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(Original Signature of Member)

109TH CONGRESS  
1ST SESSION

# H. R. 610

To provide for Federal energy research, development, demonstration, and commercial application activities, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

Mrs. BIGGERT introduced the following bill; which was referred to the Committee on \_\_\_\_\_

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# A BILL

To provide for Federal energy research, development, demonstration, and commercial application activities, and for other purposes.

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

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

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “Energy Research, Development, Demonstration, and  
6 Commercial Application Act of 2005”.



- 1 (b) TABLE OF CONTENTS.—The table of contents for  
2 this Act is as follows:

- Sec. 1. Short title; table of contents.  
Sec. 2. Definitions.

#### TITLE I—SCIENCE PROGRAMS

- Sec. 101. Office of Science programs.  
Sec. 102. Systems biology program.  
Sec. 103. Catalysis Research and Development Program.  
Sec. 104. Hydrogen.  
Sec. 105. Advanced scientific computing research.  
Sec. 106. Fusion Energy Sciences program.  
Sec. 107. Science and Technology Scholarship Program.  
Sec. 108. Office of Scientific and Technical Information.  
Sec. 109. Authorization of appropriations.

#### TITLE II—RESEARCH ADMINISTRATION AND OPERATIONS

- Sec. 201. Cost Sharing.  
Sec. 202. Reprogramming.  
Sec. 203. Merit-based competition.  
Sec. 204. External technical review of departmental programs.  
Sec. 205. Competitive award of management contracts.  
Sec. 206. National Laboratory designation.  
Sec. 207. Report on equal employment opportunity practices.  
Sec. 208. User facility best practices plan.  
Sec. 209. Support for science and energy infrastructure and facilities.  
Sec. 210. Coordination plan.  
Sec. 211. Availability of funds.

#### TITLE III—ENERGY EFFICIENCY

##### Subtitle A—Vehicles, Buildings, and Industries

- Sec. 301. Programs.  
Sec. 302. Vehicles.  
Sec. 303. Buildings.  
Sec. 304. Industries.  
Sec. 305. Demonstration and commercial application.  
Sec. 306. Secondary electric vehicle battery use program.  
Sec. 307. Definition of cost-effective.  
Sec. 308. Authorization of appropriations.  
Sec. 309. Limitation on use of funds.

##### Subtitle B—Distributed Energy and Electric Energy Systems

- Sec. 321. Distributed energy.  
Sec. 322. Electricity transmission and distribution and energy assurance.  
Sec. 323. Authorization of appropriations.

#### TITLE IV—RENEWABLE ENERGY

- Sec. 401. Findings.  
Sec. 402. Definitions.



- Sec. 403. Programs.
- Sec. 404. Solar.
- Sec. 405. Bioenergy programs.
- Sec. 406. Wind.
- Sec. 407. Geothermal.
- Sec. 408. Photovoltaic demonstration program.
- Sec. 409. Additional programs.
- Sec. 410. Analysis and evaluation.
- Sec. 411. Authorization of appropriations.

#### TITLE V—NUCLEAR ENERGY PROGRAMS

- Sec. 501. Definition.
- Sec. 502. Programs.

##### Subtitle A—Nuclear energy research programs

- Sec. 511. Advanced fuel recycling program.
- Sec. 512. University nuclear science and engineering support.
- Sec. 513. University-National Laboratory interactions.
- Sec. 514. Nuclear Power 2010 Program.
- Sec. 515. Generation IV Nuclear Energy Systems Initiative.
- Sec. 516. Civilian infrastructure and facilities.
- Sec. 517. Nuclear energy research and development infrastructure plan.
- Sec. 518. Idaho National Laboratory facilities plan.
- Sec. 519. Authorization of appropriations.

##### Subtitle B—Next Generation Nuclear Plant Program

- Sec. 531. Definitions.
- Sec. 532. Next generation nuclear power plant.
- Sec. 533. Advisory committee.
- Sec. 534. Program requirements.
- Sec. 535. Authorization of appropriations.

#### TITLE VI—FOSSIL ENERGY

##### Subtitle A—Research Programs

- Sec. 601. Enhanced fossil energy research and development programs.
- Sec. 602. Fossil research and development.
- Sec. 603. Oil and gas research and development.
- Sec. 604. Transportation fuels.
- Sec. 605. Fuel cells.
- Sec. 606. Authorization of appropriations.

##### Subtitle B—Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources

- Sec. 611. Program authority.
- Sec. 612. Ultra-deepwater Program.
- Sec. 613. Unconventional natural gas and other petroleum resources Program.
- Sec. 614. Additional requirements for awards.
- Sec. 615. Advisory committees.
- Sec. 616. Limits on participation.
- Sec. 617. Sunset.
- Sec. 618. Definitions.
- Sec. 619. Funding.



TITLE VII—HYDROGEN

- Sec. 701. Definitions.
- Sec. 702. Plan.
- Sec. 703. Programs.
- Sec. 704. Interagency task force.
- Sec. 705. Advisory Committee.
- Sec. 706. External review.
- Sec. 707. Miscellaneous provisions.
- Sec. 708. Savings clause.
- Sec. 709. Authorization of appropriations.

TITLE VIII—ADVANCED VEHICLES

Subtitle A—Pilot Program

- Sec. 801. Definitions.
- Sec. 802. Pilot program.
- Sec. 803. Reports to Congress.
- Sec. 804. Authorization of appropriations.

Subtitle B—Clean school buses

- Sec. 811. Definitions.
- Sec. 812. Program for replacement of certain school buses with clean school buses.
- Sec. 813. Diesel retrofit program.
- Sec. 814. Fuel cell school buses.

Subtitle C—Fuel cell transit bus demonstration

- Sec. 821. Fuel cell transit bus demonstration.

TITLE IX—CLEAN COAL POWER INITIATIVE

- Sec. 901. Authorization of appropriations.
- Sec. 902. Project criteria.
- Sec. 903. Report.
- Sec. 904. Clean coal centers of excellence.

TITLE X—IMPROVED COORDINATION AND MANAGEMENT OF CIVILIAN SCIENCE AND TECHNOLOGY PROGRAMS

- Sec. 1001. Improved coordination and management of civilian science and technology programs.

1 **SEC. 2. DEFINITIONS.**

2 For purposes of this Act:

3 (1) **APPLIED PROGRAMS.**—The term “applied  
 4 programs” means the research, development, dem-  
 5 onstration, and commercial application programs of  
 6 the Department concerning energy efficiency, renew-



1       able energy, nuclear energy, fossil energy, and elec-  
2       tricity transmission and distribution.

3           (2) BIOMASS.—The term “biomass” means—

4               (A) any organic material grown for the  
5       purpose of being converted to energy;

6               (B) any organic byproduct of agriculture  
7       (including wastes from food production and  
8       processing) that can be converted into energy;  
9       or

10              (C) any waste material that can be con-  
11       verted to energy, is segregated from other waste  
12       materials, and is derived from—

13                   (i) any of the following forest-related  
14       resources: mill residues, precommercial  
15       thinnings, slash, brush, or otherwise non-  
16       merchantable material; or

17                   (ii) wood waste materials, including  
18       waste pallets, crates, dunnage, manufac-  
19       turing and construction wood wastes (other  
20       than pressure-treated, chemically-treated,  
21       or painted wood wastes), and landscape or  
22       right-of-way tree trimmings, but not in-  
23       cluding municipal solid waste, gas derived  
24       from the biodegradation of municipal solid  
25       waste, or paper that is commonly recycled.



1           (3) DEPARTMENT.—The term “Department”  
2 means the Department of Energy.

3           (4) DEPARTMENTAL MISSION.—The term “de-  
4 partmental mission” means any of the functions  
5 vested in the Secretary of Energy by the Depart-  
6 ment of Energy Organization Act (42 U.S.C. 7101  
7 et seq.) or other law.

8           (5) INSTITUTION OF HIGHER EDUCATION.—The  
9 term “institution of higher education” has the  
10 meaning given that term in section 101(a) of the  
11 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

12           (6) NATIONAL LABORATORY.—The term “Na-  
13 tional Laboratory” means any of the following lab-  
14 oratories owned by the Department:

15                   (A) Ames Laboratory.

16                   (B) Argonne National Laboratory.

17                   (C) Brookhaven National Laboratory.

18                   (D) Fermi National Accelerator Labora-  
19 tory.

20                   (E) Idaho National Laboratory.

21                   (F) Lawrence Berkeley National Labora-  
22 tory.

23                   (G) Lawrence Livermore National Labora-  
24 tory.

25                   (H) Los Alamos National Laboratory.



1 (I) National Energy Technology Labora-  
2 tory.

3 (J) National Renewable Energy Labora-  
4 tory.

5 (K) Oak Ridge National Laboratory.

6 (L) Pacific Northwest National Labora-  
7 tory.

8 (M) Princeton Plasma Physics Laboratory.

9 (N) Sandia National Laboratories.

10 (O) Savannah River National Laboratory.

11 (P) Stanford Linear Accelerator Center.

12 (Q) Thomas Jefferson National Accel-  
13 erator Facility.

14 (7) RENEWABLE ENERGY.—The term “renew-  
15 able energy” means energy from wind, sunlight, the  
16 flow of water, heat from the Earth, or biomass that  
17 can be converted into a usable form such as process  
18 heat, electricity, fuel, or space heat.

19 (8) SECRETARY.—The term “Secretary” means  
20 the Secretary of Energy.

21 (9) STATE.—The term “State” means any of  
22 the several States, the District of Columbia, the  
23 Commonwealth of Puerto Rico, the United States  
24 Virgin Islands, Guam, American Samoa, the North-



1 ern Mariana Islands, and any other commonwealth,  
2 territory, or possession of the United States.

3 (10) UNIVERSITY.—The term “university” has  
4 the meaning given the term “institution of higher  
5 education” in section 101 of the Higher Education  
6 Act of 1965 (20 U.S.C. 1001).

7 (11) USER FACILITY.—The term “user facility”  
8 means a research and development facility sup-  
9 ported, in whole or in part, by Departmental funds  
10 that is open, at a minimum, to all qualified United  
11 States researchers.

## 12 **TITLE I—SCIENCE PROGRAMS**

### 13 **SEC. 101. OFFICE OF SCIENCE PROGRAMS.**

14 (a) IN GENERAL.—The Secretary shall conduct,  
15 through the Office of Science, programs of research, devel-  
16 opment, demonstration, and commercial application in  
17 high energy physics and nuclear physics, biological and en-  
18 vironmental research, basic energy sciences, advanced sci-  
19 entific and computing research, and fusion energy  
20 sciences, including activities described in this title. The  
21 programs shall include support for facilities and infra-  
22 structure, education, outreach, information, analysis, and  
23 coordination activities.

24 (b) RARE ISOTOPE ACCELERATOR.—



1           (1) ESTABLISHMENT.—The Secretary shall con-  
2           struct and operate a Rare Isotope Accelerator. The  
3           Secretary shall commence construction no later than  
4           September 30, 2008.

5           (2) AUTHORIZATION OF APPROPRIATIONS.—  
6           There are authorized to be appropriated to the Sec-  
7           retary such sums as may be necessary to carry out  
8           this subsection. The Secretary shall not spend more  
9           than \$1,100,000,000 for all activities associated  
10          with the Rare Isotope Accelerator prior to operation.

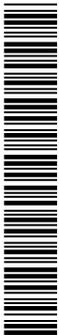
11 **SEC. 102. SYSTEMS BIOLOGY PROGRAM.**

12          (a) PROGRAM.—

13           (1) ESTABLISHMENT.—The Secretary shall es-  
14           tablish a research, development, and demonstration  
15           program in genetics, protein science, and computa-  
16           tional biology to support the energy, national secu-  
17           rity, and environmental missions of the Department.

18           (2) GRANTS.—The program shall support indi-  
19           vidual researchers and multidisciplinary teams of re-  
20           searchers through competitive, merit-reviewed  
21           grants.

22           (3) CONSULTATION.—In carrying out the pro-  
23           gram, the Secretary shall consult with other Federal  
24           agencies that conduct genetic and protein research.



1 (b) GOALS.—The program shall have the goal of de-  
2 veloping technologies and methods based on the biological  
3 functions of genomes, microbes, and plants that—

4 (1) can facilitate the production of fuels, includ-  
5 ing hydrogen;

6 (2) convert carbon dioxide to organic carbon;

7 (3) detoxify soils and water, including at De-  
8 partmental facilities, contaminated with heavy met-  
9 als and radiological materials; and

10 (4) address other Department missions as iden-  
11 tified by the Secretary.

12 (c) PLAN.—

13 (1) DEVELOPMENT OF PLAN.—Not later than 1  
14 year after the date of enactment of this Act, the  
15 Secretary shall prepare and transmit to Congress a  
16 research plan describing how the program author-  
17 ized pursuant to this section will be undertaken to  
18 accomplish the program goals established in sub-  
19 section (b).

20 (2) REVIEW OF PLAN.—The Secretary shall  
21 contract with the National Academy of Sciences to  
22 review the research plan developed under this sub-  
23 section. The Secretary shall transmit the review to  
24 Congress not later than 18 months after transmittal  
25 of the research plan under paragraph (1), along with



1 the Secretary's response to the recommendations  
2 contained in the review.

3 (d) USER FACILITIES AND ANCILLARY EQUIP-  
4 MENT.—Within the funds authorized to be appropriated  
5 pursuant to this title, the amounts specified under section  
6 109(b)(1), (c)(1), (d)(1), (e)(1), and (f)(1) shall be avail-  
7 able for projects to develop, plan, construct, acquire, or  
8 operate special equipment, instrumentation, or facilities,  
9 including user facilities, for researchers conducting re-  
10 search, development, demonstration, and commercial ap-  
11 plication in systems biology and proteomics and associated  
12 biological disciplines.

13 (e) PROHIBITION ON BIOMEDICAL AND HUMAN CELL  
14 AND HUMAN SUBJECT RESEARCH.—

15 (1) NO BIOMEDICAL RESEARCH.—In carrying  
16 out the program under this section, the Secretary  
17 shall not conduct biomedical research.

18 (2) LIMITATIONS.—Nothing in this section shall  
19 authorize the Secretary to conduct any research or  
20 demonstrations—

21 (A) on human cells or human subjects; or

22 (B) designed to have direct application  
23 with respect to human cells or human subjects.



1 **SEC. 103. CATALYSIS RESEARCH AND DEVELOPMENT PRO-**  
2 **GRAM.**

3 (a) ESTABLISHMENT.—The Secretary shall conduct  
4 a program of research and development in catalysis  
5 science, including efforts to—

6 (1) enable molecular-level catalyst design by  
7 coupling experimental and computational ap-  
8 proaches;

9 (2) enable nanoscale, high-throughput syn-  
10 thesis, assay, and characterization; and

11 (3) synthesize catalysts with specific site archi-  
12 tectures.

13 (b) PROGRAM ACTIVITIES.—In carrying out the pro-  
14 gram under this section, the Secretary shall—

15 (1) support both individual researchers and  
16 multidisciplinary teams of researchers to pioneer  
17 new approaches in catalytic design;

18 (2) develop, plan, construct, acquire, or operate  
19 special equipment or facilities, including user facili-  
20 ties;

21 (3) support technology transfer activities to  
22 benefit industry and other users of catalysis science  
23 and engineering; and

24 (4) coordinate research and development activi-  
25 ties with industry and other Federal agencies.



1 **SEC. 104. HYDROGEN.**

2 The Secretary shall conduct a program of funda-  
3 mental research and development in support of programs  
4 authorized in title VII of this Act.

5 **SEC. 105. ADVANCED SCIENTIFIC COMPUTING RESEARCH.**

6 The Secretary shall conduct an advanced scientific  
7 computing research and development program, including  
8 in applied mathematics and the activities authorized by  
9 the Department of Energy High-End Computing Revital-  
10 ization Act of 2004 (15 U.S.C. 5541 et seq.). The Sec-  
11 retary shall carry out this program with the goal of sup-  
12 porting departmental missions and providing the high-per-  
13 formance computational, networking, and workforce re-  
14 sources that are required for world leadership in science.

15 **SEC. 106. FUSION ENERGY SCIENCES PROGRAM.**

16 (a) DECLARATION OF POLICY.—It shall be the policy  
17 of the United States to conduct research, development,  
18 demonstration, and commercial application to provide for  
19 the scientific, engineering, and commercial infrastructure  
20 necessary to ensure that the United States is competitive  
21 with other nations in providing fusion energy for its own  
22 needs and the needs of other nations, including by dem-  
23 onstrating electric power or hydrogen production for the  
24 United States energy grid utilizing fusion energy at the  
25 earliest date possible.

26 (b) PLANNING.—



1           (1) IN GENERAL.—Not later than 180 days  
2 after the date of enactment of this Act, the Sec-  
3 retary shall transmit to Congress a plan, with pro-  
4 posed cost estimates, budgets, and lists of potential  
5 international partners, for the implementation of the  
6 policy described in subsection (a). The plan shall en-  
7 sure that—

8           (A) existing fusion research facilities are  
9 more fully utilized;

10           (B) fusion science, technology, theory, ad-  
11 vanced computation, modeling, and simulation  
12 are strengthened;

13           (C) new magnetic and inertial fusion re-  
14 search and development facilities are selected  
15 based on scientific innovation, cost effective-  
16 ness, and their potential to advance the goal of  
17 practical fusion energy at the earliest date pos-  
18 sible, and those that are selected are funded at  
19 a cost-effective rate;

20           (D) communication of scientific results and  
21 methods between the fusion energy science com-  
22 munity and the broader scientific and tech-  
23 nology communities is improved;

24           (E) inertial confinement fusion facilities  
25 are utilized to the extent practicable for the



1 purpose of inertial fusion energy research and  
2 development; and

3 (F) attractive alternative inertial and mag-  
4 netic fusion energy approaches are more fully  
5 explored.

6 (2) COSTS AND SCHEDULES.—Such plan shall  
7 also address the status of and, to the degree pos-  
8 sible, costs and schedules for—

9 (A) the design and implementation of  
10 international or national facilities for the test-  
11 ing of fusion materials; and

12 (B) the design and implementation of  
13 international or national facilities for the test-  
14 ing and development of key fusion technologies.

15 (c) UNITED STATES PARTICIPATION IN ITER.—

16 (1) IN GENERAL.—The United States may par-  
17 ticipate in ITER only in accordance with this sub-  
18 section.

19 (2) AGREEMENT.—

20 (A) IN GENERAL.—The Secretary is au-  
21 thorized to negotiate an agreement for United  
22 States participation in ITER.

23 (B) CONTENTS.—Any agreement for  
24 United States participation in ITER shall, at a  
25 minimum—



1 (i) clearly define the United States fi-  
2 nancial contribution to construction and  
3 operating costs, as well as any other costs  
4 associated with the project;

5 (ii) ensure that the share of ITER's  
6 high-technology components manufactured  
7 in the United States is at least propor-  
8 tionate to the United States financial con-  
9 tribution to ITER;

10 (iii) ensure that the United States will  
11 not be financially responsible for cost over-  
12 runs in components manufactured in other  
13 ITER participating countries;

14 (iv) guarantee the United States full  
15 access to all data generated by ITER;

16 (v) enable United States researchers  
17 to propose and carry out an equitable  
18 share of the experiments at ITER;

19 (vi) provide the United States with a  
20 role in all collective decisionmaking related  
21 to ITER; and

22 (vii) describe the process for dis-  
23 continuing or decommissioning ITER and  
24 any United States role in that process.



1           (3) PLAN.—The Secretary, in consultation with  
2           the Fusion Energy Sciences Advisory Committee,  
3           shall develop a plan for the participation of United  
4           States scientists in ITER that shall include the  
5           United States research agenda for ITER, methods  
6           to evaluate whether ITER is promoting progress to-  
7           ward making fusion a reliable and affordable source  
8           of power, and a description of how work at ITER  
9           will relate to other elements of the United States fu-  
10          sion program. The Secretary shall request a review  
11          of the plan by the National Academy of Sciences.

12          (4) LIMITATION.—No Federal funds shall be  
13          expended for the construction of ITER until the  
14          Secretary has transmitted to Congress—

15                (A) the agreement negotiated pursuant to  
16                paragraph (2) and 120 days have elapsed since  
17                that transmission;

18                (B) a report describing the management  
19                structure of ITER and providing a fixed dollar  
20                estimate of the cost of United States participa-  
21                tion in the construction of ITER, and 120 days  
22                have elapsed since that transmission;

23                (C) a report describing how United States  
24                participation in ITER will be funded without  
25                reducing funding for other programs in the Of-



1           fice of Science, including other fusion programs,  
2           and 60 days have elapsed since that trans-  
3           mission; and

4           (D) the plan required by paragraph (3)  
5           (but not the National Academy of Sciences re-  
6           view of that plan), and 60 days have elapsed  
7           since that transmission.

8           (5) ALTERNATIVE TO ITER.—If at any time  
9           during the negotiations on ITER, the Secretary de-  
10          termines that construction and operation of ITER is  
11          unlikely or infeasible, the Secretary shall send to  
12          Congress, as part of the budget request for the fol-  
13          lowing year, a plan for implementing a domestic  
14          burning plasma experiment including costs and  
15          schedules for such a plan. The Secretary shall refine  
16          such plan in full consultation with the Fusion En-  
17          ergy Sciences Advisory Committee and shall also  
18          transmit such plan to the National Academy of  
19          Sciences for review.

20          (6) DEFINITIONS.—In this subsection:

21           (A) CONSTRUCTION.— The term “con-  
22           struction” means the physical construction of  
23           the ITER facility, and the physical construc-  
24           tion, purchase, or manufacture of equipment or  
25           components that are specifically designed for



1 the ITER facility, but does not mean the design  
2 of the facility, equipment, or components.

3 (B) ITER.—The term “ITER” means the  
4 international burning plasma fusion research  
5 project in which the President announced  
6 United States participation on January 30,  
7 2003, or any similar international project.

8 **SEC. 107. SCIENCE AND TECHNOLOGY SCHOLARSHIP PRO-**  
9 **GRAM.**

10 (a) ESTABLISHMENT OF PROGRAM.—

11 (1) IN GENERAL.—The Secretary is authorized  
12 to establish a Science and Technology Scholarship  
13 Program to award scholarships to individuals that is  
14 designed to recruit and prepare students for careers  
15 in the Department.

16 (2) COMPETITIVE PROCESS.—Individuals shall  
17 be selected to receive scholarships under this section  
18 through a competitive process primarily on the basis  
19 of academic merit, with consideration given to finan-  
20 cial need and the goal of promoting the participation  
21 of individuals identified in section 33 or 34 of the  
22 Science and Engineering Equal Opportunities Act  
23 (42 U.S.C. 1885a or 1885b).

24 (3) SERVICE AGREEMENTS.—To carry out the  
25 Program the Secretary shall enter into contractual



1 agreements with individuals selected under para-  
2 graph (2) under which the individuals agree to serve  
3 as full-time employees of the Department, for the  
4 period described in subsection (f)(1), in positions  
5 needed by the Department and for which the individ-  
6 uals are qualified, in exchange for receiving a schol-  
7 arship.

8 (b) SCHOLARSHIP ELIGIBILITY.—In order to be eligi-  
9 ble to participate in the Program, an individual must—

10 (1) be enrolled or accepted for enrollment as a  
11 full-time student at an institution of higher edu-  
12 cation in an academic program or field of study de-  
13 scribed in the list made available under subsection  
14 (d);

15 (2) be a United States citizen; and

16 (3) at the time of the initial scholarship award,  
17 not be a Federal employee as defined in section  
18 2105 of title 5 of the United States Code.

19 (c) APPLICATION REQUIRED.—An individual seeking  
20 a scholarship under this section shall submit an applica-  
21 tion to the Secretary at such time, in such manner, and  
22 containing such information, agreements, or assurances as  
23 the Secretary may require.

24 (d) ELIGIBLE ACADEMIC PROGRAMS.—The Secretary  
25 shall make publicly available a list of academic programs



1 and fields of study for which scholarships under the Pro-  
2 gram may be utilized, and shall update the list as nec-  
3 essary.

4 (e) SCHOLARSHIP REQUIREMENT.—

5 (1) IN GENERAL.—The Secretary may provide a  
6 scholarship under the Program for an academic year  
7 if the individual applying for the scholarship has  
8 submitted to the Secretary, as part of the applica-  
9 tion required under subsection (c), a proposed aca-  
10 demic program leading to a degree in a program or  
11 field of study on the list made available under sub-  
12 section (d).

13 (2) DURATION OF ELIGIBILITY.—An individual  
14 may not receive a scholarship under this section for  
15 more than 4 academic years, unless the Secretary  
16 grants a waiver.

17 (3) SCHOLARSHIP AMOUNT.—The dollar  
18 amount of a scholarship under this section for an  
19 academic year shall be determined under regulations  
20 issued by the Secretary, but shall in no case exceed  
21 the cost of attendance.

22 (4) AUTHORIZED USES.—A scholarship pro-  
23 vided under this section may be expended for tuition,  
24 fees, and other authorized expenses as established by  
25 the Secretary by regulation.



1           (5) CONTRACTS REGARDING DIRECT PAYMENTS  
2 TO INSTITUTIONS.—The Secretary may enter into a  
3 contractual agreement with an institution of higher  
4 education under which the amounts provided for a  
5 scholarship under this section for tuition, fees, and  
6 other authorized expenses are paid directly to the in-  
7 stitution with respect to which the scholarship is  
8 provided.

9 (f) PERIOD OF OBLIGATED SERVICE.—

10           (1) DURATION OF SERVICE.—The period of  
11 service for which an individual shall be obligated to  
12 serve as an employee of the Department is, except  
13 as provided in subsection (h)(2), 24 months for each  
14 academic year for which a scholarship under this  
15 section is provided.

16           (2) SCHEDULE FOR SERVICE.—

17           (A) IN GENERAL.—Except as provided in  
18 subparagraph (B), obligated service under para-  
19 graph (1) shall begin not later than 60 days  
20 after the individual obtains the educational de-  
21 gree for which the scholarship was provided.

22           (B) DEFERRAL.—The Secretary may defer  
23 the obligation of an individual to provide a pe-  
24 riod of service under paragraph (1) if the Sec-  
25 retary determines that such a deferral is appro-



1           priate. The Secretary shall prescribe the terms  
2           and conditions under which a service obligation  
3           may be deferred through regulation.

4           (g) PENALTIES FOR BREACH OF SCHOLARSHIP  
5 AGREEMENT.—

6           (1) FAILURE TO COMPLETE ACADEMIC TRAIN-  
7           ING.—Scholarship recipients who fail to maintain a  
8           high level of academic standing, as defined by the  
9           Secretary by regulation, who are dismissed from  
10          their educational institutions for disciplinary rea-  
11          sons, or who voluntarily terminate academic training  
12          before graduation from the educational program for  
13          which the scholarship was awarded, shall be in  
14          breach of their contractual agreement and, in lieu of  
15          any service obligation arising under such agreement,  
16          shall be liable to the United States for repayment  
17          not later than 1 year after the date of default of all  
18          scholarship funds paid to them and to the institution  
19          of higher education on their behalf under the agree-  
20          ment, except as provided in subsection (h)(2). The  
21          repayment period may be extended by the Secretary  
22          when determined to be necessary, as established by  
23          regulation.

24          (2) FAILURE TO BEGIN OR COMPLETE THE  
25          SERVICE OBLIGATION OR MEET THE TERMS AND



1 CONDITIONS OF DEFERMENT.—A scholarship recipi-  
2 ent who, for any reason, fails to begin or complete  
3 a service obligation under this section after comple-  
4 tion of academic training, or fails to comply with the  
5 terms and conditions of deferment established by the  
6 Secretary pursuant to subsection (f)(2)(B), shall be  
7 in breach of the contractual agreement. When a re-  
8 cipient breaches an agreement for the reasons stated  
9 in the preceding sentence, the recipient shall be lia-  
10 ble to the United States for an amount equal to—

11 (A) the total amount of scholarships re-  
12 ceived by such individual under this section;  
13 plus

14 (B) the interest on the amounts of such  
15 awards which would be payable if at the time  
16 the awards were received they were loans bear-  
17 ing interest at the maximum legal prevailing  
18 rate, as determined by the Treasurer of the  
19 United States,  
20 multiplied by 3.

21 (h) WAIVER OR SUSPENSION OF OBLIGATION.—

22 (1) DEATH OF INDIVIDUAL.—Any obligation of  
23 an individual incurred under the Program (or a con-  
24 tractual agreement thereunder) for service or pay-



1       ment shall be canceled upon the death of the indi-  
2       vidual.

3               (2) IMPOSSIBILITY OR EXTREME HARDSHIP.—

4       The Secretary shall by regulation provide for the  
5       partial or total waiver or suspension of any obliga-  
6       tion of service or payment incurred by an individual  
7       under the Program (or a contractual agreement  
8       thereunder) whenever compliance by the individual is  
9       impossible or would involve extreme hardship to the  
10      individual, or if enforcement of such obligation with  
11      respect to the individual would be contrary to the  
12      best interests of the Government.

13      (i) DEFINITIONS.—In this section the following defi-  
14      nitions apply:

15              (1) COST OF ATTENDANCE.—The term “cost of  
16      attendance” has the meaning given that term in sec-  
17      tion 472 of the Higher Education Act of 1965 (20  
18      U.S.C. 1087*ll*).

19              (2) PROGRAM.—The term “Program” means  
20      the Science and Technology Scholarship Program es-  
21      tablished under this section.

22      **SEC. 108. OFFICE OF SCIENTIFIC AND TECHNICAL INFOR-**  
23                              **MATION.**

24      The Secretary shall maintain within the Department  
25      the Office of Scientific and Technical Information.



1 **SEC. 109. AUTHORIZATION OF APPROPRIATIONS.**

2 (a) IN GENERAL.—In addition to amounts authorized  
3 to be appropriated under the 21st Century  
4 Nanotechnology Research and Development Act (15  
5 U.S.C. 7501 et seq.) and the Department of Energy High-  
6 End Computing Revitalization Act of 2004 (15 U.S.C.  
7 5541 et seq.), the following sums are authorized to be ap-  
8 propriated to the Secretary for the purposes of carrying  
9 out this title:

10 (1) For fiscal year 2006, \$3,785,000,000.

11 (2) For fiscal year 2007, \$4,153,000,000.

12 (3) For fiscal year 2008, \$4,628,000,000.

13 (4) For fiscal year 2009, \$5,300,000,000.

14 (5) For fiscal year 2010, \$5,800,000,000.

15 (b) 2006 ALLOCATIONS.—From amounts authorized  
16 under subsection (a)(1), the following sums are authorized  
17 for fiscal year 2006:

18 (1) SYSTEMS BIOLOGY.—For activities under  
19 section 102, \$100,000,000.

20 (2) SCIENTIFIC COMPUTING.—For activities  
21 under section 105, \$252,000,000.

22 (3) FUSION ENERGY SCIENCES.—For activities  
23 under section 106, excluding activities under sub-  
24 section (c) of that section, \$335,000,000.

25 (4) SCHOLARSHIP.—For the scholarship pro-  
26 gram described in section 107, \$800,000.



1           (5) OFFICE OF SCIENTIFIC AND TECHNICAL IN-  
2           FORMATION.—For activities under section 108,  
3           \$7,000,000.

4           (c) 2007 ALLOCATIONS.—From amounts authorized  
5           under subsection (a)(2), the following sums are authorized  
6           for fiscal year 2007:

7           (1) SYSTEMS BIOLOGY.—For activities under  
8           section 102, such sums as may be necessary.

9           (2) SCIENTIFIC COMPUTING.—For activities  
10          under section 105, \$270,000,000.

11          (3) FUSION ENERGY SCIENCES.—For activities  
12          under section 106, excluding activities under sub-  
13          section (c) of that section, \$349,000,000.

14          (4) SCHOLARSHIP.—For the scholarship pro-  
15          gram described in section 107, \$1,600,000.

16          (5) OFFICE OF SCIENTIFIC AND TECHNICAL IN-  
17          FORMATION.—For activities under section 108,  
18          \$7,500,000.

19          (d) 2008 ALLOCATIONS.—From amounts authorized  
20          under subsection (a)(3), the following sums are authorized  
21          for fiscal year 2008:

22          (1) SYSTEMS BIOLOGY.—For activities under  
23          section 102, such sums as may be necessary.

24          (2) SCIENTIFIC COMPUTING.—For activities  
25          under section 105, \$350,000,000.



1           (3) FUSION ENERGY SCIENCES.—For activities  
2           under section 106, excluding activities under sub-  
3           section (c) of that section, \$362,000,000.

4           (4) SCHOLARSHIP.—For the scholarship pro-  
5           gram described in section 107, \$2,000,000.

6           (5) OFFICE OF SCIENTIFIC AND TECHNICAL IN-  
7           FORMATION.—For activities under section 108,  
8           \$8,000,000.

9           (e) 2009 ALLOCATIONS.—From amounts authorized  
10          under subsection (a)(4), the following sums are authorized  
11          for fiscal year 2009:

12           (1) SYSTEMS BIOLOGY.—For activities under  
13           section 102, such sums as may be necessary.

14           (2) SCIENTIFIC COMPUTING.—For activities  
15           under section 105, \$375,000,000.

16           (3) FUSION ENERGY SCIENCES.—For activities  
17           under section 106, excluding activities under sub-  
18           section (c) of that section, \$377,000,000.

19           (4) SCHOLARSHIP.—For the scholarship pro-  
20           gram described in section 107, \$2,000,000.

21           (5) OFFICE OF SCIENTIFIC AND TECHNICAL IN-  
22           FORMATION.—For activities under section 108,  
23           \$8,000,000.



1 (f) 2010 ALLOCATIONS.—From amounts authorized  
2 under subsection (a)(5), the following sums are authorized  
3 for fiscal year 2010:

4 (1) SYSTEMS BIOLOGY.—For activities under  
5 section 102, such sums as may be necessary.

6 (2) SCIENTIFIC COMPUTING.—For activities  
7 under section 105, \$400,000,000.

8 (3) FUSION ENERGY SCIENCES.—For activities  
9 under section 106, excluding activities under sub-  
10 section (c) of that section, \$393,000,000.

11 (4) SCHOLARSHIP.—For the scholarship pro-  
12 gram described in section 107, \$2,000,000.

13 (5) OFFICE OF SCIENTIFIC AND TECHNICAL IN-  
14 FORMATION.—For activities under section 108,  
15 \$8,500,000.

16 (g) ITER CONSTRUCTION.—From amounts author-  
17 ized under subsection (a) and in addition to amounts au-  
18 thorized under subsections (b)(3), (c)(3), (d)(3), (e)(3),  
19 and (f)(3), there are authorized to be appropriated to the  
20 Secretary such sums as may be necessary for ITER con-  
21 struction, consistent with the limitations of section 106(e).



1 **TITLE II—RESEARCH ADMINIS-**  
2 **TRATION AND OPERATIONS**

3 **SEC. 201. COST SHARING.**

4 (a) RESEARCH AND DEVELOPMENT.—Except as oth-  
5 erwise provided in this Act, for research and development  
6 programs carried out under this Act, the Secretary shall  
7 require a commitment from non-Federal sources of at  
8 least 20 percent of the cost of the project. The Secretary  
9 may reduce or eliminate the non-Federal requirement  
10 under this subsection if the Secretary determines that the  
11 research and development is of a basic or fundamental na-  
12 ture.

13 (b) DEMONSTRATION AND COMMERCIAL APPLICA-  
14 TION.—Except as otherwise provided in this Act, the Sec-  
15 retary shall require at least 50 percent of the costs related  
16 to any demonstration or commercial application activities  
17 under this Act to be provided from non-Federal sources.  
18 The Secretary may reduce the non-Federal requirement  
19 under this subsection if the Secretary determines that the  
20 reduction is necessary and appropriate considering the  
21 technological risks involved in the project and is necessary  
22 to meet the objectives of this Act.

23 (c) CALCULATION OF AMOUNT.—In calculating the  
24 amount of the non-Federal commitment under subsection



1 (a) or (b), the Secretary may include personnel, services,  
2 equipment, and other resources.

3 (d) SIZE OF NON-FEDERAL SHARE.—The Secretary  
4 may consider the amount of the non-Federal share in se-  
5 lecting projects under this Act.

6 **SEC. 202. REPROGRAMMING.**

7 (a) DISTRIBUTION REPORT.—Not later than 60 days  
8 after the date of enactment of an Act appropriating  
9 amounts authorized under this Act, the Secretary shall  
10 transmit to Congress a report explaining how such  
11 amounts will be distributed among the activities author-  
12 ized by this Act.

13 (b) REPROGRAMMING LETTER.—No amount author-  
14 ized by this Act shall be obligated or expended for a pur-  
15 pose inconsistent with the appropriations Act appro-  
16 priating such amount, the report accompanying such ap-  
17 propriations Act, or a distribution report transmitted  
18 under subsection (a) if such obligation or expenditure  
19 would change an individual amount, as represented in  
20 such an Act, report, or distribution report, by more than  
21 2 percent or \$2,000,000, whichever is smaller, unless the  
22 Secretary has transmitted to Congress a letter of expla-  
23 nation and a period of 30 days has elapsed after Congress  
24 receives the letter.



1 (c) COMPUTATION.—The computation of the 30-day  
2 period described in subsection (b) shall exclude any day  
3 on which either House of Congress is not in session be-  
4 cause of an adjournment of more than 3 days to a day  
5 certain.

6 **SEC. 203. MERIT-BASED COMPETITION.**

7 (a) COMPETITIVE MERIT REVIEW.—Awardees of  
8 funds authorized under this Act shall be selected through  
9 open competitions. Funds shall be competitively awarded  
10 only after an impartial review of the scientific and tech-  
11 nical merit of the proposals for such awards has been car-  
12 ried out by or for the Department on the basis of criteria  
13 outlined by the Secretary in the solicitation of proposals.

14 (b) COMPETITION.—Competitive awards under this  
15 Act shall involve competitions open to all qualified entities  
16 within one or more of the following categories:

- 17 (1) Institutions of higher education.  
18 (2) National Laboratories.  
19 (3) Nonprofit and for-profit private entities.  
20 (4) State and local governments.  
21 (5) Consortia of entities described in para-  
22 graphs (1) through (4).

23 (c) CONGRESSIONAL NOTIFICATION.—The Secretary  
24 shall notify Congress within 30 days after awarding more  
25 than \$500,000 through a competition described in sub-



1 section (b) that is limited to 1 of the categories described  
2 in paragraphs (1) through (4) of subsection (b).

3 (d) WAIVERS.—The Secretary may waive the require-  
4 ment under subsection (a) requiring competition if the  
5 Secretary considers it necessary to more quickly advance  
6 research, development, demonstration, or commercial ap-  
7 plication activities. The Secretary shall notify Congress  
8 within 30 days when a waiver is granted under this sub-  
9 section. The Secretary may not delegate the waiver au-  
10 thority under this subsection for awards over \$500,000.

11 **SEC. 204. EXTERNAL TECHNICAL REVIEW OF DEPART-**  
12 **MENTAL PROGRAMS.**

13 (a) NATIONAL APPLIED ENERGY RESEARCH AND  
14 DEVELOPMENT ADVISORY COMMITTEES.—

15 (1) IN GENERAL.—The Secretary shall establish  
16 one or more advisory committees to review and ad-  
17 vise the Department's applied programs in the fol-  
18 lowing areas:

19 (A) Energy efficiency.

20 (B) Renewable energy.

21 (C) Nuclear energy.

22 (D) Fossil energy.

23 (2) EXISTING ADVISORY COMMITTEES.—The  
24 Secretary may designate an existing advisory com-  
25 mittee within the Department to fulfill the respon-



1       sibilities of an advisory committee under this sub-  
2       section.

3       (b) OFFICE OF SCIENCE ADVISORY COMMITTEES.—

4           (1) USE OF EXISTING COMMITTEES.—Except as  
5       otherwise provided under the Federal Advisory Com-  
6       mittee Act, the Secretary shall continue to use the  
7       scientific program advisory committees chartered  
8       under the Federal Advisory Committee Act (5  
9       U.S.C. App.) by the Office of Science to oversee re-  
10      search and development programs under that Office.

11          (2) REPORT.—Before the Department issues  
12      any new guidance regarding the membership for Of-  
13      fice of Science scientific program advisory commit-  
14      tees, the Secretary shall transmit a report to the  
15      Congress outlining the reasons for the proposed  
16      changes, and 60 days must have elapsed after trans-  
17      mittal of the report before the Department may im-  
18      plement those changes.

19          (3) SCIENCE ADVISORY COMMITTEE.—

20           (A) ESTABLISHMENT.—There shall be a  
21      Science Advisory Committee for the Office of  
22      Science that includes the chairs of each of the  
23      advisory committees described in paragraph (1).

24           (B) RESPONSIBILITIES.—The Science Ad-  
25      visory Committee shall—



1 (i) advise the Secretary on science  
2 issues;

3 (ii) advise the Secretary with respect  
4 to the well-being and management of the  
5 National Laboratories and Department re-  
6 search facilities;

7 (iii) advise the Secretary with respect  
8 to education and workforce training activi-  
9 ties required for effective short-term and  
10 long-term basic and applied research ac-  
11 tivities of the Office of Science; and

12 (iv) advise the Secretary with respect  
13 to the well-being of the university research  
14 programs supported by the Office of  
15 Science.

16 (c) MEMBERSHIP.—Each member of an advisory  
17 committee appointed under this section shall have signifi-  
18 cant scientific, technical, or other appropriate expertise.  
19 The membership of each committee shall represent a wide  
20 range of expertise, including at least one third with exper-  
21 tise from outside the disciplines covered by the program,  
22 and a diverse set of interests.

23 (d) MEETINGS AND PURPOSES.—Each advisory com-  
24 mittee under this section shall meet at least semiannually  
25 to review and advise on the progress made by the respec-



1 tive research, development, demonstration, and commer-  
2 cial application program or programs. The advisory com-  
3 mittee shall also review the measurable cost and perform-  
4 ance-based goals for the applied programs, and the  
5 progress on meeting such goals.

6 (e) REVIEW AND ASSESSMENT.—Not later than 6  
7 months after the date of enactment of this Act, the Sec-  
8 retary shall enter into arrangements with the National  
9 Academy of Sciences to conduct reviews and assessments  
10 of the programs authorized by this Act, the measurable  
11 cost and performance-based goals for the applied pro-  
12 grams, and the progress in meeting such goals. Such re-  
13 views and assessments shall be completed and reports con-  
14 taining the results of all such reviews and assessments  
15 transmitted to the Congress not later than 2 years after  
16 the date of enactment of this Act.

17 **SEC. 205. COMPETITIVE AWARD OF MANAGEMENT CON-**  
18 **TRACTS.**

19 None of the funds authorized to be appropriated to  
20 the Secretary by this Act may be used to award a manage-  
21 ment and operating contract for a National Laboratory  
22 (excluding those named in subparagraphs (G), (H), (N),  
23 (O) of section 2(6)), unless such contract is competitively  
24 awarded, or the Secretary grants, on a case-by-case basis,  
25 a waiver. The Secretary may not delegate the authority



1 to grant such a waiver and shall submit to the Congress  
2 a report notifying it of the waiver, and setting forth the  
3 reasons for the waiver, at least 60 days prior to the date  
4 of the award of such contract.

5 **SEC. 206. NATIONAL LABORATORY DESIGNATION.**

6 After the date of enactment of this Act the Secretary  
7 shall not designate a facility that is not referred to in sec-  
8 tion 2(6) as a National Laboratory.

9 **SEC. 207. REPORT ON EQUAL EMPLOYMENT OPPORTUNITY**  
10 **PRACTICES.**

11 Not later than 12 months after the date of enactment  
12 of this Act, and biennially thereafter, the Secretary shall  
13 transmit to Congress a report on the equal employment  
14 opportunity practices at National Laboratories. Such re-  
15 port shall include—

16 (1) a thorough review of each laboratory con-  
17 tractor's equal employment opportunity policies, in-  
18 cluding promotion to management and professional  
19 positions and pay raises;

20 (2) a statistical report on complaints and their  
21 disposition in the laboratories;

22 (3) a description of how equal employment op-  
23 portunity practices at the laboratories are treated in  
24 the contract and in calculating award fees for each  
25 contractor;



1 (4) a summary of disciplinary actions and their  
2 disposition by either the Department or the relevant  
3 contractors for each laboratory;

4 (5) a summary of outreach efforts to attract  
5 women and minorities to the laboratories;

6 (6) a summary of efforts to retain women and  
7 minorities in the laboratories; and

8 (7) a summary of collaboration efforts with the  
9 Office of Federal Contract Compliance Programs to  
10 improve equal employment opportunity practices at  
11 the laboratories.

12 **SEC. 208. USER FACILITY BEST PRACTICES PLAN.**

13 The Secretary shall not designate any new or existing  
14 facility as a user facility until the Secretary, for that  
15 facility—

16 (1) develops a plan to ensure that the facility  
17 will—

18 (A) have a skilled staff to support a wide  
19 range of users;

20 (B) have a fair method for allocating time  
21 to users that provides for input from facility  
22 management, user representatives, and outside  
23 experts; and

24 (C) be operated in a safe and fiscally pru-  
25 dent manner; and



1           (2) transmits such plan to Congress and 60  
2           days have elapsed.

3 **SEC. 209. SUPPORT FOR SCIENCE AND ENERGY INFRA-**  
4 **STRUCTURE AND FACILITIES.**

5           (a) STRATEGY.—The Secretary shall develop and im-  
6 plement a strategy for infrastructure and facilities sup-  
7 ported primarily from the Office of Science and the ap-  
8 plied programs at each National Laboratory and Depart-  
9 ment research facility. Such strategy shall provide cost-  
10 effective means for—

11           (1) maintaining existing facilities and infra-  
12 structure, as needed;

13           (2) closing unneeded facilities;

14           (3) making facility modifications; and

15           (4) building new facilities.

16           (b) REPORT.—

17           (1) REQUIREMENT.—The Secretary shall pre-  
18 pare and transmit to the Congress not later than  
19 June 1, 2007, a report summarizing the strategies  
20 developed under subsection (a).

21           (2) CONTENTS.—For each National Laboratory  
22 and Department research facility, for the facilities  
23 primarily used for science and energy research, such  
24 report shall contain—



1 (A) the current priority list of proposed fa-  
2 cilities and infrastructure projects, including  
3 cost and schedule requirements;

4 (B) a current 10-year plan that dem-  
5 onstrates the reconfiguration of its facilities and  
6 infrastructure to meet its missions and to ad-  
7 dress its long-term operational costs and return  
8 on investment;

9 (C) the total current budget for all facili-  
10 ties and infrastructure funding; and

11 (D) the current status of each facility and  
12 infrastructure project compared to the original  
13 baseline cost, schedule, and scope.

14 **SEC. 210. COORDINATION PLAN.**

15 (a) IN GENERAL.—The Secretary shall develop a co-  
16 ordination plan to improve coordination and collaboration  
17 in research, development, demonstration, and commercial  
18 application activities across Department organizational  
19 boundaries.

20 (b) PLAN CONTENTS.—The plan shall describe—

21 (1) how the Secretary will ensure that the ap-  
22 plied programs are coordinating their activities, in-  
23 cluding a description of specific research questions  
24 that cross organizational boundaries and of how the  
25 relevant applied programs are coordinating their ef-



1       forts to answer those questions, and how such cross-  
2       cutting research questions will be identified in the  
3       future;

4               (2) how the Secretary will ensure that research  
5       that has been supported by the Office of Science is  
6       being or will be used by the applied programs, in-  
7       cluding a description of specific Office of Science-  
8       supported research that is relevant to the applied  
9       programs and of how the applied programs have  
10      used or will use that research; and

11              (3) a description of how the Secretary will en-  
12      sure that the research agenda of the Office of  
13      Science includes research questions of concern to the  
14      applied programs, including a description of specific  
15      research questions that the Office of Science will ad-  
16      dress to assist the applied programs.

17              (c) PLAN TRANSMITTAL.—The Secretary shall trans-  
18      mit the coordination plan to Congress not later than 9  
19      months after the date of enactment of this Act, and every  
20      2 years thereafter shall transmit a revised coordination  
21      plan.

22              (d) CONFERENCE.—Not less than 6 months after the  
23      date of enactment of this Act, the Secretary shall convene  
24      a conference of program managers from the Office of  
25      Science and the applied programs to review ideas and ex-



1 plore possibilities for effective cross-program collaboration.  
2 The Secretary also shall invite participation relevant Fed-  
3 eral agencies and other programs in the Federal Govern-  
4 ment conducting relevant research, and other stakeholders  
5 as appropriate.

6 **SEC. 211. AVAILABILITY OF FUNDS.**

7 Funds appropriated to the Secretary for activities au-  
8 thorized under this Act shall remain available for three  
9 years. Funds that are not obligated at the end of three  
10 years shall be returned to the Treasury.

11 **TITLE III—ENERGY EFFICIENCY**  
12 **Subtitle A—Vehicles, Buildings,**  
13 **and Industries**

14 **SEC. 301. PROGRAMS.**

15 (a) IN GENERAL.—The Secretary shall conduct pro-  
16 grams of energy efficiency research, development, dem-  
17 onstration, and commercial application, including activi-  
18 ties described in this subtitle. Such programs shall be fo-  
19 cused on the following objectives:

20 (1) Increasing the energy efficiency of vehicles,  
21 buildings, and industrial processes.

22 (2) Reducing the Nation's demand for energy,  
23 especially energy from foreign sources.

24 (3) Reducing the cost of energy and making the  
25 economy more efficient and competitive.



1 (4) Improving the Nation's energy security.

2 (5) Reducing the environmental impact of en-  
3 ergy-related activities.

4 (b) GOALS.—

5 (1) INITIAL GOALS.—In accordance with the  
6 performance plan and report requirements in section  
7 4 of the Government Performance Results Act of  
8 1993, the Secretary shall transmit to the Congress,  
9 along with the President's annual budget request for  
10 fiscal year 2007, a report containing outcome meas-  
11 ures with explicitly stated cost and performance  
12 baselines. The measures shall specify energy effi-  
13 ciency performance goals, with quantifiable 5-year  
14 cost and energy savings target levels, for vehicles,  
15 buildings, and industries, and any other such goals  
16 the Secretary considers appropriate.

17 (2) SUBSEQUENT TRANSMITTALS.—The Sec-  
18 retary shall transmit to the Congress, along with the  
19 President's annual budget request for each fiscal  
20 year after 2007, a report containing—

21 (A) a description, including quantitative  
22 analysis, of progress in achieving performance  
23 goals transmitted under paragraph (1), as com-  
24 pared to the baselines transmitted under para-  
25 graph (1); and



1 (B) any amendments to such goals.

2 (c) PUBLIC INPUT.—The Secretary shall consider ad-  
3 vice from industry, universities, and other interested par-  
4 ties through seeking comments in the Federal Register  
5 and other means before transmitting each report under  
6 subsection (b).

7 **SEC. 302. VEHICLES.**

8 The Secretary shall conduct a program of research,  
9 development, demonstration, and commercial application  
10 of advanced, cost-effective technologies to improve the en-  
11 ergy efficiency and environmental performance of light-  
12 duty and heavy-duty vehicles, including—

13 (1) hybrid and electric propulsion systems, in-  
14 cluding plug-in hybrid systems;

15 (2) advanced engines, including combustion en-  
16 gines;

17 (3) advanced materials, including high strength,  
18 lightweight materials, such as nanostructured mate-  
19 rials, composites, multimaterial parts, carbon fibers,  
20 and materials with high thermal conductivity;

21 (4) technologies for reduced drag and rolling re-  
22 sistance;

23 (5) whole-vehicle design optimization to reduce  
24 the weight of component parts and thus increase the



1 fuel economy of the vehicle, including fiber optics to  
2 replace traditional wiring;

3 (6) thermoelectric devices that capture waste  
4 heat and convert thermal energy into electricity; and

5 (7) advanced drivetrains.

6 **SEC. 303. BUILDINGS.**

7 (a) PROGRAM.—The Secretary shall conduct a pro-  
8 gram of research, development, demonstration, and com-  
9 mercial application of cost-effective technologies, for new  
10 construction and retrofit, to improve the energy efficiency  
11 and environmental performance of commercial, industrial,  
12 institutional, and residential buildings. The program shall  
13 use a whole-buildings approach, integrating work on ele-  
14 ments including—

15 (1) advanced controls, including occupancy sen-  
16 sors, daylighting controls, wireless technologies,  
17 automated responses to changes in the internal and  
18 external environment, and real time delivery of infor-  
19 mation on building system and component perform-  
20 ance;

21 (2) building envelope, including windows, roof-  
22 ing systems and materials, and building-integrated  
23 photovoltaics;

24 (3) building systems components, including—



1 (A) lighting, including the Next Generation  
2 Lighting Initiative described in subsection (b);

3 (B) appliances, including advanced tech-  
4 nologies, such as stand-by load technologies, for  
5 office equipment, food service equipment, and  
6 laundry equipment; and

7 (C) heating, ventilation, and cooling sys-  
8 tems, including ground-source heat pumps and  
9 radiant heating; and

10 (4) onsite renewable energy generation.

11 (b) NEXT GENERATION LIGHTING INITIATIVE.—The  
12 program conducted under subsection (a)(3)(A) shall in-  
13 clude a Next Generation Lighting Initiative to support re-  
14 search, development, demonstration, and commercial ap-  
15 plication activities related to advanced lighting tech-  
16 nologies for both general white light illumination needs  
17 and specialized applications such as exit ramp and stair-  
18 way illumination. Such activities shall be focused on ad-  
19 vanced lighting technologies, including solid-state organic  
20 and inorganic technologies that, compared to current  
21 lighting technologies, deliver superior performance, are  
22 longer lasting, are more energy-efficient, are better  
23 matched to customer needs, have less environmental im-  
24 pact, and are cost-competitive.



1 (c) ENERGY EFFICIENT BUILDING PILOT GRANT  
2 PROGRAM.—

3 (1) IN GENERAL.—Not later than 6 months  
4 after the date of enactment of this Act, the Sec-  
5 retary shall establish a pilot program to award  
6 grants to businesses and organizations for new con-  
7 struction of energy efficient buildings, or major ren-  
8 ovations of buildings that will result in energy effi-  
9 cient buildings, to demonstrate innovative energy ef-  
10 ficiency technologies, especially those sponsored by  
11 the Department.

12 (2) AWARDS.—The Secretary shall award  
13 grants under this subsection competitively to those  
14 applicants whose proposals—

15 (A) best demonstrate—

16 (i) likelihood to meet or exceed the de-  
17 sign standards referred to in paragraph  
18 (7);

19 (ii) likelihood to maximize cost-effec-  
20 tive energy efficiency opportunities; and

21 (iii) advanced energy efficiency tech-  
22 nologies; and

23 (B) are least likely to be realized without  
24 Federal assistance.



1           (3) AMOUNT OF GRANTS.—Grants under this  
2 subsection shall be for up to 50 percent of design  
3 and energy modeling costs, not to exceed \$50,000  
4 per building. No single grantee may be eligible for  
5 more than 3 grants per year under this program.

6           (4) GRANT PAYMENTS.—

7           (A) INITIAL PAYMENT.—The Secretary  
8 shall pay 50 percent of the total amount of the  
9 grant to grant recipients upon selection.

10           (B) REMAINDER OF PAYMENT.—The Sec-  
11 retary shall pay the remaining 50 percent of the  
12 grant only after independent certification of  
13 operational buildings for compliance with the  
14 standards for energy efficient buildings de-  
15 scribed in paragraph (7).

16           (C) FAILURE TO COMPLY.—The Secretary  
17 shall not provide the remainder of the payment  
18 unless the building is certified within 6 months  
19 after operation of the completed building to  
20 meet the requirements described in subpara-  
21 graph (B), or in the case of major renovations  
22 the building is certified within 6 months of the  
23 completion of the renovations.

24           (5) REPORT TO CONGRESS.—Not later than 3  
25 years after awarding the first grant under this sub-



1 section, the Secretary shall transmit to Congress a  
2 report containing—

3 (A) the total number and dollar amount of  
4 grants awarded under this subsection; and

5 (B) an estimate of aggregate cost and en-  
6 ergy savings enabled by the pilot program  
7 under this subsection.

8 (6) ADMINISTRATIVE EXPENSES.—Administra-  
9 tive expenses for the program under this subsection  
10 shall not exceed 10 percent of appropriated funds.

11 (7) DEFINITION OF ENERGY EFFICIENT BUILD-  
12 ING.—For purposes of this subsection, the term “en-  
13 ergy efficient building” means a building that is  
14 independently certified—

15 (A) to meet or exceed the applicable  
16 United States Green Building Council’s Leader-  
17 ship in Energy and Environmental Design  
18 standards for a silver, gold, or platinum rating;  
19 and

20 (B) to achieve a reduction in energy con-  
21 sumption of—

22 (i) at least 25 percent for new con-  
23 struction, compared to the energy stand-  
24 ards set by the Federal Building Code (10  
25 CFR part 434); and



1 (ii) at least 20 percent for major ren-  
2 ovations, compared to energy consumption  
3 before renovations are begun.

4 **SEC. 304. INDUSTRIES.**

5 (a) PROGRAM.—The Secretary shall conduct a pro-  
6 gram of research, development, demonstration, and com-  
7 mercial application of advanced technologies to improve  
8 the energy efficiency, environmental performance, and  
9 process efficiency of energy-intensive and waste-intensive  
10 industries. Such program shall be focused on industries  
11 whose total annual energy consumption amounts to more  
12 than 1.0 percent of the total nationwide annual energy  
13 consumption, according to the most recent data available  
14 to the Department. Research and development efforts  
15 under this section shall give a higher priority to broad-  
16 benefit efficiency technologies that have practical applica-  
17 tion across industry sectors.

18 (b) ELECTRIC MOTOR CONTROL TECHNOLOGY.—  
19 The program conducted under subsection (a) shall include  
20 research on, and development, demonstration, and com-  
21 mercial application of, advanced control devices to improve  
22 the energy efficiency of electric motors, including those  
23 used in industrial processes, heating, ventilation, and cool-  
24 ing.



1 (c) REAUTHORIZATION OF STEEL AND ALUMINUM  
2 ENERGY CONSERVATION AND TECHNOLOGY COMPETI-  
3 TIVENESS ACT OF 1988.—

4 (1) AUTHORIZATION OF APPROPRIATIONS.—

5 Section 9 of the Steel and Aluminum Energy Con-  
6 servation and Technology Competitiveness Act of  
7 1988 (15. U.S.C. 5108) is amended to read as fol-  
8 lows:

9 **“SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

10 “There are authorized to be appropriated to the Sec-  
11 retary to carry out this Act \$20,000,000 for each of fiscal  
12 years 2006 through 2010.”.

13 (2) STEEL PROJECT PRIORITIES.—Section  
14 4(c)(1) of the Steel and Aluminum Energy Con-  
15 servation and Technology Competitiveness Act of  
16 1988 (15 U.S.C. 5103(c)(1)) is amended—

17 (A) in subparagraph (H), by striking  
18 “coatings for sheet steels” and inserting “sheet  
19 and bar steels”; and

20 (B) by adding at the end the following new  
21 subparagraph:

22 “(K) The development of technologies  
23 which reduce greenhouse gas emissions.”.



1           (3) CONFORMING AMENDMENTS.—The Steel  
2           and Aluminum Energy Conservation and Technology  
3           Competitiveness Act of 1988 is further amended—

4                   (A) by striking section 7 (15 U.S.C. 5106);

5                   and

6                   (B) in section 4(b)—

7                           (i) in the subsection heading, by in-  
8                           serting “AND REPORT” after “MANAGE-  
9                           MENT PLAN”;

10                           (ii) by striking “Within 6 months  
11                           after the date of enactment of this Act”  
12                           and inserting “Not later than 6 months  
13                           after the date of enactment of the Act en-  
14                           acting this sentence”;

15                           (iii) by striking “to expand the steel  
16                           research and development initiative to in-  
17                           clude aluminum and”; and

18                           (iv) by inserting “, and shall transmit  
19                           such plan to Congress” after “carry out  
20                           the purposes of this Act”.

21 **SEC. 305. DEMONSTRATION AND COMMERCIAL APPLICA-**  
22 **TION.**

23           (a) APPLIANCES AND TESTING.—The Secretary shall  
24           conduct research and analysis to determine whether, given  
25           Department-sponsored and other advances in energy effi-



1 ciency technologies, demonstration and commercial appli-  
2 cation of innovative, cost-effective energy savings and pol-  
3 lution reducing technologies could be used to improve ap-  
4 pliances and test procedures used to measure appliance  
5 efficiency.

6 (b) BUILDING ENERGY CODES.—The Secretary shall,  
7 in coordination with government, nongovernment, and  
8 commercial partners, conduct research and analyses of the  
9 best cost-effective practices in the development and updat-  
10 ing of building energy codes, including for manufactured  
11 housing. Analyses shall focus on how to encourage energy  
12 efficiency and adoption of newly developed energy produc-  
13 tion and use equipment.

14 (c) ADVANCED ENERGY TECHNOLOGY TRANSFER  
15 CENTERS.—

16 (1) GRANTS.—Not later than 18 months after  
17 the date of enactment of this Act, the Secretary  
18 shall make grants to nonprofit institutions, State  
19 and local governments, or universities (or consortia  
20 thereof), to establish a geographically dispersed net-  
21 work of Advanced Energy Technology Transfer Cen-  
22 ters, to be located in areas the Secretary determines  
23 have the greatest need of the services of such Cen-  
24 ters.

25 (2) ACTIVITIES.—



1 (A) IN GENERAL.—Each Center shall oper-  
2 ate a program to encourage demonstration and  
3 commercial application of advanced energy  
4 methods and technologies through education  
5 and outreach to building and industrial profes-  
6 sionals, and to other individuals and organiza-  
7 tions with an interest in efficient energy use.

8 (B) ADVISORY PANEL.—Each Center shall  
9 establish an advisory panel to advise the Center  
10 on how best to accomplish the activities under  
11 subparagraph (A).

12 (3) APPLICATION.—A person seeking a grant  
13 under this subsection shall submit to the Secretary  
14 an application in such form and containing such in-  
15 formation as the Secretary may require. The Sec-  
16 retary may award a grant under this subsection to  
17 an entity already in existence if the entity is other-  
18 wise eligible under this subsection.

19 (4) SELECTION CRITERIA.—The Secretary shall  
20 award grants under this subsection on the basis of  
21 the following criteria, at a minimum:

22 (A) The ability of the applicant to carry  
23 out the activities in paragraph (2).

24 (B) The extent to which the applicant will  
25 coordinate the activities of the Center with



1 other entities, such as State and local govern-  
2 ments, utilities, and educational and research  
3 institutions.

4 (5) MATCHING FUNDS.—The Secretary shall re-  
5 quire a non-Federal matching requirement of at  
6 least 50 percent of the costs of establishing and op-  
7 erating each Center.

8 (6) ADVISORY COMMITTEE.—The Secretary  
9 shall establish an advisory committee to advise the  
10 Secretary on the establishment of Centers under this  
11 subsection. The advisory committee shall be com-  
12 posed of individuals with expertise in the area of ad-  
13 vanced energy methods and technologies, including  
14 at least 1 representative from—

15 (A) State or local energy offices;

16 (B) energy professionals;

17 (C) trade or professional associations;

18 (D) architects, engineers, or construction  
19 professionals;

20 (E) manufacturers;

21 (F) the research community; and

22 (G) nonprofit energy or environmental or-  
23 ganizations.

24 (7) DEFINITIONS.—For purposes of this sub-  
25 section:



1 (A) ADVANCED ENERGY METHODS AND  
2 TECHNOLOGIES.—The term “advanced energy  
3 methods and technologies” means all methods  
4 and technologies that promote energy efficiency  
5 and conservation, including distributed genera-  
6 tion technologies, and life-cycle analysis of en-  
7 ergy use.

8 (B) CENTER.—The term “Center” means  
9 an Advanced Energy Technology Transfer Cen-  
10 ter established pursuant to this subsection.

11 (C) DISTRIBUTED GENERATION.—The  
12 term “distributed generation” means an electric  
13 power generation facility that is designed to  
14 serve retail electric consumers at or near the fa-  
15 cility site.

16 (d) REPORT.—Not later than 2 years after the date  
17 of enactment of this Act, and once every 3 years there-  
18 after, the Secretary shall transmit to Congress a report  
19 on the results of research and analysis under this section.  
20 In calculating cost-effectiveness for purposes of such re-  
21 ports, the Secretary shall include, at a minimum, the  
22 avoided cost of additional energy production, savings to  
23 the economy from lower peak energy prices and reduced  
24 price volatility, and the public and private benefits of re-  
25 duced pollution.



1 **SEC. 306. SECONDARY ELECTRIC VEHICLE BATTERY USE**  
2 **PROGRAM.**

3 (a) DEFINITIONS.—For purposes of this section:

4 (1) ASSOCIATED EQUIPMENT.—The term “asso-  
5 ciated equipment” means equipment located where  
6 the batteries will be used that is necessary to enable  
7 the use of the energy stored in the batteries.

8 (2) BATTERY.—The term “battery” means an  
9 energy storage device that previously has been used  
10 to provide motive power in a vehicle powered in  
11 whole or in part by electricity.

12 (b) PROGRAM.—The Secretary shall establish and  
13 conduct a research, development, demonstration, and com-  
14 mercial application program for the secondary use of bat-  
15 teries if the Secretary finds that there are sufficient num-  
16 bers of such batteries to support the program. The pro-  
17 gram shall be—

18 (1) designed to demonstrate the use of batteries  
19 in secondary applications, including utility and com-  
20 mercial power storage and power quality;

21 (2) structured to evaluate the performance, in-  
22 cluding useful service life and costs, of such bat-  
23 teries in field operations, and the necessary sup-  
24 porting infrastructure, including reuse and disposal  
25 of batteries; and



1           (3) coordinated with ongoing secondary battery  
2           use programs at the National Laboratories and in  
3           industry.

4           (c) SOLICITATION.—Not later than 180 days after  
5           the date of enactment of this Act, if the Secretary finds  
6           under subsection (b) that there are sufficient numbers of  
7           batteries to support the program, the Secretary shall so-  
8           licit proposals to demonstrate the secondary use of bat-  
9           teries and associated equipment and supporting infra-  
10          structure in geographic locations throughout the United  
11          States. The Secretary may make additional solicitations  
12          for proposals if the Secretary determines that such solici-  
13          tations are necessary to carry out this section.

14          (d) SELECTION OF PROPOSALS.—

15           (1) IN GENERAL.—The Secretary shall, not  
16           later than 90 days after the closing date established  
17           by the Secretary for receipt of proposals under sub-  
18           section (c), select up to 5 proposals which may re-  
19           ceive financial assistance under this section, subject  
20           to the availability of appropriations.

21           (2) DIVERSITY; ENVIRONMENTAL EFFECT.—In  
22           selecting proposals, the Secretary shall consider di-  
23           versity of battery type, geographic and climatic di-  
24           versity, and life-cycle environmental effects of the  
25           approaches.



1           (3) LIMITATION.—No 1 project selected under  
2 this section shall receive more than 25 percent of the  
3 funds authorized for the program under this section.

4           (4) OPTIMIZATION OF FEDERAL RESOURCES.—  
5 The Secretary shall consider the extent of involve-  
6 ment of State or local government and other persons  
7 in each demonstration project to optimize use of  
8 Federal resources.

9           (5) OTHER CRITERIA.—The Secretary may con-  
10 sider such other criteria as the Secretary considers  
11 appropriate.

12          (e) CONDITIONS.—The Secretary shall require that—

13           (1) relevant information be provided to the De-  
14 partment, the users of the batteries, the proposers,  
15 and the battery manufacturers;

16           (2) the proposer provide at least 50 percent of  
17 the costs associated with the proposal; and

18           (3) the proposer provide to the Secretary such  
19 information regarding the disposal of the batteries  
20 as the Secretary may require to ensure that the pro-  
21 poser disposes of the batteries in accordance with  
22 applicable law.



1 **SEC. 307. DEFINITION OF COST-EFFECTIVE.**

2 For purposes of this subtitle, the term “cost-effec-  
3 tive” means resulting in a simple payback of costs in 10  
4 years or less.

5 **SEC. 308. AUTHORIZATION OF APPROPRIATIONS.**

6 In addition to the sums authorized in the Steel and  
7 Aluminum Energy Conservation and Technology Competi-  
8 tiveness Act of 1988, as amended in section 304 of this  
9 Act, the following sums are authorized to be appropriated  
10 to the Secretary for the purposes of carrying out this sub-  
11 title:

12 (1) For fiscal year 2006, \$620,000,000,  
13 including—

14 (A) \$200,000,000 for carrying out the ve-  
15 hicles program under section 302;

16 (B) \$100,000,000 for carrying out the  
17 buildings program under section 303, of which  
18 \$10,000,000 shall be for the grant program  
19 under section 303(c);

20 (C) \$100,000,000 for carrying out the in-  
21 dustries program under section 304(a);

22 (D) \$2,000,000 for carrying out the elec-  
23 tric motor control technology program under  
24 section 304(b);



1 (E) \$10,000,000 for carrying out dem-  
2 onstration and commercial applications activi-  
3 ties under section 305; and

4 (F) \$4,000,000 for carrying out the sec-  
5 ondary electric vehicle battery use program  
6 under section 306.

7 (2) For fiscal year 2007, \$700,000,000,  
8 including—

9 (A) \$240,000,000 for carrying out the ve-  
10 hicles program under section 302;

11 (B) \$130,000,000 for carrying out the  
12 buildings program under section 303, of which  
13 \$10,000,000 shall be for the grant program  
14 under section 303(c);

15 (C) \$115,000,000 for carrying out the in-  
16 dustries program under section 304(a);

17 (D) \$2,000,000 for carrying out the elec-  
18 tric motor control technology program under  
19 section 304(b);

20 (E) \$10,000,000 for carrying out dem-  
21 onstration and commercial applications activi-  
22 ties under section 305; and

23 (F) \$7,000,000 for carrying out the sec-  
24 ondary electric vehicle battery use program  
25 under section 306.



1           (3) For fiscal year 2008, \$800,000,000,  
2 including—

3           (A) \$270,000,000 for carrying out the ve-  
4 hicles program under section 302;

5           (B) \$160,000,000 for carrying out the  
6 buildings program under section 303, of which  
7 \$10,000,000 shall be for the grant program  
8 under section 303(c);

9           (C) \$140,000,000 for carrying out the in-  
10 dustries program under section 304(a);

11           (D) \$2,000,000 for carrying out the elec-  
12 tric motor control technology program under  
13 section 304(b);

14           (E) \$10,000,000 for carrying out dem-  
15 onstration and commercial applications activi-  
16 ties under section 305; and

17           (F) \$7,000,000 for carrying out the sec-  
18 ondary electric vehicle battery use program  
19 under section 306.

20           (4) For fiscal year 2009, \$925,000,000,  
21 including—

22           (A) \$310,000,000 for carrying out the ve-  
23 hicles program under section 302;

24           (B) \$200,000,000 for carrying out the  
25 buildings program under section 303, of which



1           \$10,000,000 shall be for the grant program  
2           under section 303(c);

3           (C) \$170,000,000 for carrying out the in-  
4           dustries program under section 304(a);

5           (D) \$10,000,000 for carrying out dem-  
6           onstration and commercial applications activi-  
7           ties under section 305; and

8           (E) \$7,000,000 for carrying out the sec-  
9           ondary electric vehicle battery use program  
10          under section 306.

11          (5) For fiscal year 2010, \$1,000,000,000,  
12          including—

13           (A) \$340,000,000 for carrying out the ve-  
14           hicles program under section 302;

15           (B) \$240,000,000 for carrying out the  
16           buildings program under section 303, of which  
17           \$10,000,000 shall be for the grant program  
18           under section 303(c);

19           (C) \$190,000,000 for carrying out the in-  
20           dustries program under section 304(a);

21           (D) \$10,000,000 for carrying out dem-  
22           onstration and commercial applications activi-  
23           ties under section 305; and



1 (E) \$7,000,000 for carrying out the sec-  
2 ondary electric vehicle battery use program  
3 under section 306.

4 **SEC. 309. LIMITATION ON USE OF FUNDS.**

5 None of the funds authorized to be appropriated  
6 under this subtitle may be used for—

7 (1) the issuance and implementation of energy  
8 efficiency regulations;

9 (2) the Weatherization Assistance Program  
10 under part A of title IV of the Energy Conservation  
11 and Production Act (42 U.S.C. 6861 et seq.);

12 (3) the State Energy Program under part D of  
13 title III of the Energy Policy and Conservation Act  
14 (42 U.S.C. 6321 et seq.); or

15 (4) the Federal Energy Management Program  
16 under part 3 of title V of the National Energy Con-  
17 servation Policy Act (42 U.S.C. 8251 et seq.).

18 **Subtitle B—Distributed Energy and**  
19 **Electric Energy Systems**

20 **SEC. 321. DISTRIBUTED ENERGY.**

21 (a) IN GENERAL.—The Secretary shall conduct pro-  
22 grams of distributed energy resources and systems reli-  
23 ability and efficiency research, development, demonstra-  
24 tion, and commercial application to improve the reliability  
25 and efficiency of distributed energy resources and systems,



1 including activities described in this subtitle. The pro-  
2 grams shall address advanced energy technologies and sys-  
3 tems and advanced grid reliability technologies. The pro-  
4 grams shall include the integration of—

5 (1) renewable energy resources;

6 (2) fuel cells;

7 (3) combined heat and power systems;

8 (4) microturbines;

9 (5) advanced natural gas turbines;

10 (6) advanced internal combustion engine gen-  
11 erators;

12 (7) energy storage devices;

13 (8) interconnection standards, protocols, and  
14 equipment;

15 (9) ancillary equipment for dispatch and con-  
16 trol; and

17 (10) any other energy technologies, as appro-  
18 priate.

19 (b) MICRO-COGENERATION ENERGY TECH-  
20 NOLOGY.—The Secretary shall make competitive, merit-  
21 based grants to consortia for the development of micro-  
22 cogeneration energy technology. The consortia shall  
23 explore—

24 (1) the use of small-scale combined heat and  
25 power in residential heating appliances; or



1           (2) the use of excess power to operate other ap-  
2           pliances within the residence and supply excess gen-  
3           erated power to the power grid.

4           (c) GOALS.—

5           (1) INITIAL GOALS.—In accordance with the  
6           performance plan and report requirements in section  
7           4 of the Government Performance Results Act of  
8           1993, the Secretary shall transmit to the Congress,  
9           along with the President's annual budget request for  
10          fiscal year 2007, a report containing outcome meas-  
11          ures with explicitly stated cost and performance  
12          baselines. The measures shall specify performance  
13          goals, with quantifiable 5-year cost and energy sav-  
14          ings target levels, for distributed energy resources  
15          and systems, and any other such goals the Secretary  
16          considers appropriate.

17          (2) SUBSEQUENT TRANSMITTALS.—The Sec-  
18          retary shall transmit to the Congress, along with the  
19          President's annual budget request for each fiscal  
20          year after 2007, a report containing—

21                (A) a description, including quantitative  
22                analysis, of progress in achieving performance  
23                goals transmitted under paragraph (1), as com-  
24                pared to the baselines transmitted under para-  
25                graph (1); and



1 (B) any amendments to such goals.

2 **SEC. 322. ELECTRICITY TRANSMISSION AND DISTRIBUTION**  
3 **AND ENERGY ASSURANCE.**

4 (a) PROGRAM.—The Secretary shall conduct a re-  
5 search, development, demonstration, and commercial ap-  
6 plication program on advanced control devices to improve  
7 the energy efficiency and reliability of the electric trans-  
8 mission and distribution systems and to protect the Na-  
9 tion against severe energy supply disruptions. This pro-  
10 gram shall address, at a minimum—

11 (1) advanced energy delivery and storage tech-  
12 nologies, materials, and systems, including new  
13 transmission technologies, such as flexible alter-  
14 nating current transmission systems, composite con-  
15 ductor materials, and other technologies that en-  
16 hance reliability, operational flexibility, or power-car-  
17 rying capability;

18 (2) advanced grid reliability and efficiency tech-  
19 nology development;

20 (3) technologies contributing to significant load  
21 reductions;

22 (4) advanced metering, load management, and  
23 control technologies;

24 (5) technologies to enhance existing grid compo-  
25 nents;



1 (6) the development and use of high-tempera-  
2 ture superconductors to—

3 (A) enhance the reliability, operational  
4 flexibility, or power-carrying capability of elec-  
5 tric transmission or distribution systems; or

6 (B) increase the efficiency of electric en-  
7 ergy generation, transmission, distribution, or  
8 storage systems;

9 (7) integration of power systems, including sys-  
10 tems to deliver high-quality electric power, electric  
11 power reliability, and combined heat and power;

12 (8) supply of electricity to the power grid by  
13 small-scale, distributed, and residential-based power  
14 generators;

15 (9) the development and use of advanced grid  
16 design, operation, and planning tools;

17 (10) any other infrastructure technologies, as  
18 appropriate; and

19 (11) technology transfer and education.

20 (b) GOALS.—

21 (1) INITIAL GOALS.—In accordance with the  
22 performance plan and report requirements in section  
23 4 of the Government Performance Results Act of  
24 1993, the Secretary shall transmit to the Congress,  
25 along with the President's annual budget request for



1 fiscal year 2007, a report containing outcome meas-  
2 ures with explicitly stated cost and performance  
3 baselines. The measures shall specify performance  
4 goals, with quantifiable 5-year cost and energy sav-  
5 ings target levels, for electricity transmission and  
6 distribution and energy assurance, and any other  
7 such goals the Secretary considers appropriate.

8 (2) **SUBSEQUENT TRANSMITTALS.**—The Sec-  
9 retary shall transmit to the Congress, along with the  
10 President’s annual budget request for each fiscal  
11 year after 2007, a report containing—

12 (A) a description, including quantitative  
13 analysis, of progress in achieving performance  
14 goals transmitted under paragraph (1), as com-  
15 pared to the baselines transmitted under para-  
16 graph (1); and

17 (B) any amendments to such goals.

18 **SEC. 323. AUTHORIZATION OF APPROPRIATIONS.**

19 (a) **IN GENERAL.**—The following sums are author-  
20 ized to be appropriated to the Secretary for the purposes  
21 of carrying out this subtitle:

- 22 (1) For fiscal year 2006, \$210,000,000.  
23 (2) For fiscal year 2007, \$230,000,000.  
24 (3) For fiscal year 2008, \$250,000,000.  
25 (4) For fiscal year 2009, \$270,000,000.



1 (5) For fiscal year 2010, \$290,000,000.

2 (b) MICRO-COGENERATION ENERGY TECH-  
3 NOLOGY.—From the amounts authorized under subsection  
4 (a), \$20,000,000 for each of fiscal years 2006 and 2007  
5 are authorized for activities under section 321(b).

6 (c) ELECTRICITY TRANSMISSION AND DISTRIBUTION  
7 AND ENERGY ASSURANCE.—From the amounts author-  
8 ized under subsection (a), the following sums are author-  
9 ized for activities under section 322:

10 (1) For fiscal year 2006, \$120,000,000.

11 (2) For fiscal year 2007, \$130,000,000.

12 (3) For fiscal year 2008, \$155,000,000.

13 (4) For fiscal year 2009, \$165,000,000.

14 (5) For fiscal year 2010, \$175,000,000.

## 15 **TITLE IV—RENEWABLE ENERGY**

### 16 **SEC. 401. FINDINGS.**

17 Congress makes the following findings:

18 (1) Renewable energy is a growth industry  
19 around the world. However, the United States has  
20 not been investing as heavily as other countries, and  
21 is losing market share.

22 (2) Since 1996, the United States has lost sig-  
23 nificant market share in the solar industry, dropping  
24 from 44 percent of the world market to 13 percent  
25 in 2003.



1           (3) In 2003, Japan spent more than  
2           \$200,000,000 on solar research, development, dem-  
3           onstration, and commercial application and other in-  
4           centives, and Germany provided more than  
5           \$750,000,000 in low cost financing for solar photo-  
6           voltaic projects. This compares to United States  
7           Government spending of \$139,000,000 in 2003 for  
8           research, development, demonstration, and commer-  
9           cial application and other incentives.

10           (4) Germany and Japan each had domestic  
11           photovoltaic industries that employed more than  
12           10,000 people in 2003, while in the same year the  
13           United States photovoltaics industry employed only  
14           2,000 people.

15           (5) The United States is becoming increasingly  
16           dependent on imported energy.

17           (6) The high cost of fossil fuels is hurting the  
18           United States economy.

19           (7) Small reductions in peak demand can result  
20           in very large reductions in price, according to energy  
21           market experts.

22           (8) Although the United States has only 2 per-  
23           cent of the world's oil reserves and 3 percent of the  
24           world's natural gas reserves, our Nation's renewable  
25           energy resources are vast and largely untapped.



1           (9) Renewable energy can reduce the demand  
2           for imported energy, reducing costs and decreasing  
3           the variability of energy prices.

4           (10) By using domestic renewable energy re-  
5           sources, the United States can reduce the amount of  
6           money sent into unstable regions of the world and  
7           keep it in the United States.

8           (11) By supporting renewable energy research  
9           and development, and funding demonstration and  
10          commercial application programs for renewable en-  
11          ergy, the United States can create an export indus-  
12          try and improve the balance of trade.

13          (12) Renewable energy can significantly reduce  
14          the environmental impacts of energy production.

15 **SEC. 402. DEFINITIONS.**

16          For purposes of this title:

17           (1) **BIOBASED PRODUCT.**—The term “biobased  
18           product” means a product determined by the Sec-  
19           retary to be a commercial or industrial product  
20           (other than food or feed) that is—

21                   (A) composed, in whole or in significant  
22                   part, of—

23                           (i) biological products;



1 (ii) renewable domestic agricultural  
2 materials (including plant, animal, and  
3 marine materials); or

4 (iii) forestry materials; and

5 (B) produced in connection with the con-  
6 version of biomass to energy or fuel.

7 (2) CELLULOSIC BIOMASS.—The term “cel-  
8 lulosic biomass” means a crop containing  
9 lignocellulose or hemicellulose, including barley  
10 grain, grapeseed, forest thinnings, rice bran, rice  
11 hulls, rice straw, soybean matter, sugarcane bagasse,  
12 and any crop grown specifically for the purpose of  
13 producing cellulosic feedstocks.

14 **SEC. 403. PROGRAMS.**

15 (a) IN GENERAL.—The Secretary shall conduct pro-  
16 grams of renewable energy research, development, dem-  
17 onstration, and commercial application, including activi-  
18 ties described in this title. Such programs shall be focused  
19 on the following objectives:

20 (1) Increasing the conversion efficiency of all  
21 forms of renewable energy through improved tech-  
22 nologies.

23 (2) Decreasing the cost of renewable energy  
24 generation and delivery.



1           (3) Promoting the diversity of the energy sup-  
2           ply.

3           (4) Decreasing the Nation's dependence on for-  
4           eign energy supplies.

5           (5) Improving United States energy security.

6           (6) Decreasing the environmental impact of en-  
7           ergy-related activities.

8           (7) Increasing the export of renewable genera-  
9           tion equipment from the United States.

10          (b) GOALS.—

11           (1) INITIAL GOALS.—In accordance with the  
12           performance plan and report requirements in section  
13           4 of the Government Performance Results Act of  
14           1993, the Secretary shall transmit to the Congress,  
15           along with the President's annual budget request for  
16           fiscal year 2007, a report containing outcome meas-  
17           ures with explicitly stated cost and performance  
18           baselines. The measures shall specify renewable en-  
19           ergy performance goals, with quantifiable 5-year cost  
20           and energy savings target levels, for wind power,  
21           photovoltaics, solar thermal systems (including con-  
22           centrating and solar hot water), geothermal energy,  
23           biomass-based systems, biofuels, and hydropower,  
24           and any other such goals the Secretary considers ap-  
25           propriate.



1           (2) SUBSEQUENT TRANSMITTALS.—The Sec-  
2           retary shall transmit to the Congress, along with the  
3           President’s annual budget request for each fiscal  
4           year after 2007, a report containing—

5                   (A) a description, including quantitative  
6                   analysis, of progress in achieving performance  
7                   goals transmitted under paragraph (1), as com-  
8                   pared to the baselines transmitted under para-  
9                   graph (1); and

10                   (B) any amendments to such goals.

11           (c) PUBLIC INPUT.—The Secretary shall consider ad-  
12           vice from industry, universities, and other interested par-  
13           ties through seeking comments in the Federal Register  
14           and other means before transmitting each report under  
15           subsection (b).

16   **SEC. 404. SOLAR.**

17           (a) PROGRAM.—The Secretary shall conduct a pro-  
18           gram of research, development, demonstration, and com-  
19           mercial application for solar energy, including—

- 20                   (1) photovoltaics;  
21                   (2) solar hot water and solar space heating; and  
22                   (3) concentrating solar power.

23           (b) BUILDING INTEGRATION.—For photovoltaics,  
24           solar hot water, and space heating, the Secretary shall  
25           conduct research, development, demonstration, and com-



1 merical application to support the development of products  
2 that can be easily integrated into new and existing build-  
3 ings.

4 (c) MANUFACTURE.—The Secretary shall conduct re-  
5 search, development, demonstration, and commercial ap-  
6 plication of manufacturing techniques that can produce  
7 low-cost, high-quality solar systems.

8 **SEC. 405. BIOENERGY PROGRAMS.**

9 (a) PROGRAM.—The Secretary shall conduct a pro-  
10 gram of research, development, demonstration, and com-  
11 mercial application for cellulosic biomass, including—

12 (1) biomass conversion to heat and electricity;

13 (2) biomass conversion to liquid fuels;

14 (3) biobased products;

15 (4) integrated biorefineries that may produce  
16 heat, electricity, liquid fuels, and biobased products;

17 (5) cross-cutting activities on feedstocks and  
18 enzymes; and

19 (6) life-cycle economic analysis.

20 (b) BIOFUELS AND BIOBASED PRODUCTS.—The ob-  
21 jectives of the biofuels and biobased products programs  
22 under paragraphs (2), (3), and (4) of subsection (a), and  
23 of the biorefinery demonstration program under sub-  
24 section (c), shall be to develop, in partnership with  
25 industry—



1           (1) advanced biochemical and thermochemical  
2           conversion technologies capable of making high-value  
3           biobased chemical feedstocks and products, to sub-  
4           stitute for petroleum-based feedstocks and products,  
5           biofuels that are price-competitive with gasoline or  
6           diesel in either internal combustion engines or fuel  
7           cell-powered vehicles, and biobased products from a  
8           variety of feedstocks, including grains, cellulosic bio-  
9           mass, and agricultural byproducts; and

10           (2) advanced biotechnology processes capable of  
11           making biofuels and biobased products, with empha-  
12           sis on development of biorefinery technologies, in-  
13           cluding enzyme-based processing technologies.

14           (c) BIOMASS INTEGRATED REFINERY DEMONSTRA-  
15           TION.—

16           (1) IN GENERAL.—The Secretary shall conduct  
17           a program to demonstrate the commercial applica-  
18           tion of at least 5 integrated biorefineries. The Sec-  
19           retary shall ensure geographical distribution of bio-  
20           refinery demonstrations under this subsection. The  
21           Secretary shall not provide more than \$100,000,000  
22           under this subsection for any single biorefinery dem-  
23           onstration. The Secretary shall award the biorefinery  
24           demonstrations so as to encourage—



1 (A) the demonstration of a wide variety of  
2 cellulosic biomass feedstocks;

3 (B) the commercial application of biomass  
4 technologies for a variety of uses, including—

5 (i) liquid transportation fuels;

6 (ii) high-value biobased chemicals;

7 (iii) substitutes for petroleum-based  
8 feedstocks and products; and

9 (iv) energy in the form of electricity  
10 or useful heat; and

11 (C) the demonstration of the collection and  
12 treatment of a variety of biomass feedstocks.

13 (2) PROPOSALS.—Not later than 6 months  
14 after the date of enactment of this Act, the Sec-  
15 retary shall solicit proposals for demonstration of  
16 advanced biorefineries. The Secretary shall select  
17 only proposals that—

18 (A) demonstrate that the project will be  
19 able to operate profitably without direct Federal  
20 subsidy after initial construction costs are paid;  
21 and

22 (B) enable the biorefinery to be easily rep-  
23 licated.

24 (d) GRANTS.—Of the funds authorized to be appro-  
25 priated for activities authorized under this section, not less



1 than \$5,000,000 for each fiscal year shall be made avail-  
2 able for grants to Historically Black Colleges and Univer-  
3 sities, Tribal Colleges, and Hispanic-Serving Institutions.

4 **SEC. 406. WIND.**

5 (a) PROGRAM.—The Secretary shall conduct a pro-  
6 gram of research, development, demonstration, and com-  
7 mercial application for wind energy, including—

- 8 (1) low speed wind energy;
- 9 (2) offshore wind energy;
- 10 (3) testing and verification; and
- 11 (4) distributed wind energy generation.

12 (b) FACILITY.—The Secretary shall construct and op-  
13 erate a research and testing facility capable of testing the  
14 largest wind turbines that are expected to be manufac-  
15 tured in the next 15 years. The Secretary shall consider  
16 the need for testing offshore turbine designs in siting the  
17 facility. All private users of the facility shall be required  
18 to pay the Department all costs associated with their use  
19 of the facility, including capital costs prorated at normal  
20 business amortization rates.

21 (c) REGIONAL FIELD VERIFICATION PROGRAM.—Of  
22 the funds authorized to be appropriated for activities au-  
23 thorized under this section, not less than \$4,000,000 for  
24 each fiscal year shall be made available for the Regional  
25 Field Verification Program of the Department.



1 **SEC. 407. GEOTHERMAL.**

2 The Secretary shall conduct a program of research,  
3 development, demonstration, and commercial application  
4 for geothermal energy. The program shall focus on devel-  
5 oping improved technologies for reducing the costs of geo-  
6 thermal energy installations, including technologies for—

7 (1) improving detection of geothermal re-  
8 sources;

9 (2) decreasing drilling costs;

10 (3) decreasing maintenance costs through im-  
11 proved materials;

12 (4) increasing the potential for other revenue  
13 sources, such as mineral production; and

14 (5) increasing the understanding of reservoir  
15 life cycle and management.

16 **SEC. 408. PHOTOVOLTAIC DEMONSTRATION PROGRAM.**

17 (a) IN GENERAL.—The Secretary shall establish a  
18 program of grants to States to demonstrate advanced pho-  
19 tovoltaic technology.

20 (b) REQUIREMENTS.—(1) To receive funding under  
21 the program under this section, a State must submit a  
22 proposal that demonstrates, to the satisfaction of the Sec-  
23 retary, that the State will meet the requirements of sub-  
24 section (f).

25 (2) If a State has received funding under this section  
26 for the preceding year, the State must demonstrate, to the



1 satisfaction of the Secretary, that it complied with the re-  
2 quirements of subsection (f) in carrying out the program  
3 during that preceding year, and that it will do so in the  
4 future.

5 (3) Except as provided in subsection (c), each State  
6 submitting a qualifying proposal shall receive funding  
7 under the program based on the proportion of United  
8 States population in the State according to the 2000 cen-  
9 sus. In each fiscal year, the portion of funds attributable  
10 under this paragraph to States that have not submitted  
11 qualifying proposals in the time and manner specified by  
12 the Secretary shall be distributed pro rata to the States  
13 that have submitted qualifying proposals in the specified  
14 time and manner.

15 (c) COMPETITION.—If more than \$80,000,000 is  
16 available for the program under this section for any fiscal  
17 year, the Secretary shall allocate 75 percent of the funds  
18 available according to subsection (b), and shall award the  
19 remaining 25 percent on a competitive basis to the States  
20 with the proposals the Secretary considers most likely to  
21 encourage the widespread adoption of photovoltaic tech-  
22 nologies.

23 (d) PROPOSALS.—Not later than 6 months after the  
24 date of enactment of this Act, and in each subsequent fis-  
25 cal year for the life of the program, the Secretary shall



1 solicit proposals from the States to participate in the pro-  
2 gram under this section.

3 (e) COMPETITIVE CRITERIA.—In awarding funds in  
4 a competitive allocation under subsection (c), the Sec-  
5 retary shall consider—

6 (1) the likelihood of a proposal to encourage the  
7 demonstration of, or lower the costs of, advanced  
8 photovoltaic technologies; and

9 (2) the extent to which a proposal is likely to—

10 (A) maximize the amount of photovoltaics  
11 demonstrated;

12 (B) maximize the proportion of non-Fed-  
13 eral cost share; and

14 (C) limit State administrative costs.

15 (f) STATE PROGRAM.—A program operated by a  
16 State with funding under this section shall provide com-  
17 petitive awards for the demonstration of advanced photo-  
18 voltaic technologies. Each State program shall—

19 (1) require a contribution of at least 60 percent  
20 per award from non-Federal sources, which may in-  
21 clude any combination of State, local, and private  
22 funds, except that at least 10 percent of the funding  
23 must be supplied by the State;

24 (2) limit awards for any single project to a  
25 maximum of \$1,000,000;



1           (3) prohibit any nongovernmental recipient  
2 from receiving more than \$1,000,000 per year;

3           (4) endeavor to fund recipients in the commer-  
4 cial, industrial, institutional, governmental, and resi-  
5 dential sectors;

6           (5) limit State administrative costs to no more  
7 than 10 percent of the grant;

8           (6) report annually to the Department on—

9                 (A) the amount of funds disbursed;

10                (B) the amount of photovoltaics purchased;

11           and

12                (C) the results of the monitoring under  
13 paragraph (7);

14           (7) provide for measurement and verification of  
15 the output of a representative sample of the  
16 photovoltaics systems demonstrated throughout the  
17 average working life of the systems, or at least 20  
18 years; and

19           (8) require that applicant buildings must have  
20 received an independent energy efficiency audit dur-  
21 ing the 6-month period preceding the filing of the  
22 application.

23           (g) UNEXPENDED FUNDS.—If a State fails to expend  
24 any funds received under subsection (b) or (c) within 3



1 years of receipt, such remaining funds shall be returned  
2 to the Treasury.

3 (h) REPORTS.—The Secretary shall report to Con-  
4 gress 5 years after funds are first distributed to the States  
5 under this section—

6 (1) the amount of photovoltaics demonstrated;

7 (2) the number of projects undertaken;

8 (3) the administrative costs of the program;

9 (4) the amount of funds that each State has  
10 not received because of a failure to submit a quali-  
11 fying proposal, as described in subsection (b)(3);

12 (5) the results of the monitoring under sub-  
13 section (f)(7); and

14 (6) the total amount of funds distributed, in-  
15 cluding a breakdown by State.

16 **SEC. 409. ADDITIONAL PROGRAMS.**

17 (a) IN GENERAL.—The Secretary may conduct re-  
18 search, development, demonstration, and commercial ap-  
19 plication programs of—

20 (1) ocean energy, including wave energy;

21 (2) kinetic hydro turbines; and

22 (3) the combined use of renewable energy tech-  
23 nologies with one another and with other energy  
24 technologies.

25 (b) MARINE RENEWABLE ENERGY STUDY.—



1           (1) STUDY.—The Secretary shall enter into an  
2           arrangement with the National Academy of Sciences  
3           to conduct a study on—

4                   (A) the feasibility of various methods of re-  
5                   newable generation of energy from the ocean,  
6                   including energy from waves, tides, currents,  
7                   and thermal gradients; and

8                   (B) the research, development, demonstra-  
9                   tion, and commercial application activities re-  
10                  quired to make marine renewable energy gen-  
11                  eration competitive with other forms of elec-  
12                  tricity generation.

13           (2) TRANSMITTAL.—Not later than 1 year after  
14           the date of enactment of this Act, the Secretary  
15           shall transmit the study to Congress along with the  
16           Secretary's recommendations for implementing the  
17           results of the study.

18 **SEC. 410. ANALYSIS AND EVALUATION.**

19           (a) IN GENERAL.—The Secretary shall conduct anal-  
20           ysis and evaluation in support of the renewable energy  
21           programs under this title. These activities shall be used  
22           to guide budget and program decisions, and shall  
23           include—

24                   (1) economic and technical analysis of renew-  
25                   able energy potential, including resource assessment;



1           (2) analysis of past program performance, both  
2           in terms of technical advances and in market intro-  
3           duction of renewable energy; and

4           (3) any other analysis or evaluation that the  
5           Secretary considers appropriate.

6           (b) FUNDING.—The Secretary may designate up to  
7           1 percent of the funds appropriated for carrying out this  
8           title for analysis and evaluation activities under this sec-  
9           tion.

10 **SEC. 411. AUTHORIZATION OF APPROPRIATIONS.**

11           The following sums are authorized to be appropriated  
12           to the Secretary for the purposes of carrying out this title:

13           (1) For fiscal year 2006, \$465,000,000, of  
14           which—

15                   (A) \$100,000,000 shall be for carrying out  
16                   the solar program under section 404;

17                   (B) \$200,000,000 shall be for carrying out  
18                   the bioenergy program under section 405, in-  
19                   cluding \$100,000,000 for the biorefinery dem-  
20                   onstration program under section 405(c);

21                   (C) \$55,000,000 shall be for carrying out  
22                   the wind program under section 406, including  
23                   \$10,000,000 for the facility described in section  
24                   406(b);



1 (D) \$30,000,000 shall be for carrying out  
2 the geothermal program under section 407; and

3 (E) \$50,000,000 shall be for carrying out  
4 the photovoltaic demonstration program under  
5 section 408.

6 (2) For fiscal year 2007, \$605,000,000, of  
7 which—

8 (A) \$140,000,000 shall be for carrying out  
9 the solar program under section 404;

10 (B) \$245,000,000 shall be for carrying out  
11 the bioenergy program under section 405, in-  
12 cluding \$125,000,000 for the biorefinery dem-  
13 onstration program under section 405(c);

14 (C) \$60,000,000 shall be for carrying out  
15 the wind program under section 406, including  
16 \$15,000,000 for the facility described in section  
17 406(b);

18 (D) \$30,000,000 shall be for carrying out  
19 the geothermal program under section 407; and

20 (E) \$100,000,000 shall be for carrying out  
21 the photovoltaic demonstration program under  
22 section 408.

23 (3) For fiscal year 2008, \$775,000,000, of  
24 which—



1 (A) \$200,000,000 shall be for carrying out  
2 the solar program under section 404;

3 (B) \$310,000,000 shall be for carrying out  
4 the bioenergy program under section 405, in-  
5 cluding \$150,000,000 for the biorefinery dem-  
6 onstration program under section 405(c);

7 (C) \$65,000,000 shall be for carrying out  
8 the wind program under section 406, including  
9 \$10,000,000 for the facility described in section  
10 406(b);

11 (D) \$30,000,000 shall be for carrying out  
12 the geothermal program under section 407; and

13 (E) \$150,000,000 shall be for carrying out  
14 the photovoltaic demonstration program under  
15 section 408.

16 (4) For fiscal year 2009, \$940,000,000, of  
17 which—

18 (A) \$250,000,000 shall be for carrying out  
19 the solar program under section 404;

20 (B) \$355,000,000 shall be for carrying out  
21 the bioenergy program under section 405, in-  
22 cluding \$175,000,000 for the biorefinery dem-  
23 onstration program under section 405(c);

24 (C) \$65,000,000 shall be for carrying out  
25 the wind program under section 406, including



1           \$5,000,000 for the facility described in section  
2           406(b);

3           (D) \$30,000,000 shall be for carrying out  
4           the geothermal program under section 407; and

5           (E) \$200,000,000 shall be for carrying out  
6           the photovoltaic demonstration program under  
7           section 408.

8           (5) For fiscal year 2010, \$1,125,000,000, of  
9           which—

10           (A) \$300,000,000 shall be for carrying out  
11           the solar program under section 404;

12           (B) \$400,000,000 shall be for carrying out  
13           the bioenergy program under section 405, in-  
14           cluding \$200,000,000 for the biorefinery dem-  
15           onstration program under section 405(c);

16           (C) \$65,000,000 shall be for carrying out  
17           the wind program under section 406, including  
18           \$1,000,000 for the facility described in section  
19           406(b);

20           (D) \$30,000,000 shall be for carrying out  
21           the geothermal program under section 407; and

22           (E) \$300,000,000 shall be for carrying out  
23           the photovoltaic demonstration program under  
24           section 408.



1           **TITLE V—NUCLEAR ENERGY**  
2                           **PROGRAMS**

3 **SEC. 501. DEFINITION.**

4           In this title, the term “junior faculty” means a fac-  
5 ulty member who was awarded a doctorate less than 10  
6 years before receipt of an award from the grant program  
7 described in section 512(b)(2).

8 **SEC. 502. PROGRAMS.**

9           (a) **IN GENERAL.**—The Secretary shall conduct pro-  
10 grams of civilian nuclear energy research, development,  
11 demonstration, and commercial application, including ac-  
12 tivities described in this title. Programs under this title  
13 shall be focused on—

14                   (1) enhancing nuclear power’s viability as part  
15 of the United States energy portfolio;

16                   (2) providing the technical means to reduce the  
17 likelihood of nuclear proliferation;

18                   (3) maintaining a cadre of nuclear scientists  
19 and engineers;

20                   (4) maintaining National Laboratory and uni-  
21 versity nuclear programs, including their infrastruc-  
22 ture;

23                   (5) supporting both individual researchers and  
24 multidisciplinary teams of researchers to pioneer



1 new approaches in nuclear energy, science, and tech-  
2 nology;

3 (6) developing, planning, constructing, acquir-  
4 ing, and operating special equipment and facilities  
5 for the use of researchers;

6 (7) supporting technology transfer and other  
7 appropriate activities to assist the nuclear energy in-  
8 dustry, and other users of nuclear science and engi-  
9 neering, including activities addressing reliability,  
10 availability, productivity, component aging, safety,  
11 and security of nuclear power plants; and

12 (8) reducing the environmental impact of nu-  
13 clear energy-related activities.

14 (b) GOALS.—

15 (1) INITIAL GOALS.—In accordance with the  
16 performance plan and report requirements in section  
17 4 of the Government Performance Results Act of  
18 1993, the Secretary shall transmit to the Congress,  
19 along with the President's annual budget request for  
20 fiscal year 2007, a report containing outcome meas-  
21 ures with explicitly stated cost and performance  
22 baselines. The measures shall specify performance  
23 goals, with quantifiable 5-year cost improvement and  
24 reliability, availability, productivity, and component  
25 aging target levels for a wide range of nuclear en-



1 energy technologies, and any other such goals the Sec-  
2 retary considers appropriate.

3 (2) SUBSEQUENT TRANSMITTALS.—The Sec-  
4 retary shall transmit to the Congress, along with the  
5 President's annual budget request for each fiscal  
6 year after 2007, a report containing—

7 (A) a description, including quantitative  
8 analysis, of progress in achieving performance  
9 goals transmitted under paragraph (1), as com-  
10 pared to the baselines transmitted under para-  
11 graph (1); and

12 (B) any amendments to such goals.

13 (c) PUBLIC INPUT.—The Secretary shall consider ad-  
14 vice from industry, universities, and other interested par-  
15 ties through seeking comments in the Federal Register  
16 and other means before transmitting each report under  
17 subsection (b).

18 **Subtitle A—Nuclear Energy**  
19 **Research Programs**

20 **SEC. 511. ADVANCED FUEL RECYCLING PROGRAM.**

21 (a) IN GENERAL.—The Secretary shall conduct an  
22 advanced fuel recycling technology research, development,  
23 demonstration, and commercial application program to  
24 evaluate fuel recycling or transmutation technologies  
25 which are proliferation-resistant and minimize environ-



1 mental and public health and safety impacts, as an alter-  
2 native to aqueous reprocessing technologies deployed as of  
3 the date of enactment of this Act, in support of evaluation  
4 of alternative national strategies for spent nuclear fuel and  
5 advanced reactor concepts. The program shall be subject  
6 to annual review by the Secretary's Nuclear Energy Re-  
7 search Advisory Committee or other independent entity,  
8 as appropriate.

9 (b) INTERNATIONAL COOPERATION.—The Secretary  
10 shall seek opportunities to engage international partners  
11 with expertise in advanced fuel recycling technologies  
12 where such partnerships may help achieve program goals.

13 **SEC. 512. UNIVERSITY NUCLEAR SCIENCE AND ENGINEER-**  
14 **ING SUPPORT.**

15 (a) IN GENERAL.—The Secretary shall conduct a  
16 program to invest in human resources and infrastructure  
17 in the nuclear sciences and related fields, including health  
18 physics, nuclear engineering, and radiochemistry, con-  
19 sistent with Departmental missions related to civilian nu-  
20 clear research, development, demonstration, and commer-  
21 cial application.

22 (b) REQUIREMENTS.—In carrying out the program  
23 under this section, the Secretary shall—

24 (1) conduct a graduate and undergraduate fel-  
25 lowship program to attract new and talented stu-



1 dents, which may include fellowships for students to  
2 spend time at National Laboratories in the areas of  
3 nuclear science, engineering, and health physics with  
4 a member of the National Laboratory staff acting as  
5 a mentor;

6 (2) conduct a junior faculty research initiation  
7 grant program to assist universities in recruiting  
8 and retaining new faculty in the nuclear sciences  
9 and engineering by awarding grants to junior faculty  
10 for research on issues related to nuclear energy engi-  
11 neering and science;

12 (3) support fundamental nuclear sciences, engi-  
13 neering, and health physics research through a nu-  
14 clear engineering education and research program;

15 (4) encourage collaborative nuclear research  
16 among industry, National Laboratories, and univer-  
17 sities; and

18 (5) support communication and outreach re-  
19 lated to nuclear science, engineering, and health  
20 physics.

21 (c) STRENGTHENING UNIVERSITY RESEARCH AND  
22 TRAINING REACTORS AND ASSOCIATED INFRASTRUC-  
23 TURE.—In carrying out the program under this section,  
24 the Secretary may support—



1 (1) converting research reactors from high-en-  
2 richment fuels to low-enrichment fuels and upgrad-  
3 ing operational instrumentation;

4 (2) consortia of universities to broaden access  
5 to university research reactors;

6 (3) student training programs, in collaboration  
7 with the United States nuclear industry, in reli-  
8 censing and upgrading reactors, including through  
9 the provision of technical assistance; and

10 (4) reactor improvements as part of a focused  
11 effort that emphasizes research, training, and edu-  
12 cation, including through the Innovations in Nuclear  
13 Infrastructure and Education Program or any simi-  
14 lar program.

15 (d) OPERATIONS AND MAINTENANCE.—Funding for  
16 a project provided under this section may be used for a  
17 portion of the operating and maintenance costs of a re-  
18 search reactor at a university used in the project.

19 **SEC. 513. UNIVERSITY-NATIONAL LABORATORY INTER-**  
20 **ACTIONS.**

21 The Secretary shall conduct—

22 (1) a fellowship program for professors at uni-  
23 versities to spend sabbaticals at National Labora-  
24 tories in the areas of nuclear science and technology;  
25 and



1 (2) a visiting scientist program in which Na-  
2 tional Laboratory staff can spend time in academic  
3 nuclear science and engineering departments.

4 **SEC. 514. NUCLEAR POWER 2010 PROGRAM.**

5 The Secretary shall carry out a Nuclear Power 2010  
6 Program, consistent with recommendations in the October  
7 2001 report entitled “A Roadmap to Deploy New Nuclear  
8 Power Plants in the United States by 2010” issued by  
9 the Nuclear Energy Research Advisory Committee of the  
10 Department. The Program shall include—

11 (1) the expertise and capabilities of industry,  
12 universities, and National Laboratories in evaluation  
13 of advanced nuclear fuel cycles and fuels testing;

14 (2) a variety of reactor designs suitable for both  
15 developed and developing nations;

16 (3) participation of international collaborators  
17 in research, development, and design efforts as ap-  
18 propriate; and

19 (4) university and industry participation.

20 **SEC. 515. GENERATION IV NUCLEAR ENERGY SYSTEMS INI-**  
21 **TIATIVE.**

22 The Secretary shall carry out a Generation IV Nu-  
23 clear Energy Systems Initiative to develop an overall tech-  
24 nology plan and to support research, development, dem-  
25 onstration, and commercial application necessary to make



1 an informed technical decision about the most promising  
2 candidates for the eventual commercial application of ad-  
3 vanced fission reactor technology for the generation of  
4 electricity. The Initiative shall examine advanced prolifera-  
5 tion-resistant and passively safe reactor designs, including  
6 designs that—

7 (1) are economically competitive with other elec-  
8 tric power generation plants;

9 (2) have higher efficiency, lower cost, and im-  
10 proved safety compared to reactors in operation on  
11 the date of enactment of this Act;

12 (3) use fuels that are proliferation-resistant and  
13 have substantially reduced production of high-level  
14 waste per unit of output; and

15 (4) use improved instrumentation.

16 **SEC. 516. CIVILIAN INFRASTRUCTURE AND FACILITIES.**

17 The Secretary shall operate and maintain infrastruc-  
18 ture and facilities to support the nuclear energy research,  
19 development, demonstration, and commercial application  
20 programs, including radiological facilities management,  
21 isotope production, and facilities management.

22 **SEC. 517. NUCLEAR ENERGY RESEARCH AND DEVELOP-**  
23 **MENT INFRASTRUCTURE PLAN.**

24 In carrying out section 209, the Secretary shall—



1 (1) develop an inventory of nuclear science and  
2 engineering facilities, equipment, expertise, and  
3 other assets at all of the National Laboratories;

4 (2) develop a prioritized list of nuclear science  
5 and engineering plant and equipment improvements  
6 needed at each of the National Laboratories;

7 (3) consider the available facilities and expertise  
8 at all National Laboratories and emphasize invest-  
9 ments which complement rather than duplicate capa-  
10 bilities; and

11 (4) develop a timeline and a proposed budget  
12 for the completion of deferred maintenance on plant  
13 and equipment,

14 with the goal of ensuring that Department programs  
15 under this title will be generally recognized to be among  
16 the best in the world.

17 **SEC. 518. IDAHO NATIONAL LABORATORY FACILITIES**  
18 **PLAN.**

19 (a) PLAN.—The Secretary shall develop a comprehen-  
20 sive plan for the facilities at the Idaho National Labora-  
21 tory, especially taking into account the resources available  
22 at other National Laboratories. In developing the plan, the  
23 Secretary shall—

24 (1) evaluate the facilities planning processes  
25 utilized by other physical science and engineering re-



1 search and development institutions, both in the  
2 United States and abroad, that are generally recog-  
3 nized as being among the best in the world, and con-  
4 sider how those processes might be adapted toward  
5 developing such facilities plan;

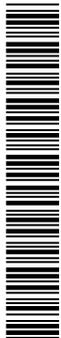
6 (2) avoid duplicating, moving, or transferring  
7 nuclear science and engineering facilities, equipment,  
8 expertise, and other assets that currently exist at  
9 other National Laboratories;

10 (3) consider the establishment of a national  
11 transuranic analytic chemistry laboratory as a user  
12 facility at the Idaho National Laboratory;

13 (4) include a plan to develop, if feasible, the  
14 Advanced Test Reactor and Test Reactor Area into  
15 a user facility that is more readily accessible to aca-  
16 demic and industrial researchers;

17 (5) consider the establishment of a fast neutron  
18 source as a user facility;

19 (6) consider the establishment of new “hot  
20 cells” and the configuration of “hot cells” most like-  
21 ly to advance research, development, demonstration,  
22 and commercial application in nuclear science and  
23 engineering, especially in the context of the condition  
24 and availability of these facilities elsewhere in the  
25 National Laboratories; and



1           (7) include a timeline and a proposed budget  
2           for the completion of deferred maintenance on plant  
3           and equipment.

4           (b) TRANSMITTAL TO CONGRESS.—Not later than  
5 one year after the date of enactment of this Act, the Sec-  
6 retary shall transmit such plan to Congress.

7 **SEC. 519. AUTHORIZATION OF APPROPRIATIONS.**

8           (a) PROGRAM AUTHORIZATION.—The following sums  
9 are authorized to be appropriated to the Secretary for the  
10 purposes of carrying out this subtitle:

11           (1) \$407,000,000 for fiscal year 2006.

12           (2) \$427,000,000 for fiscal year 2007.

13           (3) \$449,000,000 for fiscal year 2008.

14           (4) \$471,000,000 for fiscal year 2009.

15           (5) \$495,000,000 for fiscal year 2010.

16           (b) UNIVERSITY SUPPORT.—Of the funds authorized  
17 under subsection (a), the following sums are authorized  
18 to be appropriated to carry out section 512:

19           (1) \$35,200,000 for fiscal year 2006.

20           (2) \$44,350,000 for fiscal year 2007.

21           (3) \$49,200,000 for fiscal year 2008.

22           (4) \$55,000,000 for fiscal year 2009.

23           (5) \$60,000,000 for fiscal year 2010.



1           **Subtitle B—Next Generation**  
2                   **Nuclear Plant Program**

3 **SEC. 531. DEFINITIONS.**

4           For purposes of this subtitle:

5                   (1) CONSTRUCTION.—The term “construction”  
6           means the physical construction of the demonstra-  
7           tion plant, and the physical construction, purchase,  
8           or manufacture of equipment or components that  
9           are specifically designed for the demonstration plant,  
10          but does not mean the design of the facility, equip-  
11          ment, or components.

12                   (2) DEMONSTRATION PLANT.—The term “dem-  
13          onstration plant” means an advanced fission reactor  
14          power plant constructed and operated in accordance  
15          with this subtitle.

16                   (3) OPERATION.—The term “operation” means  
17          the operation of the demonstration plant, including  
18          general maintenance and provision of power, heating  
19          and cooling, and other building services that are spe-  
20          cifically for the demonstration plant, but does not  
21          mean operations that support other activities co-  
22          located with the demonstration plant.

23 **SEC. 532. NEXT GENERATION NUCLEAR POWER PLANT.**

24           (a) IN GENERAL.—The Secretary shall conduct a  
25          program of research, development, demonstration, and



1 commercial application of advanced nuclear fission reactor  
2 technology. The objective of this program shall be to dem-  
3 onstrate the technical and economic feasibility of an ad-  
4 vanced nuclear fission reactor power plant design for the  
5 commercial production of electricity.

6 (b) RESEARCH AND DEVELOPMENT.—The program  
7 shall include research, development, design, planning, and  
8 all other necessary activities to support the construction  
9 and operation of the demonstration plant.

10 (c) SUBSYSTEM DEMONSTRATIONS.—The Secretary  
11 shall support demonstration of enabling technologies and  
12 subsystems and other research, development, demonstra-  
13 tion, and commercial application activities necessary to  
14 support the activities in this subtitle.

15 (d) CONSTRUCTION AND OPERATION.—The program  
16 shall culminate in the construction and operation of the  
17 demonstration plant based on a design selected by the Sec-  
18 retary in accordance with procedures described in the plan  
19 required by section 534(c). The demonstration plant shall  
20 be located and constructed within the United States and  
21 shall be operational, and capable of demonstrating the  
22 commercial production of electricity, by December 31,  
23 2015.

24 (e) LIMITATION.—No funds shall be expended for the  
25 construction or operation of the demonstration plant until



1 90 days have elapsed after the transmission of the plan  
2 described in section 534(c).

3 **SEC. 533. ADVISORY COMMITTEE.**

4 The Secretary shall appoint a Next Generation Nu-  
5 clear Power Plant Subcommittee of the Nuclear Energy  
6 Research Advisory Council to provide advice to the Sec-  
7 retary on technical matters and program management for  
8 the duration of the program and construction project  
9 under this subtitle.

10 **SEC. 534. PROGRAM REQUIREMENTS.**

11 (a) PARTNERSHIPS.—In carrying out the program  
12 under this subtitle, the Secretary shall make use of part-  
13 nerships with industry for the research, development, de-  
14 sign, construction, and operation of the demonstration  
15 plant. In establishing such partnerships, the Secretary  
16 shall give preference to companies for which the principal  
17 base of operations is located in the United States.

18 (b) INTERNATIONAL COLLABORATION.—(1) The Sec-  
19 retary shall seek international cooperation, participation,  
20 and financial contribution in this program, including as-  
21 sistance from specialists or facilities from member coun-  
22 tries of the Generation IV International Forum, the Rus-  
23 sian Federation, or other international partners where  
24 such specialists or facilities provide access to cost-effective  
25 and relevant skills or test capabilities.



1           (2) International activities shall be carried out in con-  
2 sultation with the Generation IV International Forum.

3           (3) The program may include demonstration of se-  
4 lected program objectives in a partner nation.

5           (c) PROGRAM PLAN.—Not later than one year after  
6 the date of enactment of this Act, the Secretary shall  
7 transmit to Congress a comprehensive program plan. The  
8 program plan shall—

9                   (1) describe the plan for development, selection,  
10 management, ownership, operation, and decommis-  
11 sioning of the demonstration plant;

12                   (2) identify program milestones and a timeline  
13 for achieving these milestones;

14                   (3) provide for development of risk-based cri-  
15 teria for any future commercial development of a re-  
16 actor architecture based on that of the demonstra-  
17 tion plant;

18                   (4) include a projected budget required to meet  
19 the milestones; and

20                   (5) include an explanation of any major pro-  
21 gram decisions that deviate from program advice  
22 given to the Secretary by the advisory committee es-  
23 tablished under section 533.



1 **SEC. 535. AUTHORIZATION OF APPROPRIATIONS.**

2 (a) RESEARCH, DEVELOPMENT, AND DESIGN PRO-  
3 GRAMS.—The following sums are authorized to be appro-  
4 priated to the Secretary for the purposes of carrying out  
5 this subtitle except for the demonstration plant activities  
6 described in subsection (b):

7 (1) For fiscal year 2006, \$150,000,000.

8 (2) For fiscal year 2007, \$150,000,000.

9 (3) For fiscal year 2008, \$150,000,000.

10 (4) For fiscal year 2009, \$150,000,000.

11 (5) For fiscal year 2010, \$150,000,000.

12 (b) REACTOR CONSTRUCTION.—There are authorized  
13 to be appropriated to the Secretary such sums as may be  
14 necessary for operation and construction of the dem-  
15 onstration plant under this subtitle. The Secretary shall  
16 not spend more than \$500,000,000 for demonstration  
17 plant reactor construction activities under this subtitle.

18 **TITLE VI—FOSSIL ENERGY**  
19 **Subtitle A—Research Programs**

20 **SEC. 601. ENHANCED FOSSIL ENERGY RESEARCH AND DE-**  
21 **VELOPMENT PROGRAMS.**

22 (a) IN GENERAL.—The Secretary shall, in conjunc-  
23 tion with industry, conduct fossil energy research, develop-  
24 ment, demonstration, and commercial applications pro-  
25 grams, including activities under this subtitle, with the  
26 goal of improving the efficiency, effectiveness, and envi-



1 ronmental performance of fossil energy production, up-  
2 grading, conversion, and consumption. Such programs  
3 shall be focused on—

4 (1) increasing the conversion efficiency of all  
5 forms of fossil energy through improved tech-  
6 nologies;

7 (2) decreasing the cost of all fossil energy pro-  
8 duction, generation, and delivery;

9 (3) promoting diversity of energy supply;

10 (4) decreasing the Nation's dependence on for-  
11 eign energy supplies;

12 (5) improving United States energy security;

13 (6) decreasing the environmental impact of en-  
14 ergy-related activities; and

15 (7) increasing the export of fossil energy-related  
16 equipment, technology, and services from the United  
17 States.

18 (b) GOALS.—

19 (1) INITIAL GOALS.—In accordance with the  
20 performance plan and report requirements in section  
21 4 of the Government Performance Results Act of  
22 1993, the Secretary shall transmit to the Congress,  
23 along with the President's annual budget request for  
24 fiscal year 2007, a report containing outcome meas-  
25 ures with explicitly stated cost and performance



1 baselines. The measures shall specify production or  
2 efficiency performance goals, with quantifiable 5-  
3 year cost and energy savings target levels, for fossil  
4 energy, and any other such goals the Secretary con-  
5 siders appropriate.

6 (2) SUBSEQUENT TRANSMITTALS.—The Sec-  
7 retary shall transmit to the Congress, along with the  
8 President’s annual budget request for each fiscal  
9 year after 2007, a report containing—

10 (A) a description, including quantitative  
11 analysis, of progress in achieving performance  
12 goals transmitted under paragraph (1), as com-  
13 pared to the baselines transmitted under para-  
14 graph (1); and

15 (B) any amendments to such goals.

16 (c) COVERED ACTIVITIES.—The Secretary shall en-  
17 sure that the goals stated in subsection (b) are illustrative  
18 of the outcomes necessary to promote acceptance of the  
19 programs’ efforts in the marketplace, but at a minimum  
20 shall encompass the following areas:

21 (1) Coal gasifiers.

22 (2) Turbine generators, including both natural  
23 gas and syngas fueled.



1           (3) Oxygen separation devices, hydrogen sepa-  
2           ration devices, and carbon dioxide separation tech-  
3           nologies.

4           (4) Coal gas and post-combustion emission  
5           cleanup and disposal equipment, including carbon di-  
6           oxide capture and disposal equipment.

7           (5) Average per-foot drilling costs for oil and  
8           gas, segregated by appropriate drilling regimes, in-  
9           cluding onshore versus offshore and depth cat-  
10          egories.

11          (6) Production of liquid fuels from nonradi-  
12          tional feedstocks, including syngas, biomass, meth-  
13          ane, and combinations thereof.

14          (7) Environmental discharge per barrel of oil or  
15          oil-equivalent production, including reinjected waste.

16          (8) Surface disturbance on both a per-well and  
17          per-barrel of oil or oil-equivalent production basis.

18          (d) PUBLIC INPUT.—The Secretary shall consider ad-  
19          vice from industry, universities, and other interested par-  
20          ties through seeking comments in the Federal Register  
21          and other means before transmitting each report under  
22          subsection (b).

23          **SEC. 602. FOSSIL RESEARCH AND DEVELOPMENT.**

24          (a) OBJECTIVES.—The Secretary shall conduct a pro-  
25          gram of fossil research, development, demonstration, and



1 commercial application, whose objective shall be to reduce  
2 emissions from fossil fuel use by developing technologies,  
3 including precombustion technologies, by 2015 with the  
4 capability of—

5 (1) dramatically increasing electricity gener-  
6 ating efficiencies of coal and natural gas;

7 (2) improving combined heat and power ther-  
8 mal efficiencies;

9 (3) improving fuels utilization efficiency of pro-  
10 duction of liquid transportation fuels from coal;

11 (4) achieving near-zero emissions of mercury  
12 and of emissions that form fine particles, smog, and  
13 acid rain;

14 (5) reducing carbon dioxide emissions by at  
15 least 40 percent through efficiency improvements  
16 and by 100 percent with sequestration; and

17 (6) improved reliability, efficiency, reductions of  
18 air pollutant emissions, and reductions in solid waste  
19 disposal requirements.

20 (b) COAL-BASED PROJECTS.—The coal-based  
21 projects authorized under this section shall be consistent  
22 with the objective stated in subsection (a). The program  
23 shall emphasize carbon capture and sequestration tech-  
24 nologies and gasification technologies, including gasifi-  
25 cation combined cycle, gasification fuel cells, gasification



1 coproduction, hybrid gasification/combustion, or other  
2 technologies with the potential to address the capabilities  
3 described in paragraphs (4) and (5) of subsection (a).

4 **SEC. 603. OIL AND GAS RESEARCH AND DEVELOPMENT.**

5 The Secretary shall conduct a program of oil and gas  
6 research, development, demonstration, and commercial ap-  
7 plication, whose objective shall be to advance the science  
8 and technology available to domestic petroleum producers,  
9 particularly independent operators, to minimize the eco-  
10 nomic dislocation caused by the decline of domestic sup-  
11 plies of oil and natural gas resources by focusing research  
12 on—

13 (1) assisting small domestic producers of oil  
14 and gas to develop new and improved technologies to  
15 discover and extract additional supplies;

16 (2) developing technologies to extract methane  
17 hydrates in an environmentally sound manner;

18 (3) improving the ability of the domestic indus-  
19 try to extract hydrocarbons from known reservoirs  
20 and classes of reservoirs; and

21 (4) reducing the cost, and improving the effi-  
22 ciency and environmental performance, of oil and  
23 gas exploration and extraction activities, focusing es-  
24 pecially on unconventional sources such as tar sands,  
25 heavy oil, and shale oil.



1 **SEC. 604. TRANSPORTATION FUELS.**

2 The Secretary shall conduct a program of transpor-  
3 tation fuels research, development, demonstration, and  
4 commercial application, whose objective shall be to in-  
5 crease the price elasticity of oil supply and demand by fo-  
6 cusing research on—

7 (1) reducing the cost of producing transpor-  
8 tation fuels from coal and natural gas; and

9 (2) indirect liquefaction of coal and biomass.

10 **SEC. 605. FUEL CELLS.**

11 (a) PROGRAM.—The Secretary shall conduct a pro-  
12 gram of research, development, demonstration, and com-  
13 mercial application of fuel cells for low-cost, high-effi-  
14 ciency, fuel-flexible, modular power systems.

15 (b) DEMONSTRATION.—The program under this sec-  
16 tion shall include demonstration of fuel cell proton ex-  
17 change membrane technology for commercial, residential,  
18 and transportation applications, and distributed genera-  
19 tion systems, utilizing improved manufacturing production  
20 and processes.

21 **SEC. 606. AUTHORIZATION OF APPROPRIATIONS.**

22 The following sums are authorized to be appropriated  
23 to the Secretary for the purposes of carrying out this sub-  
24 title:

25 (1) For fiscal year 2006, \$583,000,000.

26 (2) For fiscal year 2007, \$611,000,000.



1 (3) For fiscal year 2008, \$626,000,000.

2 (4) For fiscal year 2009, \$641,000,000.

3 (5) For fiscal year 2010, \$657,000,000.

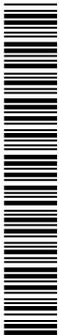
4 **Subtitle B—Ultra-Deepwater and**  
5 **Unconventional Natural Gas**  
6 **and Other Petroleum Resources**

7 **SEC. 611. PROGRAM AUTHORITY.**

8 (a) IN GENERAL.—The Secretary shall carry out a  
9 program under this subtitle of research, development,  
10 demonstration, and commercial application of technologies  
11 for ultra-deepwater and unconventional natural gas and  
12 other petroleum resource exploration and production, in-  
13 cluding addressing the technology challenges for small  
14 producers, safe operations, and environmental mitigation  
15 (including reduction of greenhouse gas emissions and se-  
16 questration of carbon).

17 (b) METHANE HYDRATE REPORT.—Within 6 months  
18 of enactment, the Secretary shall report to Congress on  
19 whether the activities described in the Methane Hydrates  
20 Act of 2000 (114 Stat. 234 or 30 U.S.C. 1902 note)  
21 should be carried out under this subtitle.

22 (c) PROGRAM ELEMENTS.—The program under this  
23 subtitle shall address the following areas, including im-  
24 proving safety and minimizing environmental impacts of  
25 activities within each area:



1 (1) Ultra-deepwater technology, including drill-  
2 ing to formations in the Outer Continental Shelf to  
3 depths greater than 15,000 feet.

4 (2) Ultra-deepwater architecture.

5 (3) Unconventional natural gas and other petro-  
6 leum resource exploration and production tech-  
7 nology, including the technology challenges of small  
8 producers.

9 (d) LIMITATION ON LOCATION OF FIELD ACTIVI-  
10 TIES.—Field activities under the program under this sub-  
11 title shall be carried out only—

12 (1) in—

13 (A) areas in the territorial waters of the  
14 United States not under any Outer Continental  
15 Shelf moratorium as of September 30, 2002;

16 (B) areas onshore in the United States on  
17 public land administered by the Secretary of the  
18 Interior available for oil and gas leasing, where  
19 consistent with applicable law and land use  
20 plans; and

21 (C) areas onshore in the United States on  
22 State or private land, subject to applicable law;  
23 and



1           (2) with the approval of the appropriate Fed-  
2           eral or State land management agency or private  
3           land owner.

4           (e) RESEARCH AT NATIONAL ENERGY TECHNOLOGY  
5 LABORATORY.—The Secretary, through the National En-  
6           ergy Technology Laboratory, shall carry out research com-  
7           plementary to research under subsection (b).

8           (f) CONSULTATION WITH SECRETARY OF THE INTE-  
9           RIOR.—In carrying out this subtitle, the Secretary shall  
10          consult regularly with the Secretary of the Interior.

11 **SEC. 612. ULTRA-DEEPWATER PROGRAM.**

12          (a) IN GENERAL.—The Secretary shall carry out the  
13          activities under section 611(a), to maximize the use of the  
14          ultra-deepwater natural gas and other petroleum resources  
15          of the United States by increasing the supply of such re-  
16          sources, through reducing the cost and increasing the effi-  
17          ciency of exploration for and production of such resources,  
18          while improving safety and minimizing environmental im-  
19          pacts.

20          (b) ROLE OF THE SECRETARY.—The Secretary shall  
21          have ultimate responsibility for, and oversight of, all as-  
22          pects of the program under this section.

23          (c) ROLE OF THE PROGRAM CONSORTIUM.—

24                 (1) IN GENERAL.—The Secretary may contract  
25          with a consortium to—



1 (A) manage awards pursuant to subsection  
2 (f)(4);

3 (B) make recommendations to the Sec-  
4 retary for project solicitations;

5 (C) disburse funds awarded under sub-  
6 section (f) as directed by the Secretary in ac-  
7 cordance with the annual plan under subsection  
8 (e); and

9 (D) carry out other activities assigned to  
10 the program consortium by this section.

11 (2) LIMITATION.—The Secretary may not as-  
12 sign any activities to the program consortium except  
13 as specifically authorized under this section.

14 (3) CONFLICT OF INTEREST.—

15 (A) PROCEDURES.—The Secretary shall  
16 establish procedures—

17 (i) to ensure that each board member,  
18 officer, or employee of the program consor-  
19 tium who is in a decision-making capacity  
20 under subsection (f)(3) or (4) shall disclose  
21 to the Secretary any financial interests in,  
22 or financial relationships with, applicants  
23 for or recipients of awards under this sec-  
24 tion, including those of his or her spouse  
25 or minor child, unless such relationships or



1 interests would be considered to be remote  
2 or inconsequential; and

3 (ii) to require any board member, offi-  
4 cer, or employee with a financial relation-  
5 ship or interest disclosed under clause (i)  
6 to recuse himself or herself from any re-  
7 view under subsection (f)(3) or oversight  
8 under subsection (f)(4) with respect to  
9 such applicant or recipient.

10 (B) FAILURE TO COMPLY.—The Secretary  
11 may disqualify an application or revoke an  
12 award under this section if a board member, of-  
13 ficer, or employee has failed to comply with pro-  
14 cedures required under subparagraph (A)(ii).

15 (d) SELECTION OF THE PROGRAM CONSORTIUM.—

16 (1) IN GENERAL.—The Secretary shall select  
17 the program consortium through an open, competi-  
18 tive process.

19 (2) MEMBERS.—The program consortium may  
20 include corporations, trade associations, institutions  
21 of higher education, National Laboratories, or other  
22 research institutions. After submitting a proposal  
23 under paragraph (4), the program consortium may  
24 not add members without the consent of the Sec-  
25 retary.



1           (3) TAX STATUS.—The program consortium  
2 shall be an entity that is exempt from tax under sec-  
3 tion 501(c)(3) of the Internal Revenue Code of  
4 1986.

5           (4) SCHEDULE.—Not later than 180 days after  
6 the date of enactment of this Act, the Secretary  
7 shall solicit proposals from eligible consortia to per-  
8 form the duties in subsection (c)(1), which shall be  
9 submitted not later than 360 days after the date of  
10 enactment of this Act. The Secretary shall select the  
11 program consortium not later than 18 months after  
12 such date of enactment.

13           (5) APPLICATION.—Applicants shall submit a  
14 proposal including such information as the Secretary  
15 may require. At a minimum, each proposal shall—

16                   (A) list all members of the consortium;

17                   (B) fully describe the structure of the con-  
18 sortium, including any provisions relating to in-  
19 tellectual property; and

20                   (C) describe how the applicant would carry  
21 out the activities of the program consortium  
22 under this section.

23           (6) ELIGIBILITY.—To be eligible to be selected  
24 as the program consortium, an applicant must be an  
25 entity whose members collectively have demonstrated



1 capabilities in planning and managing research, de-  
2 velopment, demonstration, and commercial applica-  
3 tion programs in natural gas or other petroleum ex-  
4 ploration or production.

5 (7) CRITERION.—The Secretary shall consider  
6 the amount of the fee an applicant proposes to re-  
7 ceive under subsection (g) in selecting a consortium  
8 under this section.

9 (e) ANNUAL PLAN.—

10 (1) IN GENERAL.—The program under this sec-  
11 tion shall be carried out pursuant to an annual plan  
12 prepared by the Secretary in accordance with para-  
13 graph (2).

14 (2) DEVELOPMENT.—

15 (A) SOLICITATION OF RECOMMENDA-  
16 TIONS.—Before drafting an annual plan under  
17 this subsection, the Secretary shall solicit spe-  
18 cific written recommendations from the pro-  
19 gram consortium for each element to be ad-  
20 dressed in the plan, including those described in  
21 paragraph (4). The Secretary may request that  
22 the program consortium submit its rec-  
23 ommendations in the form of a draft annual  
24 plan.



1 (B) SUBMISSION OF RECOMMENDATIONS;  
2 OTHER COMMENT.—The Secretary shall submit  
3 the recommendations of the program consor-  
4 tium under subparagraph (A) to the Ultra-  
5 Deepwater Advisory Committee established  
6 under section 615(a) for review, and such Advi-  
7 sory Committee shall provide to the Secretary  
8 written comments by a date determined by the  
9 Secretary. The Secretary may also solicit com-  
10 ments from any other experts.

11 (C) CONSULTATION.—The Secretary shall  
12 consult regularly with the program consortium  
13 throughout the preparation of the annual plan.

14 (3) PUBLICATION.—The Secretary shall trans-  
15 mit to Congress and publish in the Federal Register  
16 the annual plan, along with any written comments  
17 received under paragraph (2)(A) and (B).

18 (4) CONTENTS.—The annual plan shall describe  
19 the ongoing and prospective activities of the pro-  
20 gram under this section and shall include—

21 (A) a list of any solicitations for awards  
22 that the Secretary plans to issue to carry out  
23 research, development, demonstration, or com-  
24 mercial application activities, including the top-  
25 ics for such work, who would be eligible to



1 apply, selection criteria, and the duration of  
2 awards; and

3 (B) a description of the activities expected  
4 of the program consortium to carry out sub-  
5 section (f)(4).

6 (5) ESTIMATES OF INCREASED ROYALTY RE-  
7 CEIPTS.—The Secretary, in consultation with the  
8 Secretary of the Interior, shall provide an annual re-  
9 port to Congress with the President's budget on the  
10 estimated cumulative increase in Federal royalty re-  
11 ceipts (if any) resulting from the implementation of  
12 this subtitle. The initial report under this paragraph  
13 shall be submitted in the first President's budget fol-  
14 lowing the completion of the first annual plan re-  
15 quired under this subsection.

16 (f) AWARDS.—

17 (1) IN GENERAL.—The Secretary shall make  
18 awards to carry out research, development, dem-  
19 onstration, and commercial application activities  
20 under the program under this section. The program  
21 consortium shall not be eligible to receive such  
22 awards, but members of the program consortium  
23 may receive such awards.

24 (2) PROPOSALS.—The Secretary shall solicit  
25 proposals for awards under this subsection in such



1 manner and at such time as the Secretary may pre-  
2 scribe, in consultation with the program consortium.

3 (3) REVIEW.—The Secretary shall make awards  
4 under this subsection through a competitive process,  
5 which shall include a review by individuals selected  
6 by the Secretary. Such individuals shall include, for  
7 each application, Federal officials, the program con-  
8 sortium, and non-Federal experts who are not board  
9 members, officers, or employees of the program con-  
10 sortium or of a member of the program consortium.

11 (4) OVERSIGHT.—

12 (A) IN GENERAL.—The program consor-  
13 tium shall oversee the implementation of  
14 awards under this subsection, consistent with  
15 the annual plan under subsection (e), including  
16 disbursing funds and monitoring activities car-  
17 ried out under such awards for compliance with  
18 the terms and conditions of the awards.

19 (B) EFFECT.—Nothing in subparagraph  
20 (A) shall limit the authority or responsibility of  
21 the Secretary to oversee awards, or limit the  
22 authority of the Secretary to review or revoke  
23 awards.

24 (C) PROVISION OF INFORMATION.—The  
25 Secretary shall provide to the program consor-



1           tium the information necessary for the program  
2           consortium to carry out its responsibilities  
3           under this paragraph.

4           (g) ADMINISTRATIVE COSTS.—

5           (1) IN GENERAL.—To compensate the program  
6           consortium for carrying out its activities under this  
7           section, the Secretary shall provide to the program  
8           consortium funds sufficient to administer the pro-  
9           gram. This compensation may include a manage-  
10          ment fee consistent with Department of Energy con-  
11          tracting practices and procedures.

12          (2) ADVANCE.—The Secretary shall advance  
13          funds to the program consortium upon selection of  
14          the consortium, which shall be deducted from  
15          amounts to be provided under paragraph (1).

16          (h) AUDIT.—The Secretary shall retain an inde-  
17          pendent, commercial auditor to determine the extent to  
18          which funds provided to the program consortium, and  
19          funds provided under awards made under subsection (f),  
20          have been expended in a manner consistent with the pur-  
21          poses and requirements of this subtitle. The auditor shall  
22          transmit a report annually to the Secretary, who shall  
23          transmit the report to Congress, along with a plan to rem-  
24          edy any deficiencies cited in the report.



1 **SEC. 613. UNCONVENTIONAL NATURAL GAS AND OTHER PE-**  
2 **TROLEUM RESOURCES PROGRAM.**

3 (a) IN GENERAL.—The Secretary shall carry out ac-  
4 tivities under section 611(b)(3), to maximize the use of  
5 the onshore unconventional natural gas and other petro-  
6 leum resources of the United States, by increasing the  
7 supply of such resources, through reducing the cost and  
8 increasing the efficiency of exploration for and production  
9 of such resources, while improving safety and minimizing  
10 environmental impacts.

11 (b) AWARDS.—

12 (1) IN GENERAL.—The Secretary shall carry  
13 out this section through awards to research con-  
14 sortia made through an open, competitive process.  
15 As a condition of award of funds, qualified research  
16 consortia shall—

17 (A) demonstrate capability and experience  
18 in unconventional onshore natural gas or other  
19 petroleum research and development;

20 (B) provide a research plan that dem-  
21 onstrates how additional natural gas or oil pro-  
22 duction will be achieved; and

23 (C) at the request of the Secretary, provide  
24 technical advice to the Secretary for the pur-  
25 poses of developing the annual plan required  
26 under subsection (e).



1           (2) PRODUCTION POTENTIAL.—The Secretary  
2 shall seek to ensure that the number and types of  
3 awards made under this subsection have reasonable  
4 potential to lead to additional oil and natural gas  
5 production on Federal lands.

6           (3) SCHEDULE.—To carry out this subsection,  
7 not later than 180 days after the date of enactment  
8 of this Act, the Secretary shall solicit proposals from  
9 research consortia, which shall be submitted not  
10 later than 360 days after the date of enactment of  
11 this Act. The Secretary shall select the first group  
12 of research consortia to receive awards under this  
13 subsection not later than 18 months after such date  
14 of enactment.

15          (c) AUDIT.—The Secretary shall retain an inde-  
16 pendent, commercial auditor to determine the extent to  
17 which funds provided under awards made under this sec-  
18 tion have been expended in a manner consistent with the  
19 purposes and requirements of this subtitle. The auditor  
20 shall transmit a report annually to the Secretary, who  
21 shall transmit the report to Congress, along with a plan  
22 to remedy any deficiencies cited in the report.

23          (d) FOCUS AREAS FOR AWARDS.—

24           (1) UNCONVENTIONAL RESOURCES.—Awards  
25 from allocations under section 619(d)(2) shall focus



1 on areas including advanced coalbed methane, deep  
2 drilling, natural gas production from tight sands,  
3 natural gas production from gas shales, stranded  
4 gas, innovative exploration and production tech-  
5 niques, enhanced recovery techniques, and environ-  
6 mental mitigation of unconventional natural gas and  
7 other petroleum resources exploration and produc-  
8 tion.

9 (2) SMALL PRODUCERS.—Awards from alloca-  
10 tions under section 619(d)(3) shall be made to con-  
11 sortia consisting of small producers or organized pri-  
12 marily for the benefit of small producers, and shall  
13 focus on areas including complex geology involving  
14 rapid changes in the type and quality of the oil and  
15 gas reservoirs across the reservoir; low reservoir  
16 pressure; unconventional natural gas reservoirs in  
17 coalbeds, deep reservoirs, tight sands, or shales; and  
18 unconventional oil reservoirs in tar sands and oil  
19 shales.

20 (e) ANNUAL PLAN.—

21 (1) IN GENERAL.—The program under this sec-  
22 tion shall be carried out pursuant to an annual plan  
23 prepared by the Secretary in accordance with para-  
24 graph (2).

25 (2) DEVELOPMENT.—



1 (A) WRITTEN RECOMMENDATIONS.—Be-  
2 fore drafting an annual plan under this sub-  
3 section, the Secretary shall solicit specific writ-  
4 ten recommendations from the research con-  
5 sortia receiving awards under subsection (b)  
6 and the Unconventional Resources Technology  
7 Advisory Committee for each element to be ad-  
8 dressed in the plan, including those described in  
9 subparagraph (D).

10 (B) CONSULTATION.—The Secretary shall  
11 consult regularly with the research consortia  
12 throughout the preparation of the annual plan.

13 (C) PUBLICATION.—The Secretary shall  
14 transmit to Congress and publish in the Fed-  
15 eral Register the annual plan, along with any  
16 written comments received under subparagraph  
17 (A).

18 (D) CONTENTS.—The annual plan shall  
19 describe the ongoing and prospective activities  
20 under this section and shall include a list of any  
21 solicitations for awards that the Secretary plans  
22 to issue to carry out research, development,  
23 demonstration, or commercial application activi-  
24 ties, including the topics for such work, who



1           would be eligible to apply, selection criteria, and  
2           the duration of awards.

3           (3) ESTIMATES OF INCREASED ROYALTY RE-  
4           CEIPTS.—The Secretary, in consultation with the  
5           Secretary of the Interior, shall provide an annual re-  
6           port to Congress with the President’s budget on the  
7           estimated cumulative increase in Federal royalty re-  
8           ceipts (if any) resulting from the implementation of  
9           this subtitle. The initial report under this paragraph  
10          shall be submitted in the first President’s budget fol-  
11          lowing the completion of the first annual plan re-  
12          quired under this subsection.

13          (f) ACTIVITIES BY THE UNITED STATES GEOLOGI-  
14          CAL SURVEY.—The Secretary of the Interior, through the  
15          United States Geological Survey, shall, where appropriate,  
16          carry out programs of long-term research to complement  
17          the programs under this section.

18          **SEC. 614. ADDITIONAL REQUIREMENTS FOR AWARDS.**

19          (a) DEMONSTRATION PROJECTS.—An application for  
20          an award under this subtitle for a demonstration project  
21          shall describe with specificity the intended commercial use  
22          of the technology to be demonstrated.

23          (b) FLEXIBILITY IN LOCATING DEMONSTRATION  
24          PROJECTS.—Subject to the limitation in section 611(c),  
25          a demonstration project under this subtitle relating to an



1 ultra-deepwater technology or an ultra-deepwater architec-  
2 ture may be conducted in deepwater depths.

3 (c) INTELLECTUAL PROPERTY AGREEMENTS.—If an  
4 award under this subtitle is made to a consortium (other  
5 than the program consortium), the consortium shall pro-  
6 vide to the Secretary a signed contract agreed to by all  
7 members of the consortium describing the rights of each  
8 member to intellectual property used or developed under  
9 the award.

10 (d) TECHNOLOGY TRANSFER.—2.5 percent of the  
11 amount of each award made under this subtitle shall be  
12 designated for technology transfer and outreach activities  
13 under this subtitle.

14 (e) COST SHARING REDUCTION FOR INDEPENDENT  
15 PRODUCERS.—In applying the cost sharing requirements  
16 under [section \_\_\_\_] to an award under this subtitle the  
17 Secretary may reduce or eliminate the non-Federal re-  
18 quirement if the Secretary determines that the reduction  
19 is necessary and appropriate considering the technological  
20 risks involved in the project.

21 **SEC. 615. ADVISORY COMMITTEES.**

22 (a) ULTRA-DEEPWATER ADVISORY COMMITTEE.—

23 (1) ESTABLISHMENT.—Not later than 270 days  
24 after the date of enactment of this Act, the Sec-



1       retary shall establish an advisory committee to be  
2       known as the Ultra-Deepwater Advisory Committee.

3           (2) MEMBERSHIP.—The advisory committee  
4       under this subsection shall be composed of members  
5       appointed by the Secretary including—

6           (A) individuals with extensive research ex-  
7       perience or operational knowledge of offshore  
8       natural gas and other petroleum exploration  
9       and production;

10          (B) individuals broadly representative of  
11       the affected interests in ultra-deepwater natural  
12       gas and other petroleum production, including  
13       interests in environmental protection and safe  
14       operations;

15          (C) no individuals who are Federal employ-  
16       ees; and

17          (D) no individuals who are board members,  
18       officers, or employees of the program Consor-  
19       tium.

20          (3) DUTIES.—The advisory committee under  
21       this subsection shall—

22           (A) advise the Secretary on the develop-  
23       ment and implementation of programs under  
24       this subtitle related to ultra-deepwater natural  
25       gas and other petroleum resources; and



1 (B) carry out section 612(e)(2)(B).

2 (4) COMPENSATION.—A member of the advi-  
3 sory committee under this subsection shall serve  
4 without compensation but shall receive travel ex-  
5 penses in accordance with applicable provisions  
6 under subchapter I of chapter 57 of title 5, United  
7 States Code.

8 (b) UNCONVENTIONAL RESOURCES TECHNOLOGY  
9 ADVISORY COMMITTEE.—

10 (1) ESTABLISHMENT.—Not later than 270 days  
11 after the date of enactment of this Act, the Sec-  
12 retary shall establish an advisory committee to be  
13 known as the Unconventional Resources Technology  
14 Advisory Committee.

15 (2) MEMBERSHIP.—The advisory committee  
16 under this subsection shall be composed of members  
17 appointed by the Secretary including—

18 (A) a majority of members who are em-  
19 ployees or representatives of independent pro-  
20 ducers of natural gas and other petroleum, in-  
21 cluding small producers;

22 (B) individuals with extensive research ex-  
23 perience or operational knowledge of unconven-  
24 tional natural gas and other petroleum resource  
25 exploration and production;



1 (C) individuals broadly representative of  
2 the affected interests in unconventional natural  
3 gas and other petroleum resource exploration  
4 and production, including interests in environ-  
5 mental protection and safe operations; and

6 (D) no individuals who are Federal em-  
7 ployees.

8 (3) DUTIES.—The advisory committee under  
9 this subsection shall advise the Secretary on the de-  
10 velopment and implementation of activities under  
11 this subtitle related to unconventional natural gas  
12 and other petroleum resources.

13 (4) COMPENSATION.—A member of the advi-  
14 sory committee under this subsection shall serve  
15 without compensation but shall receive travel ex-  
16 penses in accordance with applicable provisions  
17 under subchapter I of chapter 57 of title 5, United  
18 States Code.

19 (c) PROHIBITION.—No advisory committee estab-  
20 lished under this section shall make recommendations on  
21 funding awards to particular consortia or other entities,  
22 or for specific projects.

23 **SEC. 616. LIMITS ON PARTICIPATION.**

24 An entity shall be eligible to receive an award under  
25 this subtitle only if the Secretary finds—



1 (1) that the entity's participation in the pro-  
2 gram under this subtitle would be in the economic  
3 interest of the United States; and

4 (2) that either—

5 (A) the entity is a United States-owned en-  
6 tity organized under the laws of the United  
7 States; or

8 (B) the entity is organized under the laws  
9 of the United States and has a parent entity or-  
10 ganized under the laws of a country that  
11 affords—

12 (i) to United States-owned entities op-  
13 portunities, comparable to those afforded  
14 to any other entity, to participate in any  
15 cooperative research venture similar to  
16 those authorized under this subtitle;

17 (ii) to United States-owned entities  
18 local investment opportunities comparable  
19 to those afforded to any other entity; and

20 (iii) adequate and effective protection  
21 for the intellectual property rights of  
22 United States-owned entities.

23 **SEC. 617. SUNSET.**

24 The authority provided by this subtitle shall termi-  
25 nate on September 30, 2015.



1 **SEC. 618. DEFINITIONS.**

2 In this subtitle:

3 (1) DEEPWATER.—The term “deepwater”  
4 means a water depth that is greater than 200 but  
5 less than 1,500 meters.

6 (2) INDEPENDENT PRODUCER OF OIL OR  
7 GAS.—

8 (A) IN GENERAL.—The term “independent  
9 producer of oil or gas” means any person that  
10 produces oil or gas other than a person to  
11 whom subsection (c) of section 613A of the In-  
12 ternal Revenue Code of 1986 does not apply by  
13 reason of paragraph (2) (relating to certain re-  
14 tailers) or paragraph (4) (relating to certain re-  
15 finers) of section 613A(d) of such Code.

16 (B) RULES FOR APPLYING PARAGRAPHS (2)  
17 AND (4) OF SECTION 613A(d).—For purposes of  
18 subparagraph (A), paragraphs (2) and (4) of  
19 section 613A(d) of the Internal Revenue Code  
20 of 1986 shall be applied by substituting “cal-  
21 endar year” for “taxable year” each place it ap-  
22 pears in such paragraphs.

23 (3) PROGRAM CONSORTIUM.—The term “pro-  
24 gram consortium” means the consortium selected  
25 under section 612(d).



1 (4) REMOTE OR INCONSEQUENTIAL.—The term  
2 “remote or inconsequential” has the meaning given  
3 that term in regulations issued by the Office of Gov-  
4 ernment Ethics under section 208(b)(2) of title 18,  
5 United States Code.

6 (5) SMALL PRODUCER.—The term “small pro-  
7 ducer” means an entity organized under the laws of  
8 the United States with production levels of less than  
9 1,000 barrels per day of oil equivalent.

10 (6) ULTRA-DEEPWATER.—The term “ultra-  
11 deepwater” means a water depth that is equal to or  
12 greater than 1,500 meters.

13 (7) ULTRA-DEEPWATER ARCHITECTURE.—The  
14 term “ultra-deepwater architecture” means the inte-  
15 gration of technologies for the exploration for, or  
16 production of, natural gas or other petroleum re-  
17 sources located at ultra-deepwater depths.

18 (8) ULTRA-DEEPWATER TECHNOLOGY.—The  
19 term “ultra-deepwater technology” means a discrete  
20 technology that is specially suited to address 1 or  
21 more challenges associated with the exploration for,  
22 or production of, natural gas or other petroleum re-  
23 sources located at ultra-deepwater depths.

24 (9) UNCONVENTIONAL NATURAL GAS AND  
25 OTHER PETROLEUM RESOURCE.—The term “uncon-



1       ventional natural gas and other petroleum resource”  
2       means natural gas and other petroleum resource lo-  
3       cated onshore in an economically inaccessible geo-  
4       logical formation, including resources of small pro-  
5       ducers.

6       **SEC. 619. FUNDING.**

7       (a) IN GENERAL.—

8               (1) OIL AND GAS LEASE INCOME.—For each of  
9       fiscal years 2006 through 2015, from any Federal  
10      royalties, rents, and bonuses derived from Federal  
11      onshore and offshore oil and gas leases issued under  
12      the Outer Continental Shelf Lands Act and the Min-  
13      eral Leasing Act which are deposited in the Treas-  
14      ury, and after distribution of any such funds as de-  
15      scribed in subsection (c), \$150,000,000 shall be de-  
16      posited into the Ultra-Deepwater and Unconven-  
17      tional Natural Gas and Other Petroleum Research  
18      Fund (in this section referred to as the Fund). For  
19      purposes of this section, the term “royalties” ex-  
20      cludes proceeds from the sale of royalty production  
21      taken in kind and royalty production that is trans-  
22      ferred under section 27(a)(3) of the Outer Conti-  
23      nental Shelf Lands Act (43 U.S.C. 1353(a)(3)).

24               (2) AUTHORIZATION OF APPROPRIATIONS.—In  
25      addition to amounts described in paragraph (1),



1       there are authorized to be appropriated to the Sec-  
2       retary, to be deposited in the Fund, \$50,000,000 for  
3       each of the fiscal years 2006 through 2015, to re-  
4       main available until expended.

5       (b) OBLIGATIONAL AUTHORITY.—Monies in the  
6       Fund shall be available to the Secretary for obligation  
7       under this subtitle without fiscal year limitation, to remain  
8       available until expended.

9       (c) PRIOR DISTRIBUTIONS.—The distributions de-  
10      scribed in subsection (a) are those required by law—

11           (1) to States and to the Reclamation Fund  
12      under the Mineral Leasing Act (30 U.S.C. 191(a));  
13      and

14           (2) to other funds receiving monies from Fed-  
15      eral oil and gas leasing programs, including—

16           (A) any recipients pursuant to section 8(g)  
17      of the Outer Continental Shelf Lands Act (43  
18      U.S.C. 1337(g));

19           (B) the Land and Water Conservation  
20      Fund, pursuant to section 2(c) of the Land and  
21      Water Conservation Fund Act of 1965 (16  
22      U.S.C. 4601–5(c));

23           (C) the Historic Preservation Fund, pursu-  
24      ant to section 108 of the National Historic  
25      Preservation Act (16 U.S.C. 470h); and



1 (D) the Secure Energy Reinvestment  
2 Fund.

3 (d) ALLOCATION.—Amounts obligated from the Fund  
4 under this section in each fiscal year shall be allocated  
5 as follows:

6 (1) 50 percent shall be for activities under sec-  
7 tion 612.

8 (2) 35 percent shall be for activities under sec-  
9 tion 613(d)(1).

10 (3) 10 percent shall be for activities under sec-  
11 tion 613(d)(2).

12 (4) 5 percent shall be for research under section  
13 611(d).

14 (e) FUND.—There is hereby established in the Treas-  
15 ury of the United States a separate fund to be known as  
16 the “Ultra-Deepwater and Unconventional Natural Gas  
17 and Other Petroleum Research Fund”.

## 18 **TITLE VII—HYDROGEN**

### 19 **SEC. 701. DEFINITIONS.**

20 In this title:

21 (1) ADVISORY COMMITTEE.—The term “Advi-  
22 sory Committee” means the Hydrogen Technical and  
23 Fuel Cell Advisory Committee established under sec-  
24 tion 705.



1           (2) FUEL CELL.—The term “fuel cell” means a  
2           device that directly converts the chemical energy of  
3           a fuel and an oxidant into electricity by an electro-  
4           chemical process taking place at separate electrodes  
5           in the device.

6           (3) INFRASTRUCTURE.—The term “infrastruc-  
7           ture” means the equipment, systems, or facilities  
8           used to produce, distribute, deliver, or store hydro-  
9           gen.

10          (4) LIGHT DUTY VEHICLE.—The term “light  
11          duty vehicle” means a car or truck classified by the  
12          Department of Transportation as a Class I or IIA  
13          vehicle.

14 **SEC. 702. PLAN.**

15          Not later than 6 months after the date of enactment  
16          of this Act, the Secretary shall transmit to Congress a  
17          coordinated plan for the programs described in this title  
18          and any other programs of the Department that are di-  
19          rectly related to fuel cells or hydrogen. The plan shall de-  
20          scribe, at a minimum—

21               (1) the agenda for the next 5 years for the pro-  
22               grams authorized under this title, including the  
23               agenda for each activity enumerated in section  
24               703(a);



1           (2) the types of entities that will carry out the  
2 activities under this title and what role each entity  
3 is expected to play;

4           (3) the milestones that will be used to evaluate  
5 the programs for the next 5 years;

6           (4) the most significant technical and nontech-  
7 nical hurdles that stand in the way of achieving the  
8 goals described in section 703(b), and how the pro-  
9 grams will address those hurdles; and

10           (5) the policy assumptions that are implicit in  
11 the plan, including any assumptions that would af-  
12 fect the sources of hydrogen or the marketability of  
13 hydrogen-related products.

14 **SEC. 703. PROGRAMS.**

15           (a) **ACTIVITIES.**—The Secretary, in partnership with  
16 the private sector, shall conduct programs to address—

17           (1) production of hydrogen from diverse energy  
18 sources, including—

19                   (A) fossil fuels, which may include carbon  
20 capture and sequestration;

21                   (B) hydrogen-carrier fuels (including eth-  
22 anol and methanol);

23                   (C) renewable energy resources, including  
24 biomass; and

25                   (D) nuclear energy;



1           (2) use of hydrogen for commercial, industrial,  
2           and residential electric power generation;

3           (3) safe delivery of hydrogen or hydrogen-car-  
4           rier fuels, including—

5                 (A) transmission by pipeline and other dis-  
6                 tribution methods; and

7                 (B) convenient and economic refueling of  
8                 vehicles either at central refueling stations or  
9                 through distributed on-site generation;

10          (4) advanced vehicle technologies, including—

11                 (A) engine and emission control systems;

12                 (B) energy storage, electric propulsion, and  
13                 hybrid systems;

14                 (C) automotive materials; and

15                 (D) other advanced vehicle technologies;

16          (5) storage of hydrogen or hydrogen-carrier  
17          fuels, including development of materials for safe  
18          and economic storage in gaseous, liquid, or solid  
19          form at refueling facilities and onboard vehicles;

20          (6) development of safe, durable, affordable,  
21          and efficient fuel cells, including fuel-flexible fuel cell  
22          power systems, improved manufacturing processes,  
23          high-temperature membranes, cost-effective fuel  
24          processing for natural gas, fuel cell stack and system



1 reliability, low temperature operation, and cold start  
2 capability;

3 (7) development, after consultation with the pri-  
4 vate sector, of necessary codes and standards (in-  
5 cluding international codes and standards and vol-  
6 untary consensus standards adopted in accordance  
7 with OMB Circular A-119) and safety practices for  
8 the production, distribution, storage, and use of hy-  
9 drogen, hydrogen-carrier fuels, and related products;  
10 and

11 (8) a public education program to develop im-  
12 proved knowledge and acceptability of hydrogen-  
13 based systems.

14 (b) PROGRAM GOALS.—

15 (1) VEHICLES.—For vehicles, the goals of the  
16 program are—

17 (A) to enable a commitment by auto-  
18 makers no later than year 2015 to offer safe,  
19 affordable, and technically viable hydrogen fuel  
20 cell vehicles in the mass consumer market; and

21 (B) to enable production, delivery, and ac-  
22 ceptance by consumers of model year 2020 hy-  
23 drogen fuel cell and other hydrogen-powered ve-  
24 hicles that will have—

25 (i) a range of at least 300 miles;



1 (ii) improved performance and ease of  
2 driving;

3 (iii) safety and performance com-  
4 parable to vehicle technologies in the mar-  
5 ket; and

6 (iv) when compared to light duty vehi-  
7 cles in model year 2003—

8 (I) fuel economy that is substan-  
9 tially higher;

10 (II) substantially lower emissions  
11 of air pollutants; and

12 (III) equivalent or improved vehi-  
13 cle fuel system crash integrity and oc-  
14 cupant protection.

15 (2) HYDROGEN ENERGY AND ENERGY INFRA-  
16 STRUCTURE.—For hydrogen energy and energy in-  
17 frastructure, the goals of the program are to enable  
18 a commitment not later than 2015 that will lead to  
19 infrastructure by 2020 that will provide—

20 (A) safe and convenient refueling;

21 (B) improved overall efficiency;

22 (C) widespread availability of hydrogen  
23 from domestic energy sources through—

24 (i) production, with consideration of  
25 emissions levels;



1 (ii) delivery, including transmission by  
2 pipeline and other distribution methods for  
3 hydrogen; and

4 (iii) storage, including storage in sur-  
5 face transportation vehicles;

6 (D) hydrogen for fuel cells, internal com-  
7 bustion engines, and other energy conversion  
8 devices for portable, stationary, and transpor-  
9 tation applications; and

10 (E) other technologies consistent with the  
11 Department's plan.

12 (3) FUEL CELLS.—The goals for fuel cells and  
13 their portable, stationary, and transportation appli-  
14 cations are to enable—

15 (A) safe, economical, and environmentally  
16 sound hydrogen fuel cells;

17 (B) fuel cells for light duty and other vehi-  
18 cles; and

19 (C) other technologies consistent with the  
20 Department's plan.

21 (c) DEMONSTRATION.—In carrying out the programs  
22 under this section, the Secretary shall fund a limited num-  
23 ber of demonstration projects, consistent with a deter-  
24 mination of the maturity, cost-effectiveness, and environ-  
25 mental impacts of technologies supporting each project. In



1 selecting projects under this subsection, the Secretary  
2 shall, to the extent practicable and in the public interest,  
3 select projects that—

4 (1) involve using hydrogen and related products  
5 at existing facilities or installations, such as existing  
6 office buildings, military bases, vehicle fleet centers,  
7 transit bus authorities, or units of the National Park  
8 System;

9 (2) depend on reliable power from hydrogen to  
10 carry out essential activities;

11 (3) lead to the replication of hydrogen tech-  
12 nologies and draw such technologies into the market-  
13 place;

14 (4) include vehicle, portable, and stationary  
15 demonstrations of fuel cell and hydrogen-based en-  
16 ergy technologies;

17 (5) address the interdependency of demand for  
18 hydrogen fuel cell applications and hydrogen fuel in-  
19 frastructure;

20 (6) raise awareness of hydrogen technology  
21 among the public;

22 (7) facilitate identification of an optimum tech-  
23 nology among competing alternatives;

24 (8) address distributed generation using renew-  
25 able sources; and



1           (9) address applications specific to rural or re-  
2           mote locations, including isolated villages and is-  
3           lands, the National Park System, and tribal entities.  
4 The Secretary shall give preference to projects which ad-  
5 dress multiple elements contained in paragraphs (1)  
6 through (9).

7           (d) DEPLOYMENT.—In carrying out the programs  
8 under this section, the Secretary shall, in partnership with  
9 the private sector, conduct activities to facilitate the de-  
10 ployment of hydrogen energy and energy infrastructure,  
11 fuel cells, and advanced vehicle technologies.

12          (e) FUNDING.—

13           (1) IN GENERAL.—The Secretary shall carry  
14 out the programs under this section using a competi-  
15 tive, merit-based review process and consistent with  
16 the generally applicable Federal laws and regulations  
17 governing awards of financial assistance, contracts,  
18 or other agreements.

19           (2) RESEARCH CENTERS.—Activities under this  
20 section may be carried out by funding nationally rec-  
21 ognized university-based or Federal laboratory re-  
22 search centers.

23           (f) DISCLOSURE.—Section 623 of the Energy Policy  
24 Act of 1992 (42 U.S.C. 13293) relating to the protection  
25 of information shall apply to projects carried out through



1 grants, cooperative agreements, or contracts under this  
2 title.

3 **SEC. 704. INTERAGENCY TASK FORCE.**

4 (a) ESTABLISHMENT.—Not later than 120 days after  
5 the date of enactment of this Act, the President shall es-  
6 tablish an interagency task force chaired by the Secretary  
7 with representatives from each of the following:

8 (1) The Office of Science and Technology Pol-  
9 icy within the Executive Office of the President.

10 (2) The Department of Transportation.

11 (3) The Department of Defense.

12 (4) The Department of Commerce (including  
13 the National Institute of Standards and Tech-  
14 nology).

15 (5) The Department of State.

16 (6) The Environmental Protection Agency.

17 (7) The National Aeronautics and Space Ad-  
18 ministration.

19 (8) Other Federal agencies as the Secretary de-  
20 termines appropriate.

21 (b) DUTIES.—

22 (1) PLANNING.—The interagency task force  
23 shall work toward—

24 (A) a safe, economical, and environ-  
25 mentally sound fuel infrastructure for hydrogen



1 and hydrogen-carrier fuels, including an infra-  
2 structure that supports buses and other fleet  
3 transportation;

4 (B) fuel cells in government and other ap-  
5 plications, including portable, stationary, and  
6 transportation applications;

7 (C) distributed power generation, including  
8 the generation of combined heat, power, and  
9 clean fuels including hydrogen;

10 (D) uniform hydrogen codes, standards,  
11 and safety protocols; and

12 (E) vehicle hydrogen fuel system integrity  
13 safety performance.

14 (2) ACTIVITIES.—The interagency task force  
15 may organize workshops and conferences, may issue  
16 publications, and may create databases to carry out  
17 its duties. The interagency task force shall—

18 (A) foster the exchange of generic, non-  
19 proprietary information and technology among  
20 industry, academia, and government;

21 (B) develop and maintain an inventory and  
22 assessment of hydrogen, fuel cells, and other  
23 advanced technologies, including the commercial  
24 capability of each technology for the economic



1 and environmentally safe production, distribu-  
2 tion, delivery, storage, and use of hydrogen;

3 (C) integrate technical and other informa-  
4 tion made available as a result of the programs  
5 and activities under this title;

6 (D) promote the marketplace introduction  
7 of infrastructure for hydrogen fuel vehicles; and

8 (E) conduct an education program to pro-  
9 vide hydrogen and fuel cell information to po-  
10 tential end-users.

11 (c) AGENCY COOPERATION.—The heads of all agen-  
12 cies, including those whose agencies are not represented  
13 on the interagency task force, shall cooperate with and  
14 furnish information to the interagency task force, the Ad-  
15 visory Committee, and the Department.

16 **SEC. 705. ADVISORY COMMITTEE.**

17 (a) ESTABLISHMENT.—The Hydrogen Technical and  
18 Fuel Cell Advisory Committee is established to advise the  
19 Secretary on the programs and activities under this title.

20 (b) MEMBERSHIP.—

21 (1) MEMBERS.—The Advisory Committee shall  
22 be comprised of not fewer than 12 nor more than 25  
23 members. The members shall be appointed by the  
24 Secretary to represent domestic industry, academia,  
25 professional societies, government agencies, Federal



1 laboratories, previous advisory panels, and financial,  
2 environmental, and other appropriate organizations  
3 based on the Department's assessment of the tech-  
4 nical and other qualifications of committee members  
5 and the needs of the Advisory Committee.

6 (2) TERMS.—The term of a member of the Ad-  
7 visory Committee shall not be more than 3 years.  
8 The Secretary may appoint members of the Advisory  
9 Committee in a manner that allows the terms of the  
10 members serving at any time to expire at spaced in-  
11 tervals so as to ensure continuity in the functioning  
12 of the Advisory Committee. A member of the Advi-  
13 sory Committee whose term is expiring may be re-  
14 appointed.

15 (3) CHAIRPERSON.—The Advisory Committee  
16 shall have a chairperson, who is elected by the mem-  
17 bers from among their number.

18 (c) REVIEW.—The Advisory Committee shall review  
19 and make recommendations to the Secretary on—

20 (1) the implementation of programs and activi-  
21 ties under this title;

22 (2) the safety, economical, and environmental  
23 consequences of technologies for the production, dis-  
24 tribution, delivery, storage, or use of hydrogen en-  
25 ergy and fuel cells; and



1 (3) the plan under section 702.

2 (d) RESPONSE.—

3 (1) CONSIDERATION OF RECOMMENDATIONS.—

4 The Secretary shall consider, but need not adopt,  
5 any recommendations of the Advisory Committee  
6 under subsection (c).

7 (2) BIENNIAL REPORT.—The Secretary shall  
8 transmit a biennial report to Congress describing  
9 any recommendations made by the Advisory Com-  
10 mittee since the previous report. The report shall in-  
11 clude a description of how the Secretary has imple-  
12 mented or plans to implement the recommendations,  
13 or an explanation of the reasons that a recommenda-  
14 tion will not be implemented. The report shall be  
15 transmitted along with the President's budget pro-  
16 posal.

17 (e) SUPPORT.—The Secretary shall provide resources  
18 necessary in the judgment of the Secretary for the Advi-  
19 sory Committee to carry out its responsibilities under this  
20 title.

21 **SEC. 706. EXTERNAL REVIEW.**

22 (a) PLAN.—The Secretary shall enter into an ar-  
23 rangement with the National Academy of Sciences to re-  
24 view the plan prepared under section 702, which shall be  
25 completed not later than 6 months after the Academy re-



1 ceives the plan. Not later than 45 days after receiving the  
2 review, the Secretary shall transmit the review to Congress  
3 along with a plan to implement the review's recommenda-  
4 tions or an explanation of the reasons that a recommenda-  
5 tion will not be implemented.

6 (b) **ADDITIONAL REVIEW.**—The Secretary shall enter  
7 into an arrangement with the National Academy of  
8 Sciences under which the Academy will review the pro-  
9 grams under section 703 during the fourth year following  
10 the date of enactment of this Act. The Academy's review  
11 shall include the research priorities and technical mile-  
12 stones, and evaluate the progress toward achieving them.  
13 The review shall be completed not later than 5 years after  
14 the date of enactment of this Act. Not later than 45 days  
15 after receiving the review, the Secretary shall transmit the  
16 review to Congress along with a plan to implement the  
17 review's recommendations or an explanation for the rea-  
18 sons that a recommendation will not be implemented.

19 **SEC. 707. MISCELLANEOUS PROVISIONS.**

20 (a) **REPRESENTATION.**—The Secretary may rep-  
21 resent the United States interests with respect to activities  
22 and programs under this title, in coordination with the  
23 Department of Transportation, the National Institute of  
24 Standards and Technology, and other relevant Federal



1 agencies, before governments and nongovernmental orga-  
2 nizations including—

3 (1) other Federal, State, regional, and local  
4 governments and their representatives;

5 (2) industry and its representatives, including  
6 members of the energy and transportation indus-  
7 tries; and

8 (3) in consultation with the Department of  
9 State, foreign governments and their representatives  
10 including international organizations.

11 (b) REGULATORY AUTHORITY.—Nothing in this title  
12 shall be construed to alter the regulatory authority of the  
13 Department.

14 **SEC. 708. SAVINGS CLAUSE.**

15 Nothing in this title shall be construed to affect the  
16 authority of the Secretary of Transportation that may  
17 exist prior to the date of enactment of this Act with re-  
18 spect to—

19 (1) research into, and regulation of, hydrogen-  
20 powered vehicles fuel systems integrity, standards,  
21 and safety under subtitle VI of title 49, United  
22 States Code;

23 (2) regulation of hazardous materials transpor-  
24 tation under chapter 51 of title 49, United States  
25 Code;



1 (3) regulation of pipeline safety under chapter  
2 601 of title 49, United States Code;

3 (4) encouragement and promotion of research,  
4 development, and deployment activities relating to  
5 advanced vehicle technologies under section 5506 of  
6 title 49, United States Code;

7 (5) regulation of motor vehicle safety under  
8 chapter 301 of title 49, United States Code;

9 (6) automobile fuel economy under chapter 329  
10 of title 49, United States Code; or

11 (7) representation of the interests of the United  
12 States with respect to the activities and programs  
13 under the authority of title 49, United States Code.

14 **SEC. 709. AUTHORIZATION OF APPROPRIATIONS.**

15 There are authorized to be appropriated to the Sec-  
16 retary to carry out this title, in addition to any amounts  
17 made available for these purposes under other Acts—

18 (1) \$273,500,000 for fiscal year 2006;

19 (2) \$375,000,000 for fiscal year 2007;

20 (3) \$450,000,000 for fiscal year 2008;

21 (4) \$500,000,000 for fiscal year 2009; and

22 (5) \$550,000,000 for fiscal year 2010.



1           **TITLE VIII—ADVANCED**  
2                           **VEHICLES**  
3           **Subtitle A—Pilot Program**

4   **SEC. 801. DEFINITIONS.**

5       In this subtitle:

6           (1) **ALTERNATIVE FUELED VEHICLE.**—

7                   (A) **IN GENERAL.**—The term “alternative  
8           fueled vehicle” means a vehicle propelled solely  
9           on an alternative fuel (as defined in section 301  
10          of the Energy Policy Act of 1992 (42 U.S.C.  
11          13211)).

12                   (B) **EXCLUSION.**—The term “alternative  
13          fueled vehicle” does not include a vehicle that  
14          the Secretary determines, by regulation, does  
15          not yield substantial environmental benefits  
16          over a vehicle operating solely on gasoline or  
17          diesel derived from fossil fuels.

18           (2) **FUEL CELL VEHICLE.**—The term “fuel cell  
19          vehicle” means a vehicle propelled by an electric  
20          motor powered by a fuel cell system that converts  
21          chemical energy into electricity by combining oxygen  
22          (from air) with hydrogen fuel that is stored on the  
23          vehicle or is produced onboard by reformation of a  
24          hydrocarbon fuel. Such fuel cell system may or may



1 not include the use of auxiliary energy storage sys-  
2 tems to enhance vehicle performance.

3 (3) HYBRID VEHICLE.—The term “hybrid vehi-  
4 cle” means a medium or heavy duty vehicle propelled  
5 by an internal combustion engine or heat engine  
6 using any combustible fuel and an onboard recharge-  
7 able energy storage device.

8 (4) NEIGHBORHOOD ELECTRIC VEHICLE.—The  
9 term “neighborhood electric vehicle” means a motor  
10 vehicle that—

11 (A) meets the definition of a low-speed ve-  
12 hicle (as defined in part 571 of title 49, Code  
13 of Federal Regulations);

14 (B) meets the definition of a zero-emission  
15 vehicle (as defined in section 86.1702–99 of  
16 title 40, Code of Federal Regulations);

17 (C) meets the requirements of Federal  
18 Motor Vehicle Safety Standard No. 500; and

19 (D) has a maximum speed of not greater  
20 than 25 miles per hour.

21 (5) PILOT PROGRAM.—The term “pilot pro-  
22 gram” means the competitive grant program estab-  
23 lished under section 802.

24 (6) ULTRA-LOW SULFUR DIESEL VEHICLE.—  
25 The term “ultra-low sulfur diesel vehicle” means a



1 vehicle manufactured in model year 2005 or 2006  
2 powered by a heavy-duty diesel engine that—

3 (A) is fueled by diesel fuel that contains  
4 sulfur at not more than 15 parts per million;  
5 and

6 (B) emits not more than the lesser of—

7 (i) 2.5 grams per brake horsepower-  
8 hour of nonmethane hydrocarbons and ox-  
9 ides of nitrogen and .01 grams per brake  
10 horsepower-hour of particulate matter; or

11 (ii) the quantity of emissions of non-  
12 methane hydrocarbons, oxides of nitrogen,  
13 and particulate matter of the best-per-  
14 forming technology of ultra-low sulfur die-  
15 sel vehicles of the same class and applica-  
16 tion that are commercially available.

17 **SEC. 802. PILOT PROGRAM.**

18 (a) ESTABLISHMENT.—The Secretary, in consulta-  
19 tion with the Secretary of Transportation, shall establish  
20 a competitive grant pilot program, to be administered  
21 through the Clean Cities Program of the Department of  
22 Energy, to provide not more than 15 geographically dis-  
23 persed project grants to State governments, local govern-  
24 ments, or metropolitan transportation authorities to carry



1 out a project or projects for the purposes described in sub-  
2 section (b).

3 (b) GRANT PURPOSES.—A grant under this section  
4 may be used for the following purposes:

5 (1) The acquisition of alternative fueled vehicles  
6 or fuel cell vehicles, including—

7 (A) passenger vehicles (including neighbor-  
8 hood electric vehicles); and

9 (B) motorized 2-wheel bicycles, scooters, or  
10 other vehicles for use by law enforcement per-  
11 sonnel or other State or local government or  
12 metropolitan transportation authority employ-  
13 ees.

14 (2) The acquisition of alternative fueled vehi-  
15 cles, hybrid vehicles, or fuel cell vehicles, including—

16 (A) buses used for public transportation or  
17 transportation to and from schools;

18 (B) delivery vehicles for goods or services;  
19 and

20 (C) ground support vehicles at public air-  
21 ports (including vehicles to carry baggage or  
22 push or pull airplanes toward or away from ter-  
23 minal gates).

24 (3) The acquisition of ultra-low sulfur diesel ve-  
25 hicles.



1           (4) Installation or acquisition of infrastructure  
2           necessary to directly support an alternative fueled  
3           vehicle, fuel cell vehicle, or hybrid vehicle project  
4           funded by the grant, including fueling and other  
5           support equipment.

6           (5) Operation and maintenance of vehicles, in-  
7           frastructure, and equipment acquired as part of a  
8           project funded by the grant.

9           (c) APPLICATIONS.—

10           (1) REQUIREMENTS.—

11           (A) IN GENERAL.—The Secretary shall  
12           issue requirements for applying for grants  
13           under the pilot program.

14           (B) MINIMUM REQUIREMENTS.—At a min-  
15           imum, the Secretary shall require that an appli-  
16           cation for a grant—

17           (i) be submitted by the head of a  
18           State or local government or a metropoli-  
19           tan transportation authority, or any com-  
20           bination thereof, and a registered partici-  
21           pant in the Clean Cities Program of the  
22           Department of Energy; and

23           (ii) include—

24           (I) a description of the project  
25           proposed in the application, including



1 how the project meets the require-  
2 ments of this subtitle;

3 (II) an estimate of the ridership  
4 or degree of use of the project;

5 (III) an estimate of the air pollu-  
6 tion emissions reduced and fossil fuel  
7 displaced as a result of the project,  
8 and a plan to collect and disseminate  
9 environmental data, related to the  
10 project to be funded under the grant,  
11 over the life of the project;

12 (IV) a description of how the  
13 project will be sustainable without  
14 Federal assistance after the comple-  
15 tion of the term of the grant;

16 (V) a complete description of the  
17 costs of the project, including acquisi-  
18 tion, construction, operation, and  
19 maintenance costs over the expected  
20 life of the project;

21 (VI) a description of which costs  
22 of the project will be supported by  
23 Federal assistance under this subtitle;  
24 and



1 (VII) documentation to the satis-  
2 faction of the Secretary that diesel  
3 fuel containing sulfur at not more  
4 than 15 parts per million is available  
5 for carrying out the project, and a  
6 commitment by the applicant to use  
7 such fuel in carrying out the project.

8 (2) PARTNERS.—An applicant under paragraph  
9 (1) may carry out a project under the pilot program  
10 in partnership with public and private entities.

11 (d) SELECTION CRITERIA.—In evaluating applica-  
12 tions under the pilot program, the Secretary shall—

13 (1) consider each applicant's previous experi-  
14 ence with similar projects; and

15 (2) give priority consideration to applications  
16 that—

17 (A) are most likely to maximize protection  
18 of the environment;

19 (B) demonstrate the greatest commitment  
20 on the part of the applicant to ensure funding  
21 for the proposed project and the greatest likeli-  
22 hood that the project will be maintained or ex-  
23 panded after Federal assistance under this sub-  
24 title is completed; and



1 (C) exceed the minimum requirements of  
2 subsection (c)(1)(B)(ii).

3 (e) PILOT PROJECT REQUIREMENTS.—

4 (1) MAXIMUM AMOUNT.—The Secretary shall  
5 not provide more than \$20,000,000 in Federal as-  
6 sistance under the pilot program to any applicant.

7 (2) COST SHARING.—The Secretary shall not  
8 provide more than 50 percent of the cost, incurred  
9 during the period of the grant, of any project under  
10 the pilot program.

11 (3) MAXIMUM PERIOD OF GRANTS.—The Sec-  
12 retary shall not fund any applicant under the pilot  
13 program for more than 5 years.

14 (4) DEPLOYMENT AND DISTRIBUTION.—The  
15 Secretary shall seek to the maximum extent prac-  
16 ticable to ensure a broad geographic distribution of  
17 project sites.

18 (5) TRANSFER OF INFORMATION AND KNOWL-  
19 EDGE.—The Secretary shall establish mechanisms to  
20 ensure that the information and knowledge gained  
21 by participants in the pilot program are transferred  
22 among the pilot program participants and to other  
23 interested parties, including other applicants that  
24 submitted applications.

25 (f) SCHEDULE.—



1           (1) PUBLICATION.—Not later than 90 days  
2 after the date of enactment of this Act, the Sec-  
3 retary shall publish in the Federal Register, Com-  
4 merce Business Daily, and elsewhere as appropriate,  
5 a request for applications to undertake projects  
6 under the pilot program. Applications shall be due  
7 not later than 180 days after the date of publication  
8 of the notice.

9           (2) SELECTION.—Not later than 180 days after  
10 the date by which applications for grants are due,  
11 the Secretary shall select by competitive, peer re-  
12 viewed proposal, all applications for projects to be  
13 awarded a grant under the pilot program.

14       (g) LIMIT ON FUNDING.—The Secretary shall pro-  
15 vide not less than 20 nor more than 25 percent of the  
16 grant funding made available under this section for the  
17 acquisition of ultra-low sulfur diesel vehicles.

18 **SEC. 803. REPORTS TO CONGRESS.**

19       (a) INITIAL REPORT.—Not later than 60 days after  
20 the date on which grants are awarded under this subtitle,  
21 the Secretary shall submit to Congress a report  
22 containing—

23           (1) an identification of the grant recipients and  
24 a description of the projects to be funded;



1 (2) an identification of other applicants that  
2 submitted applications for the pilot program; and

3 (3) a description of the mechanisms used by the  
4 Secretary to ensure that the information and knowl-  
5 edge gained by participants in the pilot program are  
6 transferred among the pilot program participants  
7 and to other interested parties, including other ap-  
8 plicants that submitted applications.

9 (b) EVALUATION.—Not later than 3 years after the  
10 date of enactment of this Act, and annually thereafter  
11 until the pilot program ends, the Secretary shall submit  
12 to Congress a report containing an evaluation of the effec-  
13 tiveness of the pilot program, including—

14 (1) an assessment of the benefits to the envi-  
15 ronment derived from the projects included in the  
16 pilot program; and

17 (2) an estimate of the potential benefits to the  
18 environment to be derived from widespread applica-  
19 tion of alternative fueled vehicles and ultra-low sul-  
20 fur diesel vehicles.

21 **SEC. 804. AUTHORIZATION OF APPROPRIATIONS.**

22 There are authorized to be appropriated to the Sec-  
23 retary to carry out this subtitle \$200,000,000, to remain  
24 available until expended.



## 1       **Subtitle B—Clean School Buses**

### 2       **SEC. 811. DEFINITIONS.**

3       In this subtitle:

4           (1) ADMINISTRATOR.—The term “Adminis-  
5       trator” means the Administrator of the Environ-  
6       mental Protection Agency.

7           (2) ALTERNATIVE FUEL.—The term “alter-  
8       native fuel” means liquefied natural gas, compressed  
9       natural gas, liquefied petroleum gas, hydrogen, pro-  
10      pane, or methanol or ethanol at no less than 85 per-  
11      cent by volume.

12          (3) ALTERNATIVE FUEL SCHOOL BUS.—The  
13      term “alternative fuel school bus” means a school  
14      bus that meets all of the requirements of this sub-  
15      title and is operated solely on an alternative fuel.

16          (4) EMISSIONS CONTROL RETROFIT TECH-  
17      NOLOGY.—The term “emissions control retrofit tech-  
18      nology” means a particulate filter or other emissions  
19      control equipment that is verified or certified by the  
20      Administrator or the California Air Resources Board  
21      as an effective emission reduction technology when  
22      installed on an existing school bus.

23          (5) IDLING.—The term “idling” means oper-  
24      ating an engine while remaining stationary for more  
25      than approximately 15 minutes, except that the term



1 does not apply to routine stoppages associated with  
2 traffic movement or congestion.

3 (6) ULTRA-LOW SULFUR DIESEL FUEL.—The  
4 term “ultra-low sulfur diesel fuel” means diesel fuel  
5 that contains sulfur at not more than 15 parts per  
6 million.

7 (7) ULTRA-LOW SULFUR DIESEL FUEL SCHOOL  
8 BUS.—The term “ultra-low sulfur diesel fuel school  
9 bus” means a school bus that meets all of the re-  
10 quirements of this subtitle and is operated solely on  
11 ultra-low sulfur diesel fuel.

12 **SEC. 812. PROGRAM FOR REPLACEMENT OF CERTAIN**  
13 **SCHOOL BUSES WITH CLEAN SCHOOL BUSES.**

14 (a) ESTABLISHMENT.—The Administrator, in con-  
15 sultation with the Secretary and other appropriate Federal  
16 departments and agencies, shall establish a program for  
17 awarding grants on a competitive basis to eligible entities  
18 for the replacement of existing school buses manufactured  
19 before model year 1991 with alternative fuel school buses  
20 and ultra-low sulfur diesel fuel school buses.

21 (b) REQUIREMENTS.—

22 (1) IN GENERAL.—Not later than 90 days after  
23 the date of enactment of this Act, the Administrator  
24 shall establish and publish in the Federal Register  
25 grant requirements on eligibility for assistance, and



1 on implementation of the program established under  
2 subsection (a), including instructions for the submis-  
3 sion of grant applications and certification require-  
4 ments to ensure compliance with this subtitle.

5 (2) APPLICATION DEADLINES.—The require-  
6 ments established under paragraph (1) shall require  
7 submission of grant applications not later than—

8 (A) in the case of the first year of program  
9 implementation, the date that is 180 days after  
10 the publication of the requirements in the Fed-  
11 eral Register; and

12 (B) in the case of each subsequent year,  
13 June 1 of the year.

14 (c) ELIGIBLE RECIPIENTS.—A grant shall be award-  
15 ed under this section only—

16 (1) to 1 or more local or State governmental  
17 entities responsible for providing school bus service  
18 to 1 or more public school systems or responsible for  
19 the purchase of school buses;

20 (2) to 1 or more contracting entities that pro-  
21 vide school bus service to 1 or more public school  
22 systems, if the grant application is submitted jointly  
23 with the 1 or more school systems to be served by  
24 the buses, except that the application may provide  
25 that buses purchased using funds awarded shall be



1 owned, operated, and maintained exclusively by the  
2 1 or more contracting entities; or

3 (3) to a nonprofit school transportation associa-  
4 tion representing private contracting entities, if the  
5 association has notified and received approval from  
6 the 1 or more school systems to be served by the  
7 buses.

8 (d) AWARD DEADLINES.—

9 (1) IN GENERAL.—Subject to paragraph (2),  
10 the Administrator shall award a grant made to a  
11 qualified applicant for a fiscal year—

12 (A) in the case of the first fiscal year of  
13 program implementation, not later than the  
14 date that is 90 days after the application dead-  
15 line established under subsection (b)(2); and

16 (B) in the case of each subsequent fiscal  
17 year, not later than August 1 of the fiscal year.

18 (2) INSUFFICIENT NUMBER OF QUALIFIED  
19 GRANT APPLICATIONS.—If the Administrator does  
20 not receive a sufficient number of qualified grant ap-  
21 plications to meet the requirements of subsection  
22 (i)(1) for a fiscal year, the Administrator shall  
23 award a grant made to a qualified applicant under  
24 subsection (i)(2) not later than September 30 of the  
25 fiscal year.



1 (e) TYPES OF GRANTS.—

2 (1) IN GENERAL.—A grant under this section  
3 shall be used for the replacement of school buses  
4 manufactured before model year 1991 with alter-  
5 native fuel school buses and ultra-low sulfur diesel  
6 fuel school buses.

7 (2) NO ECONOMIC BENEFIT.—Other than the  
8 receipt of the grant, a recipient of a grant under this  
9 section may not receive any economic benefit in con-  
10 nection with the receipt of the grant.

11 (3) PRIORITY OF GRANT APPLICATIONS.—The  
12 Administrator shall give priority to applicants that  
13 propose to replace school buses manufactured before  
14 model year 1977.

15 (f) CONDITIONS OF GRANT.—A grant provided under  
16 this section shall include the following conditions:

17 (1) SCHOOL BUS FLEET.—All buses acquired  
18 with funds provided under the grant shall be oper-  
19 ated as part of the school bus fleet for which the  
20 grant was made for a minimum of 5 years.

21 (2) USE OF FUNDS.—Funds provided under the  
22 grant may only be used—

23 (A) to pay the cost, except as provided in  
24 paragraph (3), of new alternative fuel school  
25 buses or ultra-low sulfur diesel fuel school



1 buses, including State taxes and contract fees  
2 associated with the acquisition of such buses;  
3 and

4 (B) to provide—

5 (i) up to 20 percent of the price of the  
6 alternative fuel school buses acquired, for  
7 necessary alternative fuel infrastructure if  
8 the infrastructure will only be available to  
9 the grant recipient; and

10 (ii) up to 25 percent of the price of  
11 the alternative fuel school buses acquired,  
12 for necessary alternative fuel infrastructure  
13 if the infrastructure will be available to the  
14 grant recipient and to other bus fleets.

15 (3) GRANT RECIPIENT FUNDS.—The grant re-  
16 cipient shall be required to provide at least—

17 (A) in the case of a grant recipient de-  
18 scribed in paragraph (1) or (3) of subsection  
19 (c), the lesser of—

20 (i) an amount equal to 15 percent of  
21 the total cost of each bus received; or

22 (ii) \$15,000 per bus; and

23 (B) in the case of a grant recipient de-  
24 scribed in subsection (c)(2), the lesser of—



1 (i) an amount equal to 20 percent of  
2 the total cost of each bus received; or

3 (ii) \$20,000 per bus.

4 (4) ULTRA-LOW SULFUR DIESEL FUEL.—In the  
5 case of a grant recipient receiving a grant for ultra-  
6 low sulfur diesel fuel school buses, the grant recipi-  
7 ent shall be required to provide documentation to  
8 the satisfaction of the Administrator that diesel fuel  
9 containing sulfur at not more than 15 parts per mil-  
10 lion is available for carrying out the purposes of the  
11 grant, and a commitment by the applicant to use  
12 such fuel in carrying out the purposes of the grant.

13 (5) TIMING.—All alternative fuel school buses,  
14 ultra-low sulfur diesel fuel school buses, or alter-  
15 native fuel infrastructure acquired under a grant  
16 awarded under this section shall be purchased and  
17 placed in service as soon as practicable.

18 (g) BUSES.—

19 (1) IN GENERAL.—Except as provided in para-  
20 graph (2), funding under a grant made under this  
21 section for the acquisition of new alternative fuel  
22 school buses or ultra-low sulfur diesel fuel school  
23 buses shall only be used to acquire school buses—

24 (A) with a gross vehicle weight of greater  
25 than 14,000 pounds;



1 (B) that are powered by a heavy duty en-  
2 gine;

3 (C) in the case of alternative fuel school  
4 buses manufactured in model years 2005 and  
5 2006, that emit not more than 1.8 grams per  
6 brake horsepower-hour of nonmethane hydro-  
7 carbons and oxides of nitrogen and .01 grams  
8 per brake horsepower-hour of particulate mat-  
9 ter; and

10 (D) in the case of ultra-low sulfur diesel  
11 fuel school buses manufactured in model years  
12 2005 and 2006, that emit not more than 2.5  
13 grams per brake horsepower-hour of non-  
14 methane hydrocarbons and oxides of nitrogen  
15 and .01 grams per brake horsepower-hour of  
16 particulate matter.

17 (2) LIMITATIONS.—A bus shall not be acquired  
18 under this section that emits nonmethane hydro-  
19 carbons, oxides of nitrogen, or particulate matter at  
20 a rate greater than the best performing technology  
21 of the same class of ultra-low sulfur diesel fuel  
22 school buses commercially available at the time the  
23 grant is made.

24 (h) DEPLOYMENT AND DISTRIBUTION.—The Admin-  
25 istrator shall—



1 (1) seek, to the maximum extent practicable, to  
2 achieve nationwide deployment of alternative fuel  
3 school buses and ultra-low sulfur diesel fuel school  
4 buses through the program under this section; and

5 (2) ensure a broad geographic distribution of  
6 grant awards, with a goal of no State receiving more  
7 than 10 percent of the grant funding made available  
8 under this section for a fiscal year.

9 (i) ALLOCATION OF FUNDS.—

10 (1) IN GENERAL.—Subject to paragraph (2), of  
11 the amount of grant funding made available to carry  
12 out this section for any fiscal year, the Adminis-  
13 trator shall use—

14 (A) 70 percent for the acquisition of alter-  
15 native fuel school buses or supporting infra-  
16 structure; and

17 (B) 30 percent for the acquisition of ultra-  
18 low sulfur diesel fuel school buses.

19 (2) INSUFFICIENT NUMBER OF QUALIFIED  
20 GRANT APPLICATIONS.—After the first fiscal year in  
21 which this program is in effect, if the Administrator  
22 does not receive a sufficient number of qualified  
23 grant applications to meet the requirements of sub-  
24 paragraph (A) or (B) of paragraph (1) for a fiscal  
25 year, effective beginning on August 1 of the fiscal



1 year, the Administrator shall make the remaining  
2 funds available to other qualified grant applicants  
3 under this section.

4 (j) REDUCTION OF SCHOOL BUS IDLING.—Each  
5 local educational agency (as defined in section 9101 of the  
6 Elementary and Secondary Education Act of 1965 (20  
7 U.S.C. 7801)) that receives Federal funds under the Ele-  
8 mentary and Secondary Education Act of 1965 (20 U.S.C.  
9 6301 et seq.) is encouraged to develop a policy, consistent  
10 with the health, safety, and welfare of students and the  
11 proper operation and maintenance of school buses, to re-  
12 duce the incidence of unnecessary school bus idling at  
13 schools when picking up and unloading students.

14 (k) ANNUAL REPORT.—

15 (1) IN GENERAL.—Not later than January 31  
16 of each year, the Administrator shall transmit to  
17 Congress a report evaluating implementation of the  
18 programs under this section and section 813.

19 (2) COMPONENTS.—The reports shall include a  
20 description of—

21 (A) the total number of grant applications  
22 received;

23 (B) the number and types of alternative  
24 fuel school buses, ultra-low sulfur diesel fuel



1 school buses, and retrofitted buses requested in  
2 grant applications;

3 (C) grants awarded and the criteria used  
4 to select the grant recipients;

5 (D) certified engine emission levels of all  
6 buses purchased or retrofitted under the pro-  
7 grams under this section and section 813;

8 (E) an evaluation of the in-use emission  
9 level of buses purchased or retrofitted under the  
10 programs under this section and section 813;  
11 and

12 (F) any other information the Adminis-  
13 trator considers appropriate.

14 (I) AUTHORIZATION OF APPROPRIATIONS.—There  
15 are authorized to be appropriated to the Administrator to  
16 carry out this section—

17 (1) \$45,000,000 for fiscal year 2006; and

18 (2) \$65,000,000 for fiscal year 2007.

19 **SEC. 813. DIESEL RETROFIT PROGRAM.**

20 (a) ESTABLISHMENT.—The Administrator, in con-  
21 sultation with the Secretary, shall establish a program for  
22 awarding grants on a competitive basis to entities for the  
23 installation of retrofit technologies for diesel school buses.

24 (b) ELIGIBLE RECIPIENTS.—A grant shall be award-  
25 ed under this section only—



1 (1) to a local or State governmental entity re-  
2 sponsible for providing school bus service to 1 or  
3 more public school systems;

4 (2) to 1 or more contracting entities that pro-  
5 vide school bus service to 1 or more public school  
6 systems, if the grant application is submitted jointly  
7 with the 1 or more school systems that the buses  
8 will serve, except that the application may provide  
9 that buses purchased using funds awarded shall be  
10 owned, operated, and maintained exclusively by the  
11 1 or more contracting entities; or

12 (3) to a nonprofit school transportation associa-  
13 tion representing private contracting entities, if the  
14 association has notified and received approval from  
15 the 1 or more school systems to be served by the  
16 buses.

17 (c) AWARDS.—

18 (1) IN GENERAL.—The Administrator shall  
19 seek, to the maximum extent practicable, to ensure  
20 a broad geographic distribution of grants under this  
21 section.

22 (2) PREFERENCES.—In making awards of  
23 grants under this section, the Administrator shall  
24 give preference to proposals that—



1 (A) will achieve the greatest reductions in  
2 emissions of nonmethane hydrocarbons, oxides  
3 of nitrogen, or particulate matter per proposal  
4 or per bus; or

5 (B) involve the use of emissions control  
6 retrofit technology on diesel school buses that  
7 operate solely on ultra-low sulfur diesel fuel.

8 (d) CONDITIONS OF GRANT.—A grant shall be pro-  
9 vided under this section on the conditions that—

10 (1) buses on which retrofit emissions-control  
11 technology are to be demonstrated—

12 (A) will operate on ultra-low sulfur diesel  
13 fuel where such fuel is reasonably available or  
14 required for sale by State or local law or regula-  
15 tion;

16 (B) were manufactured in model year 1991  
17 or later; and

18 (C) will be used for the transportation of  
19 school children to and from school for a min-  
20 imum of 5 years;

21 (2) grant funds will be used for the purchase of  
22 emission control retrofit technology, including State  
23 taxes and contract fees; and

24 (3) grant recipients will provide at least 15 per-  
25 cent of the total cost of the retrofit, including the



1 purchase of emission control retrofit technology and  
2 all necessary labor for installation of the retrofit.

3 (e) VERIFICATION.—Not later than 90 days after the  
4 date of enactment of this Act, the Administrator shall  
5 publish in the Federal Register procedures to verify—

6 (1) the retrofit emissions-control technology to  
7 be demonstrated;

8 (2) that buses powered by ultra-low sulfur die-  
9 sel fuel on which retrofit emissions-control tech-  
10 nology are to be demonstrated will operate on diesel  
11 fuel containing not more than 15 parts per million  
12 of sulfur; and

13 (3) that grants are administered in accordance  
14 with this section.

15 (f) AUTHORIZATION OF APPROPRIATIONS.—There  
16 are authorized to be appropriated to the Administrator to  
17 carry out this section—

18 (1) \$20,000,000 for fiscal year 2006; and

19 (2) \$35,000,000 for fiscal year 2007.

20 **SEC. 814. FUEL CELL SCHOOL BUSES.**

21 (a) ESTABLISHMENT.—The Secretary shall establish  
22 a program for entering into cooperative agreements—

23 (1) with private sector fuel cell bus developers  
24 for the development of fuel cell-powered school  
25 buses; and



1           (2) subsequently, with not less than 2 units of  
2           local government using natural gas-powered school  
3           buses and such private sector fuel cell bus developers  
4           to demonstrate the use of fuel cell-powered school  
5           buses.

6           (b) COST SHARING.—The non-Federal contribution  
7           for activities funded under this section shall be not less  
8           than—

9           (1) 20 percent for fuel infrastructure develop-  
10          ment activities; and

11          (2) 50 percent for demonstration activities and  
12          for development activities not described in paragraph  
13          (1).

14          (c) REPORTS TO CONGRESS.—Not later than 3 years  
15          after the date of enactment of this Act, the Secretary shall  
16          transmit to Congress a report that—

17          (1) evaluates the process of converting natural  
18          gas infrastructure to accommodate fuel cell-powered  
19          school buses; and

20          (2) assesses the results of the development and  
21          demonstration program under this section.

22          (d) AUTHORIZATION OF APPROPRIATIONS.—There  
23          are authorized to be appropriated to the Secretary to carry  
24          out this section \$25,000,000 for the period of fiscal years  
25          2006 through 2008.



1     **Subtitle C—Fuel Cell Transit Bus**  
2                     **Demonstration**

3     **SEC. 821. FUEL CELL TRANSIT BUS DEMONSTRATION.**

4             (a) IN GENERAL.—The Secretary, in consultation  
5 with the Secretary of Transportation, shall establish a  
6 transit bus demonstration program to make competitive,  
7 merit-based awards for 5-year projects to demonstrate not  
8 more than 25 fuel cell transit buses (and necessary infra-  
9 structure) in 5 geographically dispersed localities.

10            (b) PREFERENCE.—In selecting projects under this  
11 section, the Secretary shall give preference to projects that  
12 are most likely to mitigate congestion and improve air  
13 quality.

14            (c) AUTHORIZATION OF APPROPRIATIONS.—There  
15 are authorized to be appropriated to the Secretary to carry  
16 out this section \$10,000,000 for each of fiscal years 2006  
17 through 2010.

18     **TITLE IX—CLEAN COAL POWER**  
19                     **INITIATIVE**

20     **SEC. 901. AUTHORIZATION OF APPROPRIATIONS.**

21            (a) CLEAN COAL POWER INITIATIVE.—There are au-  
22 thorized to be appropriated to the Secretary to carry out  
23 the activities authorized by this title \$200,000,000 for  
24 each of fiscal years 2006 through 2012, to remain avail-  
25 able until expended.



1 (b) REPORT.—The Secretary shall transmit to Con-  
2 gress the report required by this subsection not later than  
3 March 31, 2006. The report shall include, with respect  
4 to subsection (a), a 10-year plan containing—

5 (1) a detailed assessment of whether the aggre-  
6 gate funding levels provided under subsection (a) are  
7 the appropriate funding levels for that program;

8 (2) a detailed description of how proposals will  
9 be solicited and evaluated, including a list of all ac-  
10 tivities expected to be undertaken;

11 (3) a detailed list of technical milestones for  
12 each coal and related technology that will be pur-  
13 sued; and

14 (4) a detailed description of how the program  
15 will avoid problems enumerated in General Account-  
16 ing Office reports on the Clean Coal Technology  
17 Program, including problems that have resulted in  
18 unspent funds and projects that failed either finan-  
19 cially or scientifically.

20 **SEC. 902. PROJECT CRITERIA.**

21 (a) IN GENERAL.—The Secretary shall not provide  
22 funding under this title for any project that does not ad-  
23 vance efficiency, environmental performance, and cost  
24 competitiveness well beyond the level of technologies that  
25 are in commercial service or have been demonstrated on



1 a scale that the Secretary determines is sufficient to dem-  
2 onstrate that commercial service is viable as of the date  
3 of enactment of this Act.

4 (b) TECHNICAL CRITERIA FOR CLEAN COAL POWER  
5 INITIATIVE.—

6 (1) GASIFICATION PROJECTS.—

7 (A) IN GENERAL.—In allocating the funds  
8 made available under section 901(a), the Sec-  
9 retary shall ensure that at least 60 percent of  
10 the funds are used only for projects on coal-  
11 based gasification technologies, including gasifi-  
12 cation combined cycle, gasification fuel cells,  
13 gasification coproduction, and hybrid gasifi-  
14 cation/combustion.

15 (B) TECHNICAL MILESTONES.—The Sec-  
16 retary shall periodically set technical milestones  
17 specifying the emission and thermal efficiency  
18 levels that coal gasification projects under this  
19 title shall be designed, and reasonably expected,  
20 to achieve. The technical milestones shall be-  
21 come more restrictive during the life of the pro-  
22 gram. The Secretary shall set the periodic mile-  
23 stones so as to achieve by 2020 coal gasification  
24 projects able—



1 (i) to remove 99 percent of sulfur di-  
2 oxide;

3 (ii) to emit not more than .05 lbs of  
4 NO<sub>x</sub> per million Btu;

5 (iii) to achieve substantial reductions  
6 in mercury emissions; and

7 (iv) to achieve a thermal efficiency  
8 of—

9 (I) 60 percent for coal of more  
10 than 9,000 Btu;

11 (II) 59 percent for coal of 7,000  
12 to 9,000 Btu; and

13 (III) 50 percent for coal of less  
14 than 7,000 Btu.

15 (2) OTHER PROJECTS.—The Secretary shall pe-  
16 riodically set technical milestones and ensure that up  
17 to 40 percent of the funds appropriated pursuant to  
18 section 901(a) are used for projects not described in  
19 paragraph (1). The milestones shall specify the  
20 emission and thermal efficiency levels that projects  
21 funded under this paragraph shall be designed to  
22 and reasonably expected to achieve. The technical  
23 milestones shall become more restrictive during the  
24 life of the program. The Secretary shall set the peri-



1        odic milestones so as to achieve by 2010 projects  
2        able—

3                (A) to remove 97 percent of sulfur dioxide;

4                (B) to emit no more than .08 lbs of NO<sub>x</sub>  
5        per million Btu;

6                (C) to achieve substantial reductions in  
7        mercury emissions; and

8                (D) to achieve a thermal efficiency of—

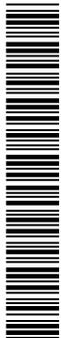
9                        (i) 45 percent for coal of more than  
10        9,000 Btu;

11                        (ii) 44 percent for coal of 7,000 to  
12        9,000 Btu; and

13                        (iii) 40 percent for coal of less than  
14        7,000 Btu.

15                (3) CONSULTATION.—Before setting the tech-  
16        nical milestones under paragraphs (1)(B) and (2),  
17        the Secretary shall consult with the Administrator of  
18        the Environmental Protection Agency and interested  
19        entities, including coal producers, industries using  
20        coal, organizations to promote coal or advanced coal  
21        technologies, environmental organizations, and orga-  
22        nizations representing workers.

23                (4) EXISTING UNITS.—In the case of projects  
24        at units in existence on the date of enactment of this  
25        Act, in lieu of the thermal efficiency requirements



1 set forth in paragraph (1)(B)(iv) and (2)(D), the  
2 milestones shall be designed to achieve an overall  
3 thermal design efficiency improvement, compared to  
4 the efficiency of the unit as operated, of not less  
5 than—

6 (A) 7 percent for coal of more than 9,000

7 Btu;

8 (B) 6 percent for coal of 7,000 to 9,000

9 Btu; or

10 (C) 4 percent for coal of less than 7,000

11 Btu.

12 (5) PERMITTED USES.—In carrying out this  
13 title, the Secretary may fund projects that include,  
14 as part of the project, the separation and capture of  
15 carbon dioxide.

16 (c) FINANCIAL CRITERIA.—The Secretary shall not  
17 provide a funding award under this title unless the recipi-  
18 ent documents to the satisfaction of the Secretary that—

19 (1) the award recipient is financially viable  
20 without the receipt of additional Federal funding;

21 (2) the recipient will provide sufficient informa-  
22 tion to the Secretary to enable the Secretary to en-  
23 sure that the award funds are spent efficiently and  
24 effectively; and



1           (3) a market exists for the technology being  
2           demonstrated or applied, as evidenced by statements  
3           of interest in writing from potential purchasers of  
4           the technology.

5           (d) FINANCIAL ASSISTANCE.—The Secretary shall  
6           provide financial assistance to projects that meet the re-  
7           quirements of subsections (a), (b), and (c) and are likely  
8           to—

9           (1) achieve overall cost reductions in the utiliza-  
10          tion of coal to generate useful forms of energy;

11          (2) improve the competitiveness of coal among  
12          various forms of energy in order to maintain a diver-  
13          sity of fuel choices in the United States to meet elec-  
14          tricity generation requirements; and

15          (3) demonstrate methods and equipment that  
16          are applicable to 25 percent of the electricity gener-  
17          ating facilities, using various types of coal, that use  
18          coal as the primary feedstock as of the date of en-  
19          actment of this Act.

20          (e) FEDERAL SHARE.—The Federal share of the cost  
21          of a coal or related technology project funded by the Sec-  
22          retary under this title shall not exceed 50 percent.

23          (f) APPLICABILITY.—No technology, or level of emis-  
24          sion reduction, shall be treated as adequately dem-  
25          onstrated for purposes of section 111 of the Clean Air Act



1 (42 U.S.C. 7411), achievable for purposes of section 169  
2 of that Act (42 U.S.C. 7479), or achievable in practice  
3 for purposes of section 171 of that Act (42 U.S.C. 7501)  
4 solely by reason of the use of such technology, or the  
5 achievement of such emission reduction, by 1 or more fa-  
6 cilities receiving assistance under this title.

7 **SEC. 903. REPORT.**

8 Not later than 1 year after the date of enactment  
9 of this Act, and once every 2 years thereafter through  
10 2012, the Secretary, in consultation with other appro-  
11 priate Federal agencies, shall transmit to Congress a re-  
12 port describing—

13 (1) the technical milestones set forth in section  
14 902 and how those milestones ensure progress to-  
15 ward meeting the requirements of subsections  
16 (b)(1)(B) and (b)(2) of section 902; and

17 (2) the status of projects funded under this  
18 title.

19 **SEC. 904. CLEAN COAL CENTERS OF EXCELLENCE.**

20 As part of the program authorized in section 901,  
21 the Secretary shall award competitive, merit-based grants  
22 to universities for the establishment of Centers of Excel-  
23 lence for Energy Systems of the Future. The Secretary  
24 shall provide grants to universities that show the greatest  
25 potential for advancing new clean coal technologies.



1 **TITLE X—IMPROVED COORDINA-**  
2 **TION AND MANAGEMENT OF**  
3 **CIVILIAN SCIENCE AND TECH-**  
4 **NOLOGY PROGRAMS**

5 **SEC. 1001. IMPROVED COORDINATION AND MANAGEMENT**  
6 **OF CIVILIAN SCIENCE AND TECHNOLOGY**  
7 **PROGRAMS.**

8 (a) RECONFIGURATION OF POSITION OF DIRECTOR  
9 OF THE OFFICE OF SCIENCE.—Section 209 of the Depart-  
10 ment of Energy Organization Act (41 U.S.C. 7139) is  
11 amended to read as follows:

12 “OFFICE OF SCIENCE

13 “SEC. 209. (a) There shall be within the Department  
14 an Office of Science, to be headed by an Assistant Sec-  
15 retary of Science, who shall be appointed by the President,  
16 by and with the advice and consent of the Senate, and  
17 who shall be compensated at the rate provided for level  
18 IV of the Executive Schedule under section 5315 of title  
19 5, United States Code.

20 “(b) The Assistant Secretary of Science shall be in  
21 addition to the Assistant Secretaries provided for under  
22 section 203 of this Act.

23 “(c) It shall be the duty and responsibility of the As-  
24 sistant Secretary of Science to carry out the fundamental  
25 science and engineering research functions of the Depart-



1 ment, including the responsibility for policy and manage-  
2 ment of such research, as well as other functions vested  
3 in the Secretary which he may assign to the Assistant Sec-  
4 retary.”.

5 (b) ADDITIONAL ASSISTANT SECRETARY POSITION  
6 TO ENABLE IMPROVED MANAGEMENT OF NUCLEAR EN-  
7 ERGY ISSUES.—(1) Section 203(a) of the Department of  
8 Energy Organization Act (42 U.S.C. 7133(a)) is amended  
9 by striking “There shall be in the Department six Assist-  
10 ant Secretaries” and inserting “Except as provided in sec-  
11 tion 209, there shall be in the Department seven Assistant  
12 Secretaries”.

13 (2) It is the sense of the Congress that the leadership  
14 for departmental missions in nuclear energy should be at  
15 the Assistant Secretary level.

16 (c) TECHNICAL AND CONFORMING AMENDMENTS.—  
17 (1) Section 5315 of title 5, United States Code, is amend-  
18 ed by—

19 (A) striking “Director, Office of Science, De-  
20 partment of Energy.”; and

21 (B) striking “Assistant Secretaries of Energy  
22 (6)” and inserting “Assistant Secretaries of Energy  
23 (8)”.



1           (2) The table of contents for the Department of En-  
2 ergy Organization Act (42 U.S.C. 7101 note) is  
3 amended—

4           (A) by striking “Section 209” and inserting  
5 “Sec. 209”;

6           (B) by striking “213.” and inserting “Sec.  
7 213.”;

8           (C) by striking “214.” and inserting “Sec.  
9 214.”;

10          (D) by striking “215.” and inserting “Sec.  
11 215.”; and

12          (E) by striking “216.” and inserting “Sec.  
13 216.”.

