 Commerce to individuals who, in the judgment of the
21 President, are deserving of special recognition by reason
22 of their outstanding contributions to knowledge in the field
23 of climate change innovation.

24 (b) CRITERIA.—The medal shall be awarded in ac-
25 cordance with the following criteria:

1 (1) ANNUAL LIMIT.—No more than 20 individ-
2 uals may be awarded the medal in any calendar
3 year.

4 (2) CITIZENSHIP.—No individual may be
5 awarded the medal unless, at the time the award is
6 made, the individual is—

7 (A) a citizen or other national of the
8 United States; or

9 (B) an alien lawfully admitted to the
10 United States for permanent residence who—

11 (i) has filed a petition for naturaliza-
12 tion in the manner prescribed by section
13 334 of the Immigration and Nationality
14 Act (8 U.S.C. 1445); and

15 (ii) is not permanently ineligible to be-
16 come a citizen of the United States.

17 (3) POSTHUMOUS AWARD.—

18 (A) IN GENERAL.—Notwithstanding para-
19 graph (2), the medal may be awarded post-
20 humously to an individual who, at the time of
21 death, met the conditions set forth in para-
22 graph (2).

23 (B) 5-YEAR LIMITATION.—Notwith-
24 standing subparagraph (A), the medal may not

1 be awarded posthumously to an individual after
2 the fifth anniversary of that individual's death.

3 (c) INSCRIPTION AND CERTIFICATE.—Each medal
4 shall be suitably inscribed. Each individual awarded the
5 medal shall also receive a citation descriptive of the award.

6 (d) PRESENTATION.—The presentation of the medal
7 shall be made by the President with such ceremonies as
8 the President deems proper, including attendance by ap-
9 propriate Members of Congress.

10 **SEC. 317. MATH AND SCIENCE TEACHERS' ENHANCEMENT**
11 **PROGRAM.**

12 (a) IN GENERAL.—The Director of the National
13 Science Foundation shall establish within the Foundation
14 a climate change science and technology enhancement pro-
15 gram for teachers.

16 (b) PURPOSE.—The purpose of the program is to
17 provide for professional development of mathematics and
18 science teachers at elementary, middle, and secondary
19 schools (as defined by the Director), including improving
20 the education and skills of those teachers with respect
21 to—

22 (1) teaching strategies;

23 (2) subject-area expertise; and

1 (3) the understanding of climate change science
2 and technology and the environmental, economic,
3 and social impacts of climate change on commerce.

4 (c) PROGRAM AREAS.—In carrying out the program
5 under this section, the Director shall focus on the areas
6 of—

7 (1) scientific measurements;

8 (2) tests and standards development;

9 (3) industrial competitiveness and quality;

10 (4) manufacturing;

11 (5) technology transfer; and

12 (6) any other area of expertise that the Direc-
13 tor determines to be appropriate.

14 (d) APPLICATION PROCEDURE.—The Director shall
15 prescribe procedures and selection criteria for participants
16 in the program.

17 (e) AWARDS.—The Director shall issue awards under
18 the program to participants. In issuing the awards, the
19 Director shall ensure that the maximum number of par-
20 ticipants practicable participate in the program. In order
21 to ensure a maximum level of participation of participants,
22 the program under this section shall be conducted on an
23 annual basis during the summer months, when a majority
24 of elementary, middle, and secondary schools are not in
25 classes.

1 (f) AUTHORIZATION OF APPROPRIATIONS.—There
2 are authorized to be appropriated to the Director for car-
3 rying out this section—

4 (1) \$2,500,000 for fiscal year 2008; and

5 (2) \$2,500,000 for fiscal year 2009.

6 **SEC. 318. PATENT STUDY.**

7 (a) IN GENERAL.—The Director of the Patent and
8 Trademark Office, in consultation with representatives of
9 interested parties in the private sector, shall conduct a
10 study to determine the extent to which changes to the
11 United States patent system are necessary to increase the
12 flow of climate change-related technologies. The study
13 shall address—

14 (1) the balance between the protection of the
15 inventor and the disclosure of information;

16 (2) the role of patents in innovation within the
17 covered sectors;

18 (3) the extent to which patents facilitate in-
19 creased investments in climate change research and
20 development;

21 (4) the international deployment of United
22 States developed climate change related technologies
23 on the United States patent system;

24 (5) ways to leverage databases as innovation
25 tools;

1 (6) best practices for collaborative standard set-
2 ting; and

3 (7) any other issues the Director deems appro-
4 priate.

5 (b) REPORT.—Within 6 months after the date of en-
6 actment of this Act, the Director shall transmit a report
7 setting forth the findings and conclusions of the study to
8 the Congress.

9 **SEC. 319. LESSONS-LEARNED PROGRAM.**

10 (a) IN GENERAL.—Within 180 days after the date
11 of enactment of this Act, the Secretary of Energy shall
12 establish a national lessons-learned and best practices pro-
13 gram to ensure that lessons learned and best practices
14 concerning energy efficiency and greenhouse gas emission
15 reductions are available to the public. The program shall
16 contain consumer awareness initiatives including product
17 labeling and campaigns to raise public awareness. The
18 Secretary shall determine the process and frequency by
19 which the information is provided.

20 (b) PROGRAM CONTENT.—The program—

21 (1) may include experiences realized outside of
22 the Federal government;

23 (2) shall include criteria by which entries in the
24 program are determined;

1 (3) shall use a standardized, user-friendly for-
2 mat for data reports; and

3 (4) may include any other matters the Sec-
4 retary deems appropriate.

5 **SEC. 320. RESEARCH GRANTS.**

6 Section 105 of the Global Change Research Act of
7 1990 (15 U.S.C. 2935) is amended—

8 (1) by redesignating subsection (c) as sub-
9 section (d); and

10 (2) by inserting after subsection (b) the fol-
11 lowing:

12 “(c) RESEARCH GRANTS.—

13 “(1) COMMITTEE TO DEVELOP LIST OF PRI-
14 ORITY RESEARCH AREAS.—The Committee shall de-
15 velop a list of priority areas for research and devel-
16 opment on climate change that are not being ad-
17 dressed by Federal agencies.

18 “(2) DIRECTOR OF OSTP TO TRANSMIT LIST TO
19 NSF.—The Director of the Office of Science and
20 Technology Policy shall transmit the list to the Na-
21 tional Science Foundation.

22 “(3) FUNDING THROUGH NSF.—

23 “(A) BUDGET REQUEST.—The National
24 Science Foundation shall include, as part of the
25 annual request for appropriations for the

1 Science and Technology Policy Institute, a re-
2 quest for appropriations to fund research in the
3 priority areas on the list developed under para-
4 graph (1).

5 “(B) AUTHORIZATION.—For fiscal year
6 2008 and each fiscal year thereafter, there are
7 authorized to be appropriated to the National
8 Science Foundation not less than \$25,000,000,
9 to be made available through the Science and
10 Technology Policy Institute, for research in
11 those priority areas.”.

12 **SEC. 321. ABRUPT CLIMATE CHANGE RESEARCH.**

13 (a) IN GENERAL.—The Secretary, through the Na-
14 tional Oceanic and Atmospheric Administration, shall
15 carry out a program of scientific research on potential ab-
16 rupt climate change designed—

17 (1) to develop a global array of terrestrial and
18 oceanographic indicators of paleoclimate in order
19 sufficiently to identify and describe past instances of
20 abrupt climate change;

21 (2) to improve understanding of thresholds and
22 nonlinearities in geophysical systems related to the
23 mechanisms of abrupt climate change;

24 (3) to incorporate these mechanisms into ad-
25 vanced geophysical models of climate change; and

1 (4) to test the output of these models against
2 an improved global array of records of past abrupt
3 climate changes.

4 (b) ABRUPT CLIMATE CHANGE DEFINED.—In this
5 section, the term “abrupt climate change” means a change
6 in climate that occurs so rapidly or unexpectedly that
7 human or natural systems may have difficulty adapting
8 to it.

9 (c) AUTHORIZATION OF APPROPRIATIONS.—There
10 are authorized to be appropriated to the Secretary for fis-
11 cal year 2008 \$60,000,000 to carry out this section, such
12 sum to remain available until expended.

13 **SEC. 322. ENHANCED ENVIRONMENTAL MEASUREMENTS**
14 **AND STANDARDS.**

15 The National Institute of Standards and Technology
16 Act (15 U.S.C. 271 et seq.) is amended—

17 (1) by redesignating sections 17 through 32 as
18 sections 18 through 33, respectively; and

19 (2) by inserting after section 16 the following:
20 **“SEC. 17. CLIMATE CHANGE STANDARDS AND PROCESSES.**

21 **“(a) IN GENERAL.—**The Director shall establish
22 within the Institute a program to perform and support re-
23 search on global climate change standards and processes,
24 with the goal of providing scientific and technical knowl-
25 edge applicable to the reduction of greenhouse gases (as

1 defined in section 3(8) of the Climate Stewardship and
2 Innovation Act of 2007) and of facilitating implementation
3 of section 321 of that Act.

4 “(b) RESEARCH PROGRAM.—

5 “(1) IN GENERAL.—The Director is authorized
6 to conduct, directly or through contracts or grants,
7 a global climate change standards and processes re-
8 search program.

9 “(2) RESEARCH PROJECTS.—The specific con-
10 tents and priorities of the research program shall be
11 determined in consultation with appropriate Federal
12 agencies, including the Environmental Protection
13 Agency, the National Oceanic and Atmospheric Ad-
14 ministration, and the National Aeronautics and
15 Space Administration. The program generally shall
16 include basic and applied research—

17 “(A) to develop and provide the enhanced
18 measurements, calibrations, data, models, and
19 reference material standards which will enable
20 the monitoring of greenhouse gases;

21 “(B) to assist in establishing a baseline
22 reference point for future trading in greenhouse
23 gases and the measurement of progress in emis-
24 sions reduction;

1 “(C) that will be exchanged internationally
2 as scientific or technical information which has
3 the stated purpose of developing mutually rec-
4 ognized measurements, standards, and proce-
5 dures for reducing greenhouse gases; and

6 “(D) to assist in developing improved in-
7 dustrial processes designed to reduce or elimi-
8 nate greenhouse gases.

9 “(c) NATIONAL MEASUREMENT LABORATORIES.—

10 “(1) IN GENERAL.—In carrying out this sec-
11 tion, the Director shall utilize the collective skills of
12 the National Measurement Laboratories of the Na-
13 tional Institute of Standards and Technology to im-
14 prove the accuracy of measurements that will permit
15 better understanding and control of these industrial
16 chemical processes and result in the reduction or
17 elimination of greenhouse gases.

18 “(2) MATERIAL, PROCESS, AND BUILDING RE-
19 SEARCH.—The National Measurement Laboratories
20 shall conduct research under this subsection that in-
21 cludes—

22 “(A) developing material and manufac-
23 turing processes which are designed for energy
24 efficiency and reduced greenhouse gas emissions
25 into the environment;

1 “(B) developing chemical processes to be
2 used by industry that, compared to similar
3 processes in commercial use, result in reduced
4 emissions of greenhouse gases or increased se-
5 questration of greenhouse gases; and

6 “(C) enhancing building performance with
7 a focus in developing standards or tools which
8 will help incorporate low- or no-emission tech-
9 nologies into building designs.

10 “(3) STANDARDS AND TOOLS.—The National
11 Measurement Laboratories shall develop standards
12 and tools under this subsection that include software
13 to assist designers in selecting alternate building
14 materials, performance data on materials, artificial
15 intelligence-aided design procedures for building sub-
16 systems and ‘smart buildings’, and improved test
17 methods and rating procedures for evaluating the
18 energy performance of residential and commercial
19 appliances and products.

20 “(d) NATIONAL VOLUNTARY LABORATORY ACCREDI-
21 TATION PROGRAM.—The Director shall utilize the Na-
22 tional Voluntary Laboratory Accreditation Program under
23 this section to establish a program to include specific cali-
24 bration or test standards and related methods and proto-
25 cols assembled to satisfy the unique needs for accredita-

1 tion in measuring the production of greenhouse gases. In
2 carrying out this subsection the Director may cooperate
3 with other departments and agencies of the Federal Gov-
4 ernment, State and local governments, and private organi-
5 zations.”.

6 **SEC. 323. CLIMATE TECHNOLOGY CHALLENGE PROGRAM.**

7 (a) IN GENERAL.—The Secretary of Energy, in co-
8 ordination with the Climate Change Credit Corporation,
9 shall develop and carry out a program in fiscal years 2008
10 through 2011, to be known as the “Climate Technology
11 Challenge Program”. The Secretary of Energy shall award
12 funding through the program to stimulate innovation in
13 development, demonstration, and deployment of tech-
14 nologies that have the greatest potential for reducing
15 greenhouse gas emissions. The program shall be conducted
16 as follows:

17 (1) The Secretary of Energy shall post a re-
18 quest for zero or low greenhouse gas energy services
19 or products along with a suggested level of funding
20 for each competition.

21 (2) The Secretary of Energy shall award the
22 funding to the lowest bidder in each competition who
23 meets all other qualifications in a form of a produc-
24 tion incentive to supply—

1 (A) the requested services for a specified
2 period of time; or

3 (B) the requested product within a speci-
4 fied period of time.

5 (b) FUNDING.—

6 (1) SOURCE.—Notwithstanding any other provi-
7 sion of law, or any other provision of this Act, au-
8 thorizing or appropriating funds to carry out the
9 provisions of this Act, no funds may be made avail-
10 able to carry out any activity under this subtitle ex-
11 cept proceeds from the auction authorized by section
12 162(g) of this Act, subject to the limitation in sec-
13 tion 162(g)(3).

14 (2) OPERATING FUNDS.—Beginning with fiscal
15 year 2010, the Climate Change Credit Corporation
16 shall administer the Climate Technology Challenge
17 Program using funds generated under section 202 of
18 this Act.

19 (c) PROGRAM REQUIREMENTS.—

20 (1) COMPETITIVE PROCESS.—Recipients of
21 awards under the program shall be selected through
22 competitions conducted by the Secretary of Energy.

23 (2) ADVERTISEMENT OF COMPETITIONS.—The
24 Secretary of Energy shall widely advertise any com-
25 petitions conducted under the program.

1 (3) CATEGORIES OF COMPETITIONS.—The Sec-
2 retary of Energy shall conduct separate competitions
3 in the following areas of energy and fuel production
4 and services:

5 (A) Advanced coal (including integrated
6 gasification combined cycle) with carbon cap-
7 ture and storage.

8 (B) Renewable electricity.

9 (C) Energy efficiency (including transpor-
10 tation).

11 (D) Advanced technology vehicles.

12 (E) Transportation fuels.

13 (F) Carbon sequestration and storage.

14 (G) Zero and low emissions technologies.

15 (H) Adaptation technologies.

16 (I) The Secretary of Energy may also con-
17 duct competition for a general category to stim-
18 ulate additional, unanticipated advances in
19 technology.

20 (4) EVALUATIONS AND CRITERIA FOR COMPETI-
21 TIONS.—

22 (A) PANEL OF EXPERTS.—The Secretary
23 of Energy shall establish a separate panel of ex-
24 perts to evaluate proposals submitted under
25 each competition.

1 (B) COMPETITION CRITERIA.—The Sec-
2 retary of Energy, in consultation with other rel-
3 evant Federal agency heads, shall set minimum
4 criteria, including performance and safety cri-
5 teria, for each competition. Proposals shall be
6 evaluated on their ability to reduce, avoid, or
7 sequester greenhouse gas emissions at a given
8 price.

9 (C) FULL LIFE CYCLE.—All proposals
10 within a competition shall compete on full life
11 cycle avoided greenhouse gas emissions (as
12 weighted by global warming potential) per dol-
13 lar of incentive.

14 (5) REPORT OF AWARDS.—In 2011 and every 5
15 years thereafter the Secretary of Energy shall issue
16 a report on the awards granted by the program,
17 funding provided, and greenhouse gas emissions
18 avoided or sequestered.

19 (6) PROGRAM EVALUATION.—The Secretary of
20 Energy, in coordination with the National Academies
21 of Science, shall evaluate the continued necessity of
22 the program and future funding needs after fiscal
23 year 2011. The evaluation shall be submitted 3
24 months before the end of fiscal year 2011 to the

1 Congress and the Climate Change Credit Corpora-
2 tion.

3 (7) REVIEW AND REVISION BY CORPORATION.—

4 The Climate Change Credit Corporation shall review
5 and revise the awards program every 5 years start-
6 ing in 2011, issuing new guidelines for the next 5
7 years of Climate Technology Challenge Program by
8 the end of the fiscal year in which the evaluation in
9 paragraph (6) is reported. The Climate Change
10 Credit Corporation shall assess and adjust the cat-
11 egories of competitions as described in paragraph
12 (3) to ensure new developing technologies that re-
13 duce, avoid, or sequester greenhouse gases and are
14 in need of financial assistance for further develop-
15 ment and deployment are the focus of the awards
16 program.

17 (d) BUDGETING AND AWARDING OF FUNDS.—

18 (1) AVAILABILITY OF FUNDS.—Any funds ap-
19 propriated to carry out this section shall remain
20 available until expended, but for not more than 4
21 fiscal years.

22 (2) DEPOSIT AND WITHDRAWAL OF FUNDS.—

23 When an award is offered, the Secretary of Energy
24 shall deposit the total amount of funding made
25 available for that award in the Climate Technology

1 Challenge Trust Fund. If funding expires before an
2 award is granted, the Secretary of Energy shall de-
3 posit additional funds in the account to ensure the
4 availability of funding for all awards. If an award
5 competition expires before its goals are met, the Sec-
6 retary of Energy may redesignate those funds for a
7 new challenge, but any redesignated funds will be
8 considered as newly deposited for the purposes of
9 paragraph (3). All cash awards made under this sec-
10 tion shall be paid from that account.

11 (3) MAXIMUM AWARD.—No competition under
12 the program may result in the award of more than
13 \$100,000,000 without the approval of the Secretary
14 of Energy.

15 (4) POST-2012 FUNDING.—Funding for the
16 competitions after fiscal year 2012 shall be taken
17 from the Climate Change Credit Corporation.

18 (e) REGISTRATION; ASSUMPTION OF RISK.—

19 (1) REGISTRATION.—Each potential recipient of
20 an award in a competition under the program under
21 this section shall register for the competition.

22 (2) ASSUMPTION OF RISK.—In registering for a
23 competition under paragraph (1), a potential recipi-
24 ent of a prize shall assume any and all risks, and
25 waive claims against the United States Government

1 and its related entities (including contractors and
2 subcontractors at any tier, suppliers, users, cus-
3 tomers, cooperating parties, grantees, investigators,
4 and detailees), for any injury, death, damage, or loss
5 of property, revenue, or profits, whether direct, indi-
6 rect, or consequential, arising from participation in
7 the competition, whether such injury, death, dam-
8 age, or loss arises through negligence or otherwise,
9 except in the case of willful misconduct.

10 (f) RELATIONSHIP TO OTHER AUTHORITY.—The
11 Secretary of Energy may exercise the authority in this sec-
12 tion in conjunction with or in addition to any other author-
13 ity of the Secretary to acquire, support, or stimulate basic
14 and applied research, technology development, or proto-
15 type demonstration projects that promote reduced green-
16 house gas emissions.

17 **Subtitle B—Deploying Advanced**
18 **Technologies and Practices**

19 **SEC. 351. LOW- OR ZERO-EMISSIONS ELECTRICITY GENERA-**
20 **TION.**

21 (a) ENERGY AUDITS.—

22 (1) IN GENERAL.—The Secretary of Energy
23 shall establish a program to reduce greenhouse gas
24 emissions through the deployment of energy effi-
25 ciency measures, including appropriate technologies,

1 by large commercial customers by providing for en-
2 ergy audits. The program shall provide incentives for
3 large users of electricity or natural gas to obtain an
4 energy audit.

5 (2) COMPONENTS.—The energy audit shall pro-
6 vide users with an inventory of potential energy effi-
7 ciency measures, including appropriate technologies,
8 and their cost savings over time, along with financ-
9 ing options to initiate the project.

10 (3) REIMBURSEMENT OF AUDIT COSTS.—If any
11 of the recommendations of an energy audit imple-
12 mented by a facility owner result in cost savings
13 greater than 5 times the cost of the original audit,
14 then the facility owner shall reimburse the Secretary
15 for the cost of the audit.

16 (b) ADVANCED RESEARCH AND DEVELOPMENT FOR
17 SAFETY AND NONPROLIFERATION.—The Secretary of En-
18 ergy shall establish, operate, and report biannually to Con-
19 gress the results of—

20 (1) a program of research and development fo-
21 cused on advanced once-through fuel cycles;

22 (2) a Nuclear System Modeling project to carry
23 out the analysis, research, simulation, and collection
24 of engineering data needed to evaluate all fuel cycles
25 with respect to cost, inherent safety, waste manage-

1 ment and proliferation-avoidance and -resistance;
2 and

3 (3) an Advanced Diversified Waste-Disposal
4 Research Program, to complement the current re-
5 pository authorized under the Nuclear Waste Policy
6 Act, for deep-bore hole disposal options, alternative
7 geological environments, and improved engineered
8 barriers.

9 (c) GOVERNMENT-INDUSTRY PARTNERSHIPS FOR
10 FIRST-OF-A-KIND ENGINEERING DESIGN.—

11 (1) IN GENERAL.—The Corporation may pro-
12 vide funding for a cost-sharing program to address
13 first-of-a-kind engineering costs inherent in building
14 the first facility of a substantially new design that
15 generates electricity with low or no net greenhouse
16 gas emissions or produces transportation fuels that
17 result in low or no net greenhouse gas emissions, in-
18 cluding Integrated Gasification Combined Cycle Ad-
19 vanced Coal power generating facilities using carbon
20 capture technology with geological storage of green-
21 house gases, advanced reactor designs, large scale
22 biofuels facilities that maximize the use of cellulosic
23 biomass, and large scale solar concentrating power
24 facilities.

1 (2) PROJECT SELECTION.—The Secretary of
2 Energy in coordination with the Corporation shall
3 select the final designs to be supported, in terms of
4 reducing greenhouse gas emissions, demonstrating a
5 new technology, meeting other clean air attainment
6 goals, generating economic benefits, contributing to
7 energy security, contributing to fuel and technology
8 diversity, maintaining price stability, and attaining
9 cost effectiveness and economic competitiveness.

10 (3) COST-SHARING LIMITATIONS.—

11 (A) CORPORATION'S SHARE OF COSTS.—

12 Costs for the program shall be shared equally
13 between the Corporation and the builder of
14 such first facilities.

15 (B) NUCLEAR REACTORS.—Funding under

16 this section for any nuclear facility—

17 (i) may not exceed \$200,000,000 for

18 an individual project; and

19 (ii) shall be available for no more than

20 1 of each of the 3 designs certified by the

21 Nuclear Regulatory Commission.

22 (4) REIMBURSEMENT OF COSTS.—For any sub-

23 sequently-built facility that uses a design supported

24 by the cost-sharing program under this section, the

25 Secretary of Energy and the Corporation shall speci-

1 fy an amount to be paid to the Corporation in order
2 for the Corporation to receive full reimbursement for
3 costs the Corporation incurred in connection with
4 the design, considering the program’s objectives, in-
5 cluding the costs of promoting the deployment of
6 cost-effective, economically competitive technologies
7 with no or low net greenhouse gas emissions.

8 (5) REIMBURSEMENT FOR DELAY.—If the con-
9 struction of such a first facility of a substantially
10 new design is not started within 10 years after the
11 date on which a commitment under the cost-sharing
12 program is made by the Secretary, then the industry
13 partner shall reimburse the Corporation for any
14 costs incurred by the Corporation under the pro-
15 gram.

16 (6) JURISDICTION.—

17 (A) NUCLEAR REGULATORY COMMIS-
18 SION.—Nothing in this Act shall affect the ju-
19 risdiction of the Nuclear Regulatory Commis-
20 sion over nuclear power plant design approvals
21 or combined construction and operating licenses
22 pursuant to the Atomic Energy Act of 1954 (42
23 U.S.C. 2011 et seq.).

1 (B) REGULATORY AGENCIES.—Nothing in
2 this Act affects the jurisdiction of any Federal,
3 State, or local government regulatory agency.

4 (d) DEMONSTRATION PROGRAM.—

5 (1) NUCLEAR REGULATORY COMMISSION LI-
6 CENSING PROCESS.—Within 24 months after the
7 date of enactment of this Act, the Secretary of En-
8 ergy shall establish a demonstration program to re-
9 duce the first-time regulatory costs of the current
10 Nuclear Regulatory Commission licensing process in-
11 curred by the first applicant using an advanced reac-
12 tor design.

13 (2) PERMITS; LICENSES; COST-SHARING.—

14 (A) The demonstration program shall—

15 (i) address the Early Site Permit ap-
16 plications and the combined construction
17 and operating license applications; and

18 (ii) be jointly funded by the Depart-
19 ment of Energy and the applicant.

20 (B) The Secretary shall work with the ap-
21 plicant to determine the appropriate percentage
22 of costs that the Department and the applicant
23 shall each provide.

24 (3) REIMBURSEMENT FOR LICENSE TRANS-
25 FER.—If an applicant decides to transfer a permit

1 granted by the Commission under the program to
2 another entity, the applicant shall reimburse the De-
3 partment for its costs in obtaining the permit.

4 **SEC. 352. LOW- OR ZERO-EMISSIONS TRANSPORTATION.**

5 (a) IN GENERAL.—The Secretary of Energy, the Ad-
6 ministrator of the Environmental Protection Agency, and
7 the Secretary of Transportation shall establish jointly a
8 competitive, merit-based research program to fund pro-
9 posals that—

10 (1) develop technologies that aid in reducing
11 fuel use or reduce greenhouse gas emissions associ-
12 ated with any fuel;

13 (2) further develop existing or new technologies
14 to create renewable fuels created from less carbon or
15 energy-intensive practices than current renewable
16 fuel production;

17 (3) remove existing barriers for deployment of
18 existing fuels that dramatically reduce greenhouse
19 gas emissions;

20 (4) support low-carbon transportation fuels, in-
21 cluding renewable hydrogen, advanced cellulosic eth-
22 anol, and biomass-based diesel substitutes, and the
23 technical hurdles to market entry;

24 (5) support technologies that facilitate meeting
25 transportation energy requirements with electricity

1 produced by low- or zero-carbon stationary sources
2 of electricity;

3 (6) support short-term and long-term tech-
4 nology improvements for United States cars and
5 light trucks that reduce greenhouse gas emissions,
6 including advanced, high-power hybrid vehicle bat-
7 teries, advanced gasoline engine designs, fuel cells,
8 hydrogen storage, power electronics, and lightweight
9 materials;

10 (7) support advanced heavy-duty truck tech-
11 nologies to reduce greenhouse gas emissions from
12 the existing and new fleets, including aerodynamics,
13 weight reduction, improved tires, anti-idling tech-
14 nology, high-efficiency engines, and hybrid systems;
15 or

16 (8) expand research into the climatological im-
17 pacts of air travel and support advanced tech-
18 nologies to reduce greenhouse gas emissions from
19 aircraft including advanced turbines, aerodynamics,
20 and logistics technology that reduces delays, in-
21 creases load factors and cuts in-air emissions.

22 (b) REAL-WORLD TEST PROCEDURES.—The Admin-
23 istrator of the Environmental Protection Agency, in con-
24 sultation with the Secretary of Transportation, shall—

1 (1) conduct research and establish a Federal
2 test procedure for certifying fuel economy of heavy
3 duty vehicles; and

4 (2) update Federal test procedures for certi-
5 fying fuel economy of automobiles and light duty
6 trucks so the results better reflect real-world oper-
7 ating conditions.

8 (c) INCORPORATION INTO PROGRAM.—The Secre-
9 taries shall ensure that the program established under
10 subsection (a) is incorporated into the United States Cli-
11 mate Technology Challenge Program.

12 (d) MARKETING STUDY.—The Secretary of Trans-
13 portation, in coordination with the Secretary of Com-
14 merce, shall conduct a study on how the government can
15 accelerate the market for low-carbon vehicles. The results
16 of the study shall be submitted to the Congress within 6
17 months after the date of enactment of this Act.

18 (e) RETOOLING OF ADVANCED VEHICLE MANUFAC-
19 TURING.—

20 (1) IN GENERAL.—Within 24 months after the
21 date of enactment of this Act, the Secretary of En-
22 ergy shall establish a program to demonstrate the
23 effectiveness of retooling an existing vehicle or vehi-
24 cle component manufacturing facility to reduce re-
25 duced greenhouse gas emissions from vehicles and

1 increasing competitiveness of advanced technology
2 vehicle production facilities.

3 (2) PROGRAM ELEMENTS.—

4 (A) ACTIVITIES SUPPORTED.—The dem-
5 onstration program shall be designed—

6 (i) to re-equip an existing manufac-
7 turing facility to produce advanced tech-
8 nology vehicles or components that will re-
9 sult in reduced greenhouse gas emissions;
10 and

11 (ii) to conduct engineering integration
12 activities of advanced technological vehicles
13 and components.

14 (B) FUNDING.—The program shall be
15 jointly funded by the private sector and the De-
16 partment of Energy. The Secretary of Energy
17 shall work with participating entities to deter-
18 mine the appropriate percentage of costs that
19 each shall provide.

20 (C) ELIGIBLE COMPONENTS AND ACTIVI-
21 TIES.—The Secretary of Energy, in coordina-
22 tion with the Administrator of the Environ-
23 mental Protection Agency and the Secretary of
24 Transportation, shall determine what advanced
25 technology components and engineering integra-

1 tion activities will qualify for support under the
2 program.

3 (D) ELIGIBLE COSTS.—Costs eligible to be
4 shared under this subsection include the cost of
5 engineering tasks related to—

6 (i) incorporating qualifying compo-
7 nents into the design of advanced tech-
8 nology vehicles; and

9 (ii) designing new tooling and equip-
10 ment for production facilities that produce
11 qualifying components or advanced tech-
12 nology vehicles.

13 (3) LIMITATION.—No more than 2 facilities
14 may receive financial assistance under the program
15 for re-equipment and expansion or for engineering
16 integration.

17 (4) ADVANCED TECHNOLOGY VEHICLE DE-
18 FINED.—In this subsection, the term “advanced
19 technology vehicle” means a light duty motor vehicle
20 that is either a hybrid or advanced lean burn tech-
21 nology motor vehicle, and that meets the following
22 additional performance criteria:

23 (A) The vehicle shall meet the Tier II Bin
24 5 emission standard established in regulations
25 prescribed by the Administrator under that Act.

1 (B) The vehicle shall meet any new emis-
2 sion standard for fine particulate matter pre-
3 scribed by the Administrator under that Act.

4 (C) The vehicle shall achieve at least 125
5 percent of the base year city fuel economy for
6 its weight class.

7 **SEC. 353. MEASURES TO INCREASE ENERGY EFFICIENCY.**

8 (a) IN GENERAL.—The Secretary of Energy shall es-
9 tablish a program to reduce greenhouse gas emissions
10 through the deployment of energy efficiency measures, in-
11 cluding appropriate technologies, by large commercial cus-
12 tomers by providing for energy audits. The program shall
13 provide incentives for large users of electricity or natural
14 gas to obtain an energy audit.

15 (b) COMPONENTS.—The energy audit shall provide
16 users with an inventory of potential energy efficiency
17 measures, including appropriate technologies, and their
18 cost savings over time, along with financing options to ini-
19 tiate the project.

20 (c) REIMBURSEMENT OF AUDIT COSTS.—If any of
21 the recommendations of an energy audit implemented by
22 a facility owner result in cost savings greater than 5 times
23 the cost of the original audit, then the facility owner shall
24 reimburse the Secretary for the cost of the audit.

1 **SEC. 354. GEOLOGICAL STORAGE.**

2 (a) IN GENERAL.—The Secretary of Energy, in con-
3 sultation with the Secretary of Agriculture and the Admin-
4 istrator of the Environmental Protection Agency, shall es-
5 tablish guidelines for setting individual project baselines
6 for reductions of greenhouse gas emissions and greenhouse
7 gas storage in various types of geological formations to
8 serve as the basis for determining the amount of green-
9 house gas reductions produced by the project.

10 (b) SPECIFIC ACTIVITIES.—The Secretary of Energy,
11 in consultation with the Director of the U.S. Geological
12 Survey, shall—

13 (1) develop local and regional databases on ex-
14 isting practices and technologies for greenhouse gas
15 injection in underground aquifers;

16 (2) develop methods for computation of
17 additionality discounts for prospective greenhouse
18 gas reductions or offsets due to carbon dioxide injec-
19 tion and storage in underground aquifers;

20 (3) develop accepted standards for monitoring
21 of carbon dioxide stored in geological subsurface res-
22 ervoirs by—

23 (A) developing minimum suitability stand-
24 ards for identifying and monitoring of geologi-
25 cal storage sites including oil, gas, and coal bed
26 methane reservoir and deep saline aquifers; and

1 (B) testing monitoring standards using
2 sites with long term (multi-decade) large injec-
3 tions of carbon dioxide into oil field enhanced
4 recovery projects; and

5 (4) address non-permanence and risk of release
6 of sequestered greenhouse gas by—

7 (A) establishing guidelines for risk assess-
8 ment of inadvertent greenhouse gas release,
9 both long-term and short-term, associated with
10 geological sequestration sites; and

11 (B) developing insurance instruments to
12 address greenhouse gas release liability in geo-
13 logical sequestration.

14 (c) NATIONAL GEOLOGICAL CARBON SEQUESTRA-
15 TION ASSESSMENT.—

16 (1) FINDINGS.—The Congress finds the fol-
17 lowing:

18 (A) One of the most promising options for
19 avoiding emissions of carbon dioxide is through
20 long-term storage by geological sequestration in
21 stable geological formations, which involves—

22 (i) capturing carbon dioxide from in-
23 dustrial sources; and

24 (ii) injecting the captured carbon di-
25 oxide into geological storage sites, such as

1 deep saline formations, unmineable coal
2 seams, and depleted gas and oil fields.

3 (B) As of the date of introduction of this
4 Act, there are only very broad estimates of na-
5 tional geological storage capacity.

6 (C) The potential to recover additional oil
7 and gas resources through enhanced oil and gas
8 recovery using captured carbon dioxide emis-
9 sions is an option that could add the equivalent
10 of tens-of-billions of barrels of oil to the na-
11 tional resource base.

12 (D) An initial geological survey of storage
13 capacity in the subsurface of sedimentary ba-
14 sins in the United States would—

15 (i) provide estimates of storage capaci-
16 ty based on clearly defined geological pa-
17 rameters with stated ranges of uncertainty;

18 (ii) allow for an initial determination
19 of whether a basin or 1 or more portions
20 of the basin may be developed into a stor-
21 age site; and

22 (iii) provide information on—

23 (I) a baseline for monitoring in-
24 jections and post injection phases of
25 storage; and

1 (II) early opportunities for
2 matching carbon dioxide sources and
3 sinks for early deployment of zero-
4 emissions fossil fuel plants using cap-
5 ture and storage technologies.

6 (2) NATIONAL GEOLOGICAL CARBON SEQUES-
7 TRATION ASSESSMENT.—

8 (A) DEVELOPMENT AND TESTING OF AS-
9 SESSMENT METHODOLOGY.—

10 (i) IN GENERAL.—Not later than 1
11 year after the date of enactment of this
12 Act, the Director of the United States Geo-
13 logical Survey shall develop and test meth-
14 ods for the conduct of a national assess-
15 ment of geological storage capacity for car-
16 bon dioxide.

17 (ii) OPPORTUNITY FOR REVIEW AND
18 COMMENT.—During the period beginning
19 on the date that is 180 days after the date
20 of enactment of this Act and ending on the
21 date of completion of the development and
22 testing of the methodologies under clause
23 (i), the Director shall provide the Under
24 Secretary for Oceans and Atmosphere of
25 the Department of Commerce, the Sec-

1 retary of Energy, the Administrator of the
2 Environmental Protection Agency, the Di-
3 rector of the Minerals Management Serv-
4 ice, the Director of the Bureau of Land
5 Management, the heads of other Federal
6 land management agencies, the heads of
7 State land management agencies, industry
8 stakeholders, and other interested parties
9 with an opportunity to review and com-
10 ment on the proposed methodologies.

11 (B) ASSESSMENT.—

12 (i) IN GENERAL.—The Director shall
13 conduct the assessment during the period
14 beginning on the date on which the devel-
15 opment and testing of the methodologies is
16 completed under subparagraph (A) and
17 ending 4 years after the date of enactment
18 of this Act.

19 (ii) AVAILABILITY OF INFORMA-
20 TION.—The Director shall establish an
21 Internet database accessible to the public
22 that provides the results of the assessment,
23 including a detailed description of the data
24 collected under the assessment.

1 (iii) REPORT.—Not later than 1 year
2 after the date on which the assessment is
3 completed under clause (i), the Director
4 shall submit to the appropriate committees
5 of Congress and the President a report
6 that describes the findings of the assess-
7 ment.

8 (3) AUTHORIZATION OF APPROPRIATIONS.—
9 There are authorized to be appropriated
10 \$15,000,000 to carry out this section for fiscal years
11 2008 through 2011.

12 **SEC. 355. AGRICULTURAL SEQUESTRATION.**

13 (a) IN GENERAL.—The Director of the Office of
14 Science and Technology Policy shall establish an inter-
15 agency panel of representatives from the United States
16 Forest Service, Agriculture Research Service, Agricultural
17 Experiment Stations and Extension Service, Economic
18 Research Service, Natural Resource Conservation Service,
19 Environmental Protection Agency, the U.S. Geological
20 Survey, and the National Institute of Standards and Tech-
21 nology to establish standards for measurement (and re-
22 measurement) of sequestered carbon, including lab proce-
23 dures, field sampling methods, and accuracy of sampling
24 statistics.

25 (b) DUTIES.—The interagency panel shall—

- 1 (1) develop discounted default values for the
2 amount of greenhouse gas emission reductions due
3 to carbon sequestration or emissions reductions from
4 improved practices and technologies;
- 5 (2) develop technologies for low-cost laboratory
6 and field measurement;
- 7 (3) develop procedures to improve the accuracy
8 of equations used to estimate greenhouse gas emis-
9 sions reductions produced by adoption of improved
10 land management technologies and practices;
- 11 (4) develop local and regional databases on car-
12 bon sequestration in soils and biomass, greenhouse
13 gas emissions, and adopted land management tech-
14 nologies and practices;
- 15 (5) develop computation methods for
16 additionality discounts for prospective greenhouse
17 gas offsets;
- 18 (6) develop entitywide reporting requirements
19 to evaluate project-level leakage;
- 20 (7) develop commodity-specific greenhouse gas
21 offset discount factors for market-level leakage, and
22 update those factors periodically;
- 23 (8) develop guidelines and standards for green-
24 house gas offset and reduction project monitoring
25 and verification and uniform qualifications for third

1 party verifiers, including specification of conflict of
2 interest conditions;

3 (9) increase landowner accessibility to tech-
4 nologies and practices by—

5 (A) improving and expanding availability
6 and adoption of best management practices for
7 soils, crop residues, and forests to achieve addi-
8 tional carbon sequestration that meets stand-
9 ards as bona fide greenhouse gas offsets;

10 (B) improving and expanding availability
11 and adoption of best management practices for
12 soils, crop residues, and forests to achieve re-
13 ductions in emissions of carbon dioxide, meth-
14 ane, and nitrous oxides that meet standards as
15 bona fide greenhouse gas emissions reductions;
16 and

17 (C) establishing incentives for land man-
18 agers to help finance investments in facilities
19 that produce bona fide greenhouse gas offsets
20 or reductions through carbon sequestration or
21 direct greenhouse gas emissions reductions; and

22 (10) establish best practices to address non-per-
23 manence and risk of release of sequestered green-
24 house gases by—

1 (A) assessing and quantifying risks, both
2 advertent and inadvertent, of release of green-
3 house gases sequestered in soils and biomass;
4 and

5 (B) establishing insurance instruments
6 concerning the release, both advertent and inad-
7 vertent, of sequestered greenhouse gases.

8 (c) **ADDITIONALITY DEFINED.**—In this section the
9 term “additionality” means emissions reduction and se-
10 questration activities that result in atmospheric benefits
11 that would not otherwise have occurred.

12 **TITLE IV—ADAPTING TO** 13 **CLIMATE CHANGE IMPACTS**

14 **SEC. 401. ADAPTATION TECHNOLOGIES.**

15 (a) **IN GENERAL.**—The Director of the Office of
16 Science and Technology Policy shall establish a program
17 on adaptation technologies as part of the Climate Tech-
18 nology Challenge Program. The Director shall perform an
19 assessment of the climate change technological needs of
20 various regions of the country. This assessment shall be
21 provided to the Senate Committee on Commerce, Science,
22 and Transportation and the House of Representatives
23 Committee on Science within 6 months after the date of
24 enactment of this Act.

1 (b) REGIONAL ESTIMATES.—The Director of the Of-
2 fice of Science and Technology Policy, in consultation with
3 the Secretaries of Transportation, Homeland Security,
4 Agriculture, Housing and Urban Development, Health
5 and Human Services, Defense, Interior, Energy, and Com-
6 merce, the Administrator of the Environmental Protection
7 Agency, the Director of U.S. Geologic Survey, and other
8 such Federal offices as the Director deems necessary,
9 along with relevant State agencies, shall perform 6 re-
10 gional infrastructure cost assessments covering the United
11 States, and a national cost assessment, to provide esti-
12 mates of the range of costs that should be anticipated for
13 adaptation to the impacts of climate change. The Director
14 shall develop those estimates for low, medium, and high
15 probabilities of climate change and its potential impacts.
16 The assessments shall be provided to the Senate Com-
17 mittee on Commerce, Science, and Transportation and the
18 House of Representatives Committee on Science within 1
19 year after the date of enactment of this Act.

20 (c) ADAPTATION PLAN.—

21 (1) IN GENERAL.—Within 6 months after the
22 date of enactment of this Act, the Secretary of Com-
23 merce shall submit a climate change adaptation plan
24 for the United States to the Congress. The adapta-
25 tion plan shall be based upon assessments performed

1 by the United Nations Intergovernmental Panel on
2 Climate Change, those as required by the 1990
3 Global Change Research Act, and any other sci-
4 entific peer-reviewed regional assessments.

5 (2) REQUIRED COMPONENTS.—The adaptation
6 plan shall include—

7 (A) a prioritized list of vulnerable systems
8 and regions;

9 (B) coordination requirements between
10 Federal, State, and local governments to ensure
11 that key public infrastructure, safety, health,
12 and land use planning and control issues are
13 addressed;

14 (C) coordination requirements among the
15 Federal government, industry, and commu-
16 nities;

17 (D) an assessment of climate change
18 science research needs including probabilistic
19 assessments as an aid to planning;

20 (E) an assessment of climate change tech-
21 nology needs; and

22 (F) regional and national costs assess-
23 ments for the range of costs that should be an-
24 ticipated for adapting to the impacts of climate
25 change.

1 **SEC. 402. MITIGATING CLIMATE CHANGE'S IMPACTS ON**
2 **THE POOR.**

3 (a) IN GENERAL.—The Secretary shall conduct re-
4 search on the impact of climate change on low-income pop-
5 ulations everywhere in the world. The research shall—

6 (1) include an assessment of the adverse impact
7 of climate change on low-income populations in the
8 United States and on developing countries;

9 (2) identify appropriate climate change adapta-
10 tion measures and programs for developing countries
11 and low-income populations and assess the impact of
12 those measures and programs on low-income popu-
13 lations;

14 (3) identify appropriate climate change mitiga-
15 tion strategies and programs for developing coun-
16 tries and low-income populations and assess the im-
17 pact of those strategies and programs on developing
18 countries and on low-income populations in the
19 United States; and

20 (4) include an estimate of the costs of devel-
21 oping and implementing those climate change adap-
22 tation and mitigation programs.

23 (b) REPORT.—Within 1 year after the date of enact-
24 ment of this Act, the Secretary shall transmit a report
25 on the research conducted under subsection (a) to the Sen-
26 ate Committee on Commerce, Science, and Transpor-

1 tation, the Senate Committee on Environment and Public
2 Works, the House of Representatives Committee on
3 Science, and the House of Representatives Committee on
4 Energy and Commerce.

5 (c) AUTHORIZATION OF APPROPRIATIONS.—There
6 are authorized to be appropriated to the Secretary
7 \$2,000,000 to carry out the research required by sub-
8 section (a).

○