

# Union Calendar No. 123

109<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

# H. R. 610

**[Report No. 109–216, Part I]**

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

---

## IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 8, 2005

Mrs. BIGGERT (for herself and Mr. BOEHLERT) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on Energy and Commerce and Resources, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

JULY 29, 2005

Reported from the Committee on Science with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

JULY 29, 2005

Referred to the Committee on Transportation and Infrastructure for a period not ending later than July 29, 2005, for consideration of such provisions of the bill and the amendment as fall within the jurisdiction of that committee pursuant to clause 1(r), rule X

JULY 29, 2005

Committees on Energy and Commerce, Resources, and Transportation and Infrastructure discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

---

# 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 “En-*  
 5        *ergy Research, Development, Demonstration, and Commer-*  
 6        *cial Application Act of 2005”.*

7        (b) *TABLE OF CONTENTS.*—*The table of contents for*  
 8        *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. Science and engineering pilot program.*

*Sec. 110. 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. Next generation lighting initiative.*  
*Sec. 308. Definitions.*  
*Sec. 309. Authorization of appropriations.*  
*Sec. 310. 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. Carbon dioxide capture research and development.*
- Sec. 607. 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-*  
7 *able energy, nuclear energy, fossil energy, and elec-*  
8 *tricity transmission and distribution.*

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

10 (A) *any organic material grown for the*  
11 *purpose of being converted to energy;*

12 (B) *any organic byproduct of agriculture*  
13 *(including wastes from food production and*  
14 *processing) that can be converted into energy; or*

15 (C) *any waste material that can be con-*  
16 *verted to energy, is segregated from other waste*  
17 *materials, and is derived from—*

1           (i) any of the following forest-related  
2 resources: mill residues, precommercial  
3 thinnings, slash, brush, or otherwise non-  
4 merchantable material; or

5           (ii) wood waste materials, including  
6 waste pallets, crates, dunnage, manufac-  
7 turing and construction wood wastes (other  
8 than pressure-treated, chemically-treated, or  
9 painted wood wastes), and landscape or  
10 right-of-way tree trimmings, but not includ-  
11 ing municipal solid waste, gas derived from  
12 the biodegradation of municipal solid waste,  
13 or paper that is commonly recycled.

14           (3) *DEPARTMENT.*—The term “Department”  
15 means the Department of Energy.

16           (4) *DEPARTMENTAL MISSION.*—The term “de-  
17 partmental mission” means any of the functions vest-  
18 ed in the Secretary of Energy by the Department of  
19 Energy Organization Act (42 U.S.C. 7101 et seq.) or  
20 other law.

21           (5) *INSTITUTION OF HIGHER EDUCATION.*—The  
22 term “institution of higher education” has the mean-  
23 ing given that term in section 101(a) of the Higher  
24 Education Act of 1965 (20 U.S.C. 1001(a)).

1           (6) *NATIONAL LABORATORY.*—*The term “Na-*  
2           *tional Laboratory” means any of the following lab-*  
3           *oratories owned by the Department:*

4                   (A) *Ames Laboratory.*

5                   (B) *Argonne National Laboratory.*

6                   (C) *Brookhaven National Laboratory.*

7                   (D) *Fermi National Accelerator Laboratory.*

8                   (E) *Idaho National Laboratory.*

9                   (F) *Lawrence Berkeley National Labora-*  
10           *tory.*

11                  (G) *Lawrence Livermore National Labora-*  
12           *tory.*

13                  (H) *Los Alamos National Laboratory.*

14                  (I) *National Energy Technology Labora-*  
15           *tory.*

16                  (J) *National Renewable Energy Laboratory.*

17                  (K) *Oak Ridge National Laboratory.*

18                  (L) *Pacific Northwest National Laboratory.*

19                  (M) *Princeton Plasma Physics Laboratory.*

20                  (N) *Sandia National Laboratories.*

21                  (O) *Savannah River National Laboratory.*

22                  (P) *Stanford Linear Accelerator Center.*

23                  (Q) *Thomas Jefferson National Accelerator*  
24           *Facility.*

1           (7) *RENEWABLE ENERGY.*—*The term “renewable*  
2 *energy” means energy from wind, sunlight, the flow*  
3 *of water, heat from the Earth, or biomass that can be*  
4 *converted into a usable form such as process heat,*  
5 *electricity, fuel, or space heat.*

6           (8) *SECRETARY.*—*The term “Secretary” means*  
7 *the Secretary of Energy.*

8           (9) *STATE.*—*The term “State” means any of the*  
9 *several States, the District of Columbia, the Common-*  
10 *wealth of Puerto Rico, the United States Virgin Is-*  
11 *lands, Guam, American Samoa, the Northern Mar-*  
12 *iana Islands, and any other commonwealth, territory,*  
13 *or possession of the United States.*

14           (10) *UNIVERSITY.*—*The term “university” has*  
15 *the meaning given the term “institution of higher*  
16 *education” in section 101 of the Higher Education*  
17 *Act of 1965 (20 U.S.C. 1001).*

18           (11) *USER FACILITY.*—*The term “user facility”*  
19 *means a research and development facility supported,*  
20 *in whole or in part, by Departmental funds that is*  
21 *open, at a minimum, to all qualified United States*  
22 *researchers.*

1     **TITLE I—SCIENCE PROGRAMS**

2     **SEC. 101. OFFICE OF SCIENCE PROGRAMS.**

3         (a) *IN GENERAL.*—*The Secretary shall conduct,*  
4 *through the Office of Science, programs of research, develop-*  
5 *ment, demonstration, and commercial application in high*  
6 *energy physics, nuclear physics, biological and environ-*  
7 *mental research, basic energy sciences, advanced scientific*  
8 *computing research, and fusion energy sciences, including*  
9 *activities described in this title. The programs shall include*  
10 *support for facilities and infrastructure, education, out-*  
11 *reach, information, analysis, and coordination activities.*

12         (b) *RARE ISOTOPE ACCELERATOR.*—

13             (1) *ESTABLISHMENT.*—*The Secretary shall con-*  
14 *struct and operate a Rare Isotope Accelerator. The*  
15 *Secretary shall commence construction no later than*  
16 *September 30, 2008.*

17             (2) *AUTHORIZATION OF APPROPRIATIONS.*—

18 *There are authorized to be appropriated to the Sec-*  
19 *retary such sums as may be necessary to carry out*  
20 *this subsection. The Secretary shall not spend more*  
21 *than \$1,100,000,000 in Federal funds for all activities*  
22 *associated with the Rare Isotope Accelerator prior to*  
23 *operation.*

24     **SEC. 102. SYSTEMS BIOLOGY PROGRAM.**

25         (a) *PROGRAM.*—

1           (1) *ESTABLISHMENT.*—*The Secretary shall estab-*  
2           *lish a research, development, and demonstration pro-*  
3           *gram in genetics, protein science, and computational*  
4           *biology to support the energy, national security, and*  
5           *environmental missions of the Department.*

6           (2) *GRANTS.*—*The program shall support indi-*  
7           *vidual researchers and multidisciplinary teams of re-*  
8           *searchers through competitive, merit-reviewed grants.*

9           (3) *CONSULTATION.*—*In carrying out the pro-*  
10          *gram, the Secretary shall consult with other Federal*  
11          *agencies that conduct genetic and protein research.*

12          (b) *GOALS.*—*The program shall have the goal of devel-*  
13          *oping technologies and methods based on the biological func-*  
14          *tions of genomes, microbes, and plants that—*

15                 (1) *can facilitate the production of fuels, includ-*  
16                 *ing hydrogen;*

17                 (2) *convert carbon dioxide to organic carbon;*

18                 (3) *detoxify soils and water, including at De-*  
19                 *partmental facilities, contaminated with heavy metals*  
20                 *and radiological materials; and*

21                 (4) *address other Department missions as identi-*  
22                 *fied by the Secretary.*

23          (c) *PLAN.*—

24                 (1) *DEVELOPMENT OF PLAN.*—*Not later than 1*  
25                 *year after the date of enactment of this Act, the Sec-*

1        *retary shall prepare and transmit to Congress a re-*  
2        *search plan describing how the program authorized*  
3        *pursuant to this section will be undertaken to accom-*  
4        *plish the program goals established in subsection (b).*

5                *(2) REVIEW OF PLAN.—The Secretary shall con-*  
6        *tract with the National Academy of Sciences to review*  
7        *the research plan developed under this subsection. The*  
8        *Secretary shall transmit the review to Congress not*  
9        *later than 18 months after transmittal of the research*  
10        *plan under paragraph (1), along with the Secretary’s*  
11        *response to the recommendations contained in the re-*  
12        *view.*

13                *(d) USER FACILITIES AND ANCILLARY EQUIPMENT.—*  
14        *Within the funds authorized to be appropriated pursuant*  
15        *to this title, the amounts specified under section 110(b)(1),*  
16        *(c)(1), (d)(1), (e)(1), and (f)(1) shall be available for*  
17        *projects to develop, plan, construct, acquire, or operate spe-*  
18        *cial equipment, instrumentation, or facilities, including*  
19        *user facilities, for researchers conducting research, develop-*  
20        *ment, demonstration, and commercial application in sys-*  
21        *tems biology and proteomics and associated biological dis-*  
22        *ciplines.*

23                *(e) PROHIBITION ON BIOMEDICAL AND HUMAN CELL*  
24        *AND HUMAN SUBJECT RESEARCH.—*

1           (1) *NO BIOMEDICAL RESEARCH.*—*In carrying*  
2           *out the program under this section, the Secretary*  
3           *shall not conduct biomedical research.*

4           (2) *LIMITATIONS.*—*Nothing in this section shall*  
5           *authorize the Secretary to conduct any research or*  
6           *demonstrations—*

7                     (A) *on human cells or human subjects; or*

8                     (B) *designed to have direct application with*  
9           *respect to human cells or human subjects.*

10 **SEC. 103. CATALYSIS RESEARCH AND DEVELOPMENT PRO-**  
11 **GRAM.**

12           (a) *ESTABLISHMENT.*—*The Secretary shall conduct a*  
13 *program of research and development in catalysis science,*  
14 *including efforts to—*

15                     (1) *enable molecular-level catalyst design by cou-*  
16 *pling experimental and computational approaches;*

17                     (2) *enable nanoscale, high-throughput synthesis,*  
18 *assay, and characterization; and*

19                     (3) *synthesize catalysts with specific site archi-*  
20 *tectures.*

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

23                     (1) *support both individual researchers and mul-*  
24 *tidisciplinary teams of researchers to pioneer new ap-*  
25 *proaches in catalytic design;*

1           (2) *develop, plan, construct, acquire, or operate*  
2           *special equipment or facilities, including user facili-*  
3           *ties;*

4           (3) *support technology transfer activities to ben-*  
5           *efit industry and other users of catalysis science and*  
6           *engineering; and*

7           (4) *coordinate research and development activi-*  
8           *ties with industry and other Federal agencies.*

9   **SEC. 104. HYDROGEN.**

10          *The Secretary shall conduct a program of fundamental*  
11          *research and development in support of programs author-*  
12          *ized in title VII of this Act.*

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

14          *The Secretary shall conduct an advanced scientific*  
15          *computing research and development program, including in*  
16          *applied mathematics and the activities authorized by the*  
17          *Department of Energy High-End Computing Revitaliza-*  
18          *tion Act of 2004 (15 U.S.C. 5541 et seq.). The Secretary*  
19          *shall carry out this program with the goal of supporting*  
20          *departmental missions and providing the high-performance*  
21          *computational, networking, and workforce resources that*  
22          *are required for world leadership in science.*

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

24          (a) *DECLARATION OF POLICY.—It shall be the policy*  
25          *of the United States to conduct research, development, dem-*

1 onstration, and commercial application to provide for the  
2 scientific, engineering, and commercial infrastructure nec-  
3 essary to ensure that the United States is competitive with  
4 other nations in providing fusion energy for its own needs  
5 and the needs of other nations, including by demonstrating  
6 electric power or hydrogen production for the United States  
7 energy grid utilizing fusion energy at the earliest date pos-  
8 sible.

9 (b) *PLANNING.*—

10 (1) *IN GENERAL.*—Not later than 180 days after  
11 the date of enactment of this Act, the Secretary shall  
12 transmit to Congress a plan, with proposed cost esti-  
13 mates, budgets, and lists of potential international  
14 partners, for the implementation of the policy de-  
15 scribed in subsection (a). The plan shall ensure  
16 that—

17 (A) existing fusion research facilities are  
18 more fully utilized;

19 (B) fusion science, technology, theory, ad-  
20 vanced computation, modeling, and simulation  
21 are strengthened;

22 (C) new magnetic and inertial fusion re-  
23 search and development facilities are selected  
24 based on scientific innovation, cost effectiveness,  
25 and their potential to advance the goal of prac-

1            *tical fusion energy at the earliest date possible,*  
2            *and those that are selected are funded at a cost-*  
3            *effective rate;*

4            *(D) communication of scientific results and*  
5            *methods between the fusion energy science com-*  
6            *munity and the broader scientific and technology*  
7            *communities is improved;*

8            *(E) inertial confinement fusion facilities*  
9            *are utilized to the extent practicable for the pur-*  
10           *pose of inertial fusion energy research and devel-*  
11           *opment; and*

12           *(F) attractive alternative inertial and mag-*  
13           *netic fusion energy approaches are more fully ex-*  
14           *plored.*

15           *(2) COSTS AND SCHEDULES.—Such plan shall*  
16           *also address the status of and, to the degree possible,*  
17           *costs and schedules for—*

18           *(A) the design and implementation of inter-*  
19           *national or national facilities for the testing of*  
20           *fusion materials; and*

21           *(B) the design and implementation of inter-*  
22           *national or national facilities for the testing and*  
23           *development of key fusion technologies.*

24           *(c) UNITED STATES PARTICIPATION IN ITER.—*

1           (1) *IN GENERAL.*—*The United States may par-*  
2 *ticipate in ITER only in accordance with this sub-*  
3 *section.*

4           (2) *AGREEMENT.*—

5           (A) *IN GENERAL.*—*The Secretary is author-*  
6 *ized to negotiate an agreement for United States*  
7 *participation in ITER.*

8           (B) *CONTENTS.*—*Any agreement for United*  
9 *States participation in ITER shall, at a min-*  
10 *imum—*

11           (i) *clearly define the United States fi-*  
12 *nancial contribution to construction and*  
13 *operating costs, as well as any other costs*  
14 *associated with the project;*

15           (ii) *ensure that the share of ITER's*  
16 *high-technology components manufactured*  
17 *in the United States is at least propor-*  
18 *tionate to the United States financial con-*  
19 *tribution to ITER;*

20           (iii) *ensure that the United States will*  
21 *not be financially responsible for cost over-*  
22 *runs in components manufactured in other*  
23 *ITER participating countries;*

24           (iv) *guarantee the United States full*  
25 *access to all data generated by ITER;*

1                   (v) enable United States researchers to  
2                   propose and carry out an equitable share of  
3                   the experiments at ITER;

4                   (vi) provide the United States with a  
5                   role in all collective decisionmaking related  
6                   to ITER; and

7                   (vii) describe the process for dis-  
8                   continuing or decommissioning ITER and  
9                   any United States role in that process.

10               (3) *PLAN.*—The Secretary, in consultation with  
11               the Fusion Energy Sciences Advisory Committee,  
12               shall develop a plan for the participation of United  
13               States scientists in ITER that shall include the  
14               United States research agenda for ITER, methods to  
15               evaluate whether ITER is promoting progress toward  
16               making fusion a reliable and affordable source of  
17               power, and a description of how work at ITER will  
18               relate to other elements of the United States fusion  
19               program. The Secretary shall request a review of the  
20               plan by the National Academy of Sciences.

21               (4) *LIMITATION.*—No Federal funds shall be ex-  
22               pended for the construction of ITER until the Sec-  
23               retary has transmitted to Congress—

1           (A) *the agreement negotiated pursuant to*  
2           *paragraph (2) and 120 days have elapsed since*  
3           *that transmission;*

4           (B) *a report describing the management*  
5           *structure of ITER and providing a fixed dollar*  
6           *estimate of the cost of United States participa-*  
7           *tion in the construction of ITER, and 120 days*  
8           *have elapsed since that transmission;*

9           (C) *a report describing how United States*  
10          *participation in ITER will be funded without*  
11          *reducing funding for other programs in the Of-*  
12          *fice of Science, including other fusion programs,*  
13          *and 60 days have elapsed since that trans-*  
14          *mission; and*

15          (D) *the plan required by paragraph (3)*  
16          *(but not the National Academy of Sciences re-*  
17          *view of that plan), and 60 days have elapsed*  
18          *since that transmission.*

19          (5) *ALTERNATIVE TO ITER.—If at any time dur-*  
20          *ing the negotiations on ITER, the Secretary deter-*  
21          *mines that construction and operation of ITER is un-*  
22          *likely or infeasible, the Secretary shall send to Con-*  
23          *gress, as part of the budget request for the following*  
24          *year, a plan for implementing a domestic burning*  
25          *plasma experiment including costs and schedules for*

1        *such a plan. The Secretary shall refine such plan in*  
2        *full consultation with the Fusion Energy Sciences Ad-*  
3        *visory Committee and shall also transmit such plan*  
4        *to the National Academy of Sciences for review.*

5                (6) *DEFINITIONS.—In this subsection:*

6                        (A) *CONSTRUCTION.— The term “construc-*  
7                        *tion” means the physical construction of the*  
8                        *ITER facility, and the physical construction,*  
9                        *purchase, or manufacture of equipment or com-*  
10                        *ponents that are specifically designed for the*  
11                        *ITER facility, but does not mean the design of*  
12                        *the facility, equipment, or components.*

13                        (B) *ITER.—The term “ITER” means the*  
14                        *international burning plasma fusion research*  
15                        *project in which the President announced United*  
16                        *States participation on January 30, 2003, or*  
17                        *any similar international project.*

18        **SEC. 107. SCIENCE AND TECHNOLOGY SCHOLARSHIP PRO-**  
19                        **GRAM.**

20                (a) *ESTABLISHMENT OF PROGRAM.—*

21                        (1) *IN GENERAL.—The Secretary is authorized to*  
22                        *establish a Science and Technology Scholarship Pro-*  
23                        *gram to award scholarships to individuals that is de-*  
24                        *signed to recruit and prepare students for careers in*  
25                        *the Department.*

1           (2) *COMPETITIVE PROCESS.*—*Individuals shall*  
2 *be selected to receive scholarships under this section*  
3 *through a competitive process primarily on the basis*  
4 *of academic merit, with consideration given to finan-*  
5 *cial need and the goal of promoting the participation*  
6 *of individuals identified in section 33 or 34 of the*  
7 *Science and Engineering Equal Opportunities Act*  
8 *(42 U.S.C. 1885a or 1885b).*

9           (3) *SERVICE AGREEMENTS.*—*To carry out the*  
10 *Program the Secretary shall enter into contractual*  
11 *agreements with individuals selected under paragraph*  
12 *(2) under which the individuals agree to serve as full-*  
13 *time employees of the Department, for the period de-*  
14 *scribed in subsection (f)(1), in positions needed by the*  
15 *Department and for which the individuals are quali-*  
16 *fied, in exchange for receiving a scholarship.*

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

19           (1) *be enrolled or accepted for enrollment as a*  
20 *full-time graduate student at an institution of higher*  
21 *education in an academic program or field of study*  
22 *described in the list made available under subsection*  
23 *(d);*

24           (2) *be a United States citizen; and*

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

4           (c) *APPLICATION REQUIRED.*—*An individual seeking*  
5           *a scholarship under this section shall submit an application*  
6           *to the Secretary at such time, in such manner, and con-*  
7           *taining such information, agreements, or assurances as the*  
8           *Secretary may require.*

9           (d) *ELIGIBLE ACADEMIC PROGRAMS.*—*The Secretary*  
10          *shall make publicly available a list of academic programs*  
11          *and fields of study for which scholarships under the Pro-*  
12          *gram may be utilized, and shall update the list as nec-*  
13          *essary.*

14          (e) *SCHOLARSHIP REQUIREMENT.*—

15               (1) *IN GENERAL.*—*The Secretary may provide a*  
16               *scholarship under the Program for an academic year*  
17               *if the individual applying for the scholarship has sub-*  
18               *mitted to the Secretary, as part of the application re-*  
19               *quired under subsection (c), a proposed academic pro-*  
20               *gram leading to a degree in a program or field of*  
21               *study on the list made available under subsection (d).*

22               (2) *DURATION OF ELIGIBILITY.*—*An individual*  
23               *may not receive a scholarship under this section for*  
24               *more than 4 academic years, unless the Secretary*  
25               *grants a waiver.*

1           (3) *SCHOLARSHIP AMOUNT.*—*The dollar amount*  
2 *of a scholarship under this section for an academic*  
3 *year shall be determined under regulations issued by*  
4 *the Secretary, but shall in no case exceed the cost of*  
5 *attendance.*

6           (4) *AUTHORIZED USES.*—*A scholarship provided*  
7 *under this section may be expended for tuition, fees,*  
8 *and other authorized expenses as established by the*  
9 *Secretary by regulation.*

10          (5) *CONTRACTS REGARDING DIRECT PAYMENTS*  
11 *TO INSTITUTIONS.*—*The Secretary may enter into a*  
12 *contractual agreement with an institution of higher*  
13 *education under which the amounts provided for a*  
14 *scholarship under this section for tuition, fees, and*  
15 *other authorized expenses are paid directly to the in-*  
16 *stitution with respect to which the scholarship is pro-*  
17 *vided.*

18          (f) *PERIOD OF OBLIGATED SERVICE.*—

19           (1) *DURATION OF SERVICE.*—*The period of serv-*  
20 *ice for which an individual shall be obligated to serve*  
21 *as an employee of the Department is, except as pro-*  
22 *vided in subsection (h)(2), 24 months for each aca-*  
23 *ademic year for which a scholarship under this section*  
24 *is provided.*

25           (2) *SCHEDULE FOR SERVICE.*—

1           (A) *IN GENERAL.*—*Except as provided in*  
2           *subparagraph (B), obligated service under para-*  
3           *graph (1) shall begin not later than 60 days*  
4           *after the individual obtains the educational de-*  
5           *gree for which the scholarship was provided.*

6           (B) *DEFERRAL.*—*The Secretary may defer*  
7           *the obligation of an individual to provide a pe-*  
8           *riod of service under paragraph (1) if the Sec-*  
9           *retary determines that such a deferral is appro-*  
10           *priate. The Secretary shall prescribe the terms*  
11           *and conditions under which a service obligation*  
12           *may be deferred through regulation.*

13           (g) *PENALTIES FOR BREACH OF SCHOLARSHIP*  
14 *AGREEMENT.*—

15           (1) *FAILURE TO COMPLETE ACADEMIC TRAIN-*  
16           *ING.*—*Scholarship recipients who fail to maintain a*  
17           *high level of academic standing, as defined by the*  
18           *Secretary by regulation, who are dismissed from their*  
19           *educational institutions for disciplinary reasons, or*  
20           *who voluntarily terminate academic training before*  
21           *graduation from the educational program for which*  
22           *the scholarship was awarded, shall be in breach of*  
23           *their contractual agreement and, in lieu of any serv-*  
24           *ice obligation arising under such agreement, shall be*  
25           *liable to the United States for repayment not later*

1        *than 1 year after the date of default of all scholarship*  
2        *funds paid to them and to the institution of higher*  
3        *education on their behalf under the agreement, except*  
4        *as provided in subsection (h)(2). The repayment pe-*  
5        *riod may be extended by the Secretary when deter-*  
6        *mined to be necessary, as established by regulation.*

7            (2) *FAILURE TO BEGIN OR COMPLETE THE SERV-*  
8        *ICE OBLIGATION OR MEET THE TERMS AND CONDI-*  
9        *TIONS OF DEFERMENT.*—*A scholarship recipient who,*  
10        *for any reason, fails to begin or complete a service ob-*  
11        *ligation under this section after completion of aca-*  
12        *demie training, or fails to comply with the terms and*  
13        *conditions of deferment established by the Secretary*  
14        *pursuant to subsection (f)(2)(B), shall be in breach of*  
15        *the contractual agreement. When a recipient breaches*  
16        *an agreement for the reasons stated in the preceding*  
17        *sentence, the recipient shall be liable to the United*  
18        *States for an amount equal to—*

19            (A) *the total amount of scholarships re-*  
20        *ceived by such individual under this section;*  
21        *plus*

22            (B) *the interest on the amounts of such*  
23        *awards which would be payable if at the time*  
24        *the awards were received they were loans bearing*  
25        *interest at the maximum legal prevailing rate,*

1           *as determined by the Treasurer of the United*  
2           *States,*  
3           *multiplied by 3.*

4           *(h) WAIVER OR SUSPENSION OF OBLIGATION.—*

5           *(1) DEATH OF INDIVIDUAL.—Any obligation of*  
6           *an individual incurred under the Program (or a con-*  
7           *tractual agreement thereunder) for service or payment*  
8           *shall be canceled upon the death of the individual.*

9           *(2) IMPOSSIBILITY OR EXTREME HARDSHIP.—*

10          *The Secretary shall by regulation provide for the par-*  
11          *tial or total waiver or suspension of any obligation*  
12          *of service or payment incurred by an individual*  
13          *under the Program (or a contractual agreement there-*  
14          *under) whenever compliance by the individual is im-*  
15          *possible or would involve extreme hardship to the in-*  
16          *dividual, or if enforcement of such obligation with re-*  
17          *spect to the individual would be contrary to the best*  
18          *interests of the Government.*

19          *(i) DEFINITIONS.—In this section the following defini-*  
20          *tions apply:*

21          *(1) COST OF ATTENDANCE.—The term “cost of*  
22          *attendance” has the meaning given that term in sec-*  
23          *tion 472 of the Higher Education Act of 1965 (20*  
24          *U.S.C. 1087l).*



1           (2) *combining Department expertise with one or*  
2           *more National Aeronautics and Space Administra-*  
3           *tion Educator Resource Centers;*

4           (3) *developing programs to permit current and*  
5           *future teachers to participate in ongoing research*  
6           *projects at National Laboratories and research uni-*  
7           *versities and to adapt lessons learned to the class-*  
8           *room;*

9           (4) *designing and implementing course work;*

10          (5) *designing and implementing a strategy for*  
11          *measuring and assessing progress under the program;*  
12          *and*

13          (6) *developing models for transferring knowledge*  
14          *gained under the pilot program to other institutions*  
15          *and areas of the country.*

16          (c) *REPORT.—Not later than 2 years after appropria-*  
17          *tions are first available for the program, the Secretary shall*  
18          *transmit to Congress a report outlining lessons learned and*  
19          *containing a plan for expanding the program nationwide.*  
20          *The Secretary may begin implementation of such plan for*  
21          *expansion of the program on October 1, 2008. The expan-*  
22          *sion of the program shall be subject to section 203.*

23          **SEC. 110. AUTHORIZATION OF APPROPRIATIONS.**

24          (a) *IN GENERAL.—In addition to amounts authorized*  
25          *to be appropriated under the 21st Century Nanotechnology*

1 *Research and Development Act (15 U.S.C. 7501 et seq.) and*  
2 *the Department of Energy High-End Computing Revital-*  
3 *ization Act of 2004 (15 U.S.C. 5541 et seq.), the following*  
4 *sums are authorized to be appropriated to the Secretary for*  
5 *the purposes of carrying out this title:*

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

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

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

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

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

11 (b) *2006 ALLOCATIONS.—From amounts authorized*  
12 *under subsection (a)(1), the following sums are authorized*  
13 *for fiscal year 2006:*

14 (1) *SYSTEMS BIOLOGY.—For activities under sec-*  
15 *tion 102, \$100,000,000.*

16 (2) *SCIENTIFIC COMPUTING.—For activities*  
17 *under section 105, \$252,000,000.*

18 (3) *FUSION ENERGY SCIENCES.—For activities*  
19 *under section 106, excluding activities under sub-*  
20 *section (c) of that section, \$335,000,000.*

21 (4) *SCHOLARSHIP.—For the scholarship program*  
22 *described in section 107, \$800,000.*

23 (5) *OFFICE OF SCIENTIFIC AND TECHNICAL IN-*  
24 *FORMATION.—For activities under section 108,*  
25 *\$7,000,000.*

1           (6) *PILOT PROGRAM.*—*For activities under sec-*  
2           *tion 109, \$4,000,000.*

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

6           (1) *SYSTEMS BIOLOGY.*—*For activities under sec-*  
7           *tion 102, such sums as may be necessary.*

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

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

13          (4) *SCHOLARSHIP.*—*For the scholarship program*  
14          *described in section 107, \$1,600,000.*

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

18          (6) *PILOT PROGRAM.*—*For activities under sec-*  
19          *tion 109, \$4,000,000.*

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

23          (1) *SYSTEMS BIOLOGY.*—*For activities under sec-*  
24          *tion 102, such sums as may be necessary.*

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

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

6           (4) *SCHOLARSHIP.*—*For the scholarship program*  
7 *described in section 107, \$2,000,000.*

8           (5) *OFFICE OF SCIENTIFIC AND TECHNICAL IN-*  
9 *FORMATION.*—*For activities under section 108,*  
10 *\$8,000,000.*

11           (6) *PILOT PROGRAM.*—*For activities under sec-*  
12 *tion 109, \$4,000,000.*

13           (e) *2009 ALLOCATIONS.*—*From amounts authorized*  
14 *under subsection (a)(4), the following sums are authorized*  
15 *for fiscal year 2009:*

16           (1) *SYSTEMS BIOLOGY.*—*For activities under sec-*  
17 *tion 102, such sums as may be necessary.*

18           (2) *SCIENTIFIC COMPUTING.*—*For activities*  
19 *under section 105, \$375,000,000.*

20           (3) *FUSION ENERGY SCIENCES.*—*For activities*  
21 *under section 106, excluding activities under sub-*  
22 *section (c) of that section, \$377,000,000.*

23           (4) *SCHOLARSHIP.*—*For the scholarship program*  
24 *described in section 107, \$2,000,000.*

1           (5) *OFFICE OF SCIENTIFIC AND TECHNICAL IN-*  
2           *FORMATION.—For activities under section 108,*  
3           *\$8,000,000.*

4           (6) *PILOT PROGRAM.—For activities under sec-*  
5           *tion 109, \$8,000,000.*

6           (f) *2010 ALLOCATIONS.—From amounts authorized*  
7           *under subsection (a)(5), the following sums are authorized*  
8           *for fiscal year 2010:*

9           (1) *SYSTEMS BIOLOGY.—For activities under sec-*  
10          *tion 102, such sums as may be necessary.*

11          (2) *SCIENTIFIC COMPUTING.—For activities*  
12          *under section 105, \$400,000,000.*

13          (3) *FUSION ENERGY SCIENCES.—For activities*  
14          *under section 106, excluding activities under sub-*  
15          *section (c) of that section, \$393,000,000.*

16          (4) *SCHOLARSHIP.—For the scholarship program*  
17          *described in section 107, \$2,000,000.*

18          (5) *OFFICE OF SCIENTIFIC AND TECHNICAL IN-*  
19          *FORMATION.—For activities under section 108,*  
20          *\$8,500,000.*

21          (6) *PILOT PROGRAM.—For activities under sec-*  
22          *tion 109, \$8,000,000.*

23          (g) *ITER CONSTRUCTION.—From amounts authorized*  
24          *under subsection (a) and in addition to amounts authorized*  
25          *under subsections (b)(3), (c)(3), (d)(3), (e)(3), and (f)(3),*

1 *there are authorized to be appropriated to the Secretary*  
2 *such sums as may be necessary for ITER construction, con-*  
3 *sistent with the limitations of section 106(c).*

4 **TITLE II—RESEARCH ADMINIS-**  
5 **TRATION AND OPERATIONS**

6 **SEC. 201. COST SHARING.**

7 (a) *RESEARCH AND DEVELOPMENT.—Except as other-*  
8 *wise provided in this Act, for research and development pro-*  
9 *grams carried out under this Act, the Secretary shall re-*  
10 *quire a commitment from non-Federal sources of at least*  
11 *20 percent of the cost of the project. The Secretary may re-*  
12 *duce or eliminate the non-Federal requirement under this*  
13 *subsection if the Secretary determines that the research and*  
14 *development is of a basic or fundamental nature.*

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

1       (c) *CALCULATION OF AMOUNT.*—*In calculating the*  
2 *amount of the non-Federal commitment under subsection*  
3 *(a) or (b), the Secretary may include personnel, services,*  
4 *equipment, and other resources.*

5       (d) *SIZE OF NON-FEDERAL SHARE.*—*The Secretary*  
6 *may consider the amount of the non-Federal share in select-*  
7 *ing projects under this Act.*

8 **SEC. 202. REPROGRAMMING.**

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

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

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

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

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

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

16                   (1) *Institutions of higher education.*

17                   (2) *National Laboratories.*

18                   (3) *Nonprofit and for-profit private entities.*

19                   (4) *State and local governments.*

20                   (5) *Consortia of entities described in paragraphs*

21                   (1) *through (4).*

22           (c) *CONGRESSIONAL NOTIFICATION.*—*The Secretary*  
23 *shall notify Congress within 30 days after awarding more*  
24 *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 Sec-*  
5 *retary considers it necessary to more quickly advance re-*  
6 *search, development, demonstration, or commercial applica-*  
7 *tion activities. The Secretary shall notify Congress within*  
8 *30 days when a waiver is granted under this subsection.*  
9 *The Secretary may not delegate the waiver authority under*  
10 *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 DE-*  
14 *VELOPMENT ADVISORY COMMITTEES.—*

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

19                   (A) *Energy efficiency.*

20                   (B) *Renewable energy.*

21                   (C) *Nuclear energy.*

22                   (D) *Fossil energy.*

23           (2) *EXISTING ADVISORY COMMITTEES.—The Sec-*  
24 *retary may designate an existing advisory committee*

1       *within the Department to fulfill the responsibilities of*  
2       *an advisory committee under this subsection.*

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 sci-*  
7       *entific program advisory committees chartered under*  
8       *the Federal Advisory Committee Act (5 U.S.C. App.)*  
9       *by the Office of Science to oversee research and devel-*  
10       *opment programs under that Office.*

11               **(2) REPORT.—***Before the Department issues any*  
12       *new guidance regarding the membership for Office of*  
13       *Science scientific program advisory committees, the*  
14       *Secretary shall transmit a report to the Congress out-*  
15       *lining the reasons for the proposed changes, and 60*  
16       *days must have elapsed after transmittal of the report*  
17       *before the Department may implement those changes.*

18               **(3) SCIENCE ADVISORY COMMITTEE.—**

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

23               **(B) RESPONSIBILITIES.—***The Science Advi-*  
24       *sory Committee shall—*

1                   (i) advise the Director of the Office of  
2                   Science on science issues;

3                   (ii) advise the Director of the Office of  
4                   Science with respect to the well-being and  
5                   management of the National Laboratories  
6                   and Department research facilities;

7                   (iii) advise the Director of the Office of  
8                   Science with respect to education and work-  
9                   force training activities required for effec-  
10                  tive short-term and long-term basic and ap-  
11                  plied research activities of the Office of  
12                  Science; and

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

17           (c) *MEMBERSHIP.*—Each member of an advisory com-  
18           mittee appointed under this section shall have significant  
19           scientific, technical, or other appropriate expertise. The  
20           membership of each committee shall represent a wide range  
21           of expertise, including, to the extent practicable, members  
22           with expertise from outside the disciplines covered by the  
23           program, and a diverse set of interests.

24           (d) *MEETINGS AND PURPOSES.*—Each advisory com-  
25           mittee under this section shall meet at least semiannually

1 *to review and advise on the progress made by the respective*  
2 *research, development, demonstration, and commercial ap-*  
3 *plication program or programs. The advisory committee*  
4 *shall also review the measurable cost and performance-based*  
5 *goals for the applied programs, and the progress on meeting*  
6 *such goals.*

7       (e) *REVIEW AND ASSESSMENT.*—*Not later than 6*  
8 *months after the date of enactment of this Act, the Secretary*  
9 *shall enter into arrangements with the National Academy*  
10 *of Sciences to conduct reviews and assessments of the pro-*  
11 *grams authorized by this Act, the measurable cost and per-*  
12 *formance-based goals for the applied programs, and the*  
13 *progress in meeting such goals. Such reviews and assess-*  
14 *ments shall be completed and reports containing the results*  
15 *of all such reviews and assessments transmitted to the Con-*  
16 *gress not later than 2 years after the date of enactment of*  
17 *this Act.*

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

20       *None of the funds authorized to be appropriated to the*  
21 *Secretary by this Act may be used to award a management*  
22 *and operating contract for a National Laboratory (exclud-*  
23 *ing those named in subparagraphs (G), (H), (N), (O) of*  
24 *section 2(6)), unless such contract is competitively awarded,*  
25 *or the Secretary grants, on a case-by-case basis, a waiver.*

1 *The Secretary may not delegate the authority to grant such*  
2 *a waiver and shall submit to the Congress a report noti-*  
3 *fying it of the waiver, and setting forth the reasons for the*  
4 *waiver, at least 60 days prior to the date of the award of*  
5 *such contract.*

6 **SEC. 206. NATIONAL LABORATORY DESIGNATION.**

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

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

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

17 *(1) a thorough review of each laboratory contrac-*  
18 *tor's equal employment opportunity policies, includ-*  
19 *ing promotion to management and professional posi-*  
20 *tions and pay raises;*

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

23 *(3) a description of how equal employment op-*  
24 *portunity practices at the laboratories are treated in*

1       *the contract and in calculating award fees for each*  
2       *contractor;*

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

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

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

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

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

15       *The Secretary shall not allow any Department facility*  
16       *to begin functioning as a user facility after the date of en-*  
17       *actment of this Act until the Secretary, for that facility—*

18              *(1) develops a plan to ensure that the facility*  
19       *will—*

20                      *(A) have a skilled staff to support a wide*  
21       *range of users;*

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

1                   (C) be operated in a safe and fiscally pru-  
2                   dent manner; and

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

5 **SEC. 209. SUPPORT FOR SCIENCE AND ENERGY INFRA-**  
6                   **STRUCTURE AND FACILITIES.**

7                   (a) *STRATEGY.*—The Secretary shall develop and im-  
8                   plement a strategy for infrastructure and facilities sup-  
9                   ported primarily from the Office of Science and the applied  
10                  programs at each National Laboratory and Department re-  
11                  search facility. Such strategy shall provide cost-effective  
12                  means for—

13                  (1) maintaining existing facilities and infra-  
14                  structure, as needed;

15                  (2) closing unneeded facilities;

16                  (3) making facility modifications; and

17                  (4) building new facilities.

18                  (b) *REPORT.*—

19                  (1) *REQUIREMENT.*—The Secretary shall prepare  
20                  and transmit to the Congress not later than June 1,  
21                  2007, a report summarizing the strategies developed  
22                  under subsection (a).

23                  (2) *CONTENTS.*—For each National Laboratory  
24                  and Department research facility, for the facilities

1        *primarily used for science and energy research, such*  
2        *report shall contain—*

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

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

11               *(C) the total current budget for all facilities*  
12               *and infrastructure funding; and*

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

16 **SEC. 210. COORDINATION PLAN.**

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

22        *(b) PLAN CONTENTS.—The plan shall describe—*

23               *(1) how the Secretary will ensure that the ap-*  
24               *plied programs are coordinating their activities, in-*  
25               *cluding a description of specific research questions*

1        *that cross organizational boundaries and of how the*  
2        *relevant applied programs are coordinating their ef-*  
3        *forts to answer those questions, and how such cross-*  
4        *cutting research questions will be identified in the fu-*  
5        *ture;*

6            *(2) how the Secretary will ensure that research*  
7        *that has been supported by the Office of Science is*  
8        *being or will be used by the applied programs, includ-*  
9        *ing a description of specific Office of Science-sup-*  
10       *ported research that is relevant to the applied pro-*  
11       *grams and of how the applied programs have used or*  
12       *will use that research; and*

13           *(3) a description of how the Secretary will en-*  
14       *sure that the research agenda of the Office of Science*  
15       *includes research questions of concern to the applied*  
16       *programs, including a description of specific research*  
17       *questions that the Office of Science will address to as-*  
18       *sist the applied programs.*

19        *(c) PLAN TRANSMITTAL.—The Secretary shall trans-*  
20       *mit the coordination plan to Congress not later than 9*  
21       *months after the date of enactment of this Act, and every*  
22       *2 years thereafter shall transmit a revised coordination*  
23       *plan.*

24        *(d) CONFERENCE.—Not less than 6 months after the*  
25       *date of enactment of this Act, the Secretary shall convene*

1 a conference of program managers from the Office of Science  
2 and the applied programs to review ideas and explore possi-  
3 bilities for effective cross-program collaboration. The Sec-  
4 retary also shall invite participation relevant Federal agen-  
5 cies and other programs in the Federal Government con-  
6 ducting relevant research, and other stakeholders as appro-  
7 priate.

8 **SEC. 211. AVAILABILITY OF FUNDS.**

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

13 **TITLE III—ENERGY EFFICIENCY**  
14 **Subtitle A—Vehicles, Buildings,**  
15 **and Industries**

16 **SEC. 301. PROGRAMS.**

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

22 (1) *Increasing the energy efficiency of vehicles,*  
23 *buildings, and industrial processes.*

24 (2) *Reducing the Nation’s demand for energy, es-*  
25 *pecially energy from foreign sources.*

1           (3) *Reducing the cost of energy and making the*  
2 *economy more efficient and competitive.*

3           (4) *Improving the Nation's energy security.*

4           (5) *Reducing the environmental impact of en-*  
5 *ergy-related activities.*

6           (b) *GOALS.—*

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

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

23           (A) *a description, including quantitative*  
24 *analysis, of progress in achieving performance*  
25 *goals transmitted under paragraph (1), as com-*

1            *pared to the baselines transmitted under para-*  
2            *graph (1); and*

3            *(B) any amendments to such goals.*

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

8            **SEC. 302. VEHICLES.**

9            *The Secretary shall conduct a program of research, de-*  
10           *velopment, demonstration, and commercial application of*  
11           *advanced, cost-effective technologies to improve the energy*  
12           *efficiency and environmental performance of light-duty and*  
13           *heavy-duty vehicles, including—*

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

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

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

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

24           *(5) whole-vehicle design optimization to reduce*  
25           *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 heat*  
4 *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 commer-*  
9 *cial application of cost-effective technologies, for new con-*  
10 *struction and retrofit, to improve the energy efficiency and*  
11 *environmental performance of commercial, industrial, in-*  
12 *stitutional, 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, auto-*  
17 *mated responses to changes in the internal and exter-*  
18 *nal environment, and real time delivery of informa-*  
19 *tion on building system and component performance;*

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

23 *(3) building systems components, including—*

24 *(A) lighting;*

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

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

8           (4) onsite renewable energy generation.

9           (b) *ENERGY EFFICIENT BUILDING PILOT GRANT PRO-*  
10 *GRAM.*—

11           (1) *IN GENERAL.*—Not later than 6 months after  
12           the date of enactment of this Act, the Secretary shall  
13           establish a pilot program to award grants to busi-  
14           nesses and organizations for new construction of en-  
15           ergy efficient buildings, or major renovations of build-  
16           ings that will result in energy efficient buildings, to  
17           demonstrate innovative energy efficiency technologies,  
18           especially those sponsored by the Department.

19           (2) *AWARDS.*—The Secretary shall award grants  
20           under this subsection competitively to those appli-  
21           cants whose proposals—

22                   (A) best demonstrate—

23                           (i) likelihood to meet or exceed the de-  
24                           sign standards referred to in paragraph (7);

1                   (ii) likelihood to maximize cost-effec-  
2                   tive energy efficiency opportunities; and

3                   (iii) advanced energy efficiency tech-  
4                   nologies; and

5                   (B) are least likely to be realized without  
6                   Federal assistance.

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

12                  (4) GRANT PAYMENTS.—

13                   (A) INITIAL PAYMENT.—The Secretary shall  
14                   pay 50 percent of the total amount of the grant  
15                   to grant recipients upon selection.

16                   (B) REMAINDER OF PAYMENT.—The Sec-  
17                   retary shall pay the remaining 50 percent of the  
18                   grant only after independent certification of  
19                   operational buildings for compliance with the  
20                   standards for energy efficient buildings described  
21                   in paragraph (7).

22                   (C) FAILURE TO COMPLY.—The Secretary  
23                   shall not provide the remainder of the payment  
24                   unless the building is certified within 6 months  
25                   after operation of the completed building to meet

1           *the requirements described in subparagraph (B),*  
2           *or in the case of major renovations the building*  
3           *is certified within 6 months of the completion of*  
4           *the renovations.*

5           (5) *REPORT TO CONGRESS.*—*Not later than 3*  
6           *years after awarding the first grant under this sub-*  
7           *section, the Secretary shall transmit to Congress a re-*  
8           *port containing—*

9                   (A) *the total number and dollar amount of*  
10                  *grants awarded under this subsection; and*

11                   (B) *an estimate of aggregate cost and en-*  
12                  *ergy savings enabled by the pilot program under*  
13                  *this subsection.*

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

17           (7) *DEFINITION OF ENERGY EFFICIENT BUILD-*  
18           *ING.*—*For purposes of this subsection, the term “en-*  
19           *ergy efficient building” means a building that is*  
20           *independently certified—*

21                   (A) *to meet or exceed the applicable United*  
22                  *States Green Building Council’s Leadership in*  
23                  *Energy and Environmental Design standards for*  
24                  *a silver, gold, or platinum rating; and*

1           (B) to achieve a reduction in energy con-  
2           sumption of—

3                   (i) at least 25 percent for new con-  
4                   struction, compared to the energy standards  
5                   set by the Federal Building Code (10 CFR  
6                   part 434); and

7                   (ii) at least 20 percent for major ren-  
8                   ovations, compared to energy consumption  
9                   before renovations are begun.

10       (c) STANDARDIZATION REPORT AND PROGRAM.—

11           (1) REPORT.—The Secretary shall enter into an  
12           arrangement with the National Institute of Building  
13           Sciences to—

14                   (A) conduct a comprehensive assessment of  
15                   how well current voluntary consensus standards  
16                   related to buildings match state-of-the-art knowl-  
17                   edge on the design, construction, operation, re-  
18                   pair, and renovation of high-performance build-  
19                   ings; and

20                   (B) recommend steps for the Secretary to  
21                   take to accelerate the development and promulga-  
22                   tion of voluntary consensus standards for high-  
23                   performance buildings that would address all  
24                   major high-performance building attributes, in-

1           cluding energy efficiency, sustainability, safety  
2           and security, life-cycle cost, and productivity.

3           (2) *PROGRAM.*—After receiving the report under  
4           paragraph (1), the Secretary shall establish a pro-  
5           gram of technical assistance and grants to support  
6           standards development organizations in—

7                   (A) the revision of existing standards, to re-  
8                   flect current knowledge of high-performance  
9                   buildings; and

10                   (B) the development and promulgation of  
11                   new standards in areas important to high-per-  
12                   formance buildings where there is no existing  
13                   standard or where an existing standard cannot  
14                   easily be modified.

15 **SEC. 304. INDUSTRIES.**

16           (a) *PROGRAM.*—The Secretary shall conduct a pro-  
17           gram of research, development, demonstration, and commer-  
18           cial application of advanced technologies to improve the en-  
19           ergy efficiency, environmental performance, and process ef-  
20           ficiency of energy-intensive and waste-intensive industries.  
21           Such program shall be focused on industries whose total an-  
22           nual energy consumption amounts to more than 1.0 percent  
23           of the total nationwide annual energy consumption, accord-  
24           ing to the most recent data available to the Department.  
25           Research and development efforts under this section shall

1 *give a higher priority to broad-benefit efficiency tech-*  
2 *nologies that have practical application across industry sec-*  
3 *tors.*

4 (b) *ELECTRIC MOTOR CONTROL TECHNOLOGY.*—*The*  
5 *program conducted under subsection (a) shall include re-*  
6 *search on, and development, demonstration, and commer-*  
7 *cial application of, advanced control devices to improve the*  
8 *energy efficiency of electric motors, including those used in*  
9 *industrial processes, heating, ventilation, and cooling.*

10 **SEC. 305. DEMONSTRATION AND COMMERCIAL APPLICA-**  
11 **TION.**

12 (a) *APPLIANCES AND TESTING.*—*The Secretary shall*  
13 *conduct research and analysis to determine whether, given*  
14 *Department-sponsored and other advances in energy effi-*  
15 *ciency technologies, demonstration and commercial applica-*  
16 *tion of innovative, cost-effective energy savings and pollu-*  
17 *tion reducing technologies could be used to improve appli-*  
18 *ances and test procedures used to measure appliance effi-*  
19 *ciency.*

20 (b) *BUILDING ENERGY CODES.*—*The Secretary shall,*  
21 *in coordination with government, nongovernment, and com-*  
22 *mmercial partners, conduct research and analyses of the best*  
23 *cost-effective practices in the development and updating of*  
24 *building energy codes, including for manufactured housing.*  
25 *Analyses shall focus on how to encourage energy efficiency*

1 *and adoption of newly developed energy production and use*  
2 *equipment.*

3 (c) *ADVANCED ENERGY TECHNOLOGY TRANSFER CEN-*  
4 *TERS.—*

5 (1) *GRANTS.—Not later than 18 months after the*  
6 *date of enactment of this Act, the Secretary shall*  
7 *make grants to nonprofit institutions, State and local*  
8 *governments, or universities (or consortia thereof), to*  
9 *establish a geographically dispersed network of Ad-*  
10 *vanced Energy Technology Transfer Centers, to be lo-*  
11 *cated in areas the Secretary determines have the*  
12 *greatest need of the services of such Centers.*

13 (2) *ACTIVITIES.—*

14 (A) *IN GENERAL.—Each Center shall oper-*  
15 *ate a program to encourage demonstration and*  
16 *commercial application of advanced energy*  
17 *methods and technologies through education and*  
18 *outreach to building and industrial profes-*  
19 *sionals, and to other individuals and organiza-*  
20 *tions with an interest in efficient energy use.*

21 (B) *ADVISORY PANEL.—Each Center shall*  
22 *establish an advisory panel to advise the Center*  
23 *on how best to accomplish the activities under*  
24 *subparagraph (A).*

1           (3) *APPLICATION.*—A person seeking a grant  
2           under this subsection shall submit to the Secretary an  
3           application in such form and containing such infor-  
4           mation as the Secretary may require. The Secretary  
5           may award a grant under this subsection to an entity  
6           already in existence if the entity is otherwise eligible  
7           under this subsection.

8           (4) *SELECTION CRITERIA.*—The Secretary shall  
9           award grants under this subsection on the basis of the  
10          following criteria, at a minimum:

11                 (A) *The ability of the applicant to carry*  
12                 *out the activities in paragraph (2).*

13                 (B) *The extent to which the applicant will*  
14                 *coordinate the activities of the Center with other*  
15                 *entities, such as State and local governments,*  
16                 *utilities, and educational and research institu-*  
17                 *tions.*

18          (5) *MATCHING FUNDS.*—The Secretary shall re-  
19          quire a non-Federal matching requirement of at least  
20          50 percent of the costs of establishing and operating  
21          each Center.

22          (6) *ADVISORY COMMITTEE.*—The Secretary shall  
23          establish an advisory committee to advise the Sec-  
24          retary on the establishment of Centers under this sub-  
25          section. The advisory committee shall be composed of

1 *individuals with expertise in the area of advanced en-*  
2 *ergy methods and technologies, including at least 1*  
3 *representative from—*

4 *(A) State or local energy offices;*

5 *(B) energy professionals;*

6 *(C) trade or professional associations;*

7 *(D) architects, engineers, or construction*  
8 *professionals;*

9 *(E) manufacturers;*

10 *(F) the research community; and*

11 *(G) nonprofit energy or environmental or-*  
12 *ganizations.*

13 *(7) DEFINITIONS.—For purposes of this sub-*  
14 *section:*

15 *(A) ADVANCED ENERGY METHODS AND*  
16 *TECHNOLOGIES.—The term “advanced energy*  
17 *methods and technologies” means all methods*  
18 *and technologies that promote energy efficiency*  
19 *and conservation, including distributed genera-*  
20 *tion technologies, and life-cycle analysis of en-*  
21 *ergy use.*

22 *(B) CENTER.—The term “Center” means an*  
23 *Advanced Energy Technology Transfer Center es-*  
24 *tablished pursuant to this subsection.*

1                   (C) *DISTRIBUTED GENERATION.*—*The term*  
2                   “*distributed generation*” *means an electric power*  
3                   *generation facility that is designed to serve retail*  
4                   *electric consumers at or near the facility site.*

5                   (d) *REPORT.*—*Not later than 2 years after the date*  
6                   *of enactment of this Act, and once every 3 years thereafter,*  
7                   *the Secretary shall transmit to Congress a report on the*  
8                   *results of research and analysis under this section. In calcu-*  
9                   *lating cost-effectiveness for purposes of such reports, the Sec-*  
10                   *retary shall include, at a minimum, the avoided cost of ad-*  
11                   *ditional energy production, savings to the economy from*  
12                   *lower peak energy prices and reduced price volatility, and*  
13                   *the public and private benefits of reduced pollution.*

14   **SEC. 306. SECONDARY ELECTRIC VEHICLE BATTERY USE**  
15                   **PROGRAM.**

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

17                   (1) *ASSOCIATED EQUIPMENT.*—*The term “associ-*  
18                   *ated equipment” means equipment located where the*  
19                   *batteries will be used that is necessary to enable the*  
20                   *use of the energy stored in the batteries.*

21                   (2) *BATTERY.*—*The term “battery” means an en-*  
22                   *ergy storage device that previously has been used to*  
23                   *provide motive power in a vehicle powered in whole*  
24                   *or in part by electricity.*

1           (b) *PROGRAM.*—*The Secretary shall establish and con-*  
2 *duct a research, development, demonstration, and commer-*  
3 *cial application program for the secondary use of batteries*  
4 *if the Secretary finds that there are sufficient numbers of*  
5 *such batteries to support the program. The program shall*  
6 *be—*

7                   (1) *designed to demonstrate the use of batteries*  
8 *in secondary applications, including utility and com-*  
9 *mercial power storage and power quality;*

10                   (2) *structured to evaluate the performance, in-*  
11 *cluding useful service life and costs, of such batteries*  
12 *in field operations, and the necessary supporting in-*  
13 *frastructure, including reuse and disposal of batteries;*  
14 *and*

15                   (3) *coordinated with ongoing secondary battery*  
16 *use programs at the National Laboratories and in in-*  
17 *dustry.*

18           (c) *SOLICITATION.*—*Not later than 180 days after the*  
19 *date of enactment of this Act, if the Secretary finds under*  
20 *subsection (b) that there are sufficient numbers of batteries*  
21 *to support the program, the Secretary shall solicit proposals*  
22 *to demonstrate the secondary use of batteries and associated*  
23 *equipment and supporting infrastructure in geographic lo-*  
24 *cations throughout the United States. The Secretary may*  
25 *make additional solicitations for proposals if the Secretary*

1 *determines that such solicitations are necessary to carry out*  
2 *this section.*

3 *(d) SELECTION OF PROPOSALS.—*

4 *(1) IN GENERAL.—The Secretary shall, not later*  
5 *than 90 days after the closing date established by the*  
6 *Secretary for receipt of proposals under subsection*  
7 *(c), select up to 5 proposals which may receive finan-*  
8 *cial assistance under this section, subject to the avail-*  
9 *ability of appropriations.*

10 *(2) DIVERSITY; ENVIRONMENTAL EFFECT.—In*  
11 *selecting proposals, the Secretary shall consider diver-*  
12 *sity of battery type, geographic and climatic diver-*  
13 *sity, and life-cycle environmental effects of the ap-*  
14 *proaches.*

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

18 *(4) OPTIMIZATION OF FEDERAL RESOURCES.—*  
19 *The Secretary shall consider the extent of involvement*  
20 *of State or local government and other persons in*  
21 *each demonstration project to optimize use of Federal*  
22 *resources.*

23 *(5) OTHER CRITERIA.—The Secretary may con-*  
24 *sider such other criteria as the Secretary considers*  
25 *appropriate.*

1       (e) *CONDITIONS.*—*The Secretary shall require that—*

2               (1) *relevant information be provided to the De-*  
3 *partment, the users of the batteries, the proposers, and*  
4 *the battery manufacturers;*

5               (2) *the proposer provide at least 50 percent of*  
6 *the costs associated with the proposal; and*

7               (3) *the proposer provide to the Secretary such in-*  
8 *formation regarding the disposal of the batteries as*  
9 *the Secretary may require to ensure that the proposer*  
10 *disposes of the batteries in accordance with applicable*  
11 *law.*

12 **SEC. 307. NEXT GENERATION LIGHTING INITIATIVE.**

13       (a) *IN GENERAL.*—*The Secretary shall carry out a*  
14 *Next Generation Lighting Initiative in accordance with this*  
15 *section to support research, development, demonstration,*  
16 *and commercial application activities related to advanced*  
17 *solid-state lighting technologies based on white light emit-*  
18 *ting diodes.*

19       (b) *OBJECTIVES.*—*The objectives of the initiative shall*  
20 *be to develop advanced solid-state organic and inorganic*  
21 *lighting technologies based on white light emitting diodes*  
22 *that, compared to incandescent and fluorescent lighting*  
23 *technologies, are longer lasting; more energy-efficient; and*  
24 *cost-competitive, and have less environmental impact.*

1           (c) *INDUSTRY ALLIANCE.*—*The Secretary shall, not*  
2 *later than 3 months after the date of enactment of this sec-*  
3 *tion, competitively select an Industry Alliance to represent*  
4 *participants that are private, for-profit firms which, as a*  
5 *group, are broadly representative of United States solid*  
6 *state lighting research, development, infrastructure, and*  
7 *manufacturing expertise as a whole.*

8           (d) *RESEARCH.*—

9                   (1) *IN GENERAL.*—*The Secretary shall carry out*  
10 *the research activities of the Next Generation Lighting*  
11 *Initiative through competitively awarded grants to re-*  
12 *searchers, including Industry Alliance participants,*  
13 *National Laboratories, and institutions of higher edu-*  
14 *cation.*

15                   (2) *ASSISTANCE FROM THE INDUSTRY ALLI-*  
16 *ANCE.*—*The Secretary shall annually solicit from the*  
17 *Industry Alliance—*

18                           (A) *comments to identify solid-state lighting*  
19 *technology needs;*

20                           (B) *assessment of the progress of the Initia-*  
21 *tive’s research activities; and*

22                           (C) *assistance in annually updating solid-*  
23 *state lighting technology roadmaps.*

24                   (3) *AVAILABILITY OF INFORMATION AND ROAD-*  
25 *MAPS.*—*The information and roadmaps under para-*

1        *graph (2) shall be available to the public and public*  
2        *response shall be solicited by the Secretary.*

3        *(e) DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION.—The Secretary shall carry out a devel-*  
4        *opment, demonstration, and commercial application pro-*  
5        *gram for the Next Generation Lighting Initiative through*  
6        *competitively selected awards. The Secretary may give pref-*  
7        *erence to participants of the Industry Alliance selected pur-*  
8        *suant to subsection (c).*

10        *(f) INTELLECTUAL PROPERTY.—The Secretary may*  
11        *require, in accordance with the authorities provided in sec-*  
12        *tion 202(a)(ii) of title 35, United States Code, section 152*  
13        *of the Atomic Energy Act of 1954 (42 U.S.C. 2182), and*  
14        *section 9 of the Federal Nonnuclear Energy Research and*  
15        *Development Act of 1974 (42 U.S.C. 5908), that—*

16                *(1) for any new invention resulting from activi-*  
17        *ties under subsection (d)—*

18                        *(A) the Industry Alliance members that are*  
19        *active participants in research, development, and*  
20        *demonstration activities related to the advanced*  
21        *solid-state lighting technologies that are the sub-*  
22        *ject of this section shall be granted first option*  
23        *to negotiate with the invention owner nonexclu-*  
24        *sive licenses and royalties for uses of the inven-*

1            *tion related to solid-state lighting on terms that*  
2            *are reasonable under the circumstances; and*

3            *(B)(i) for 1 year after a United States pat-*  
4            *ent is issued for the invention, the patent holder*  
5            *shall not negotiate any license or royalty with*  
6            *any entity that is not a participant in the In-*  
7            *dustry Alliance described in subparagraph (A);*  
8            *and*

9            *(ii) during the year described in clause (i),*  
10           *the invention owner shall negotiate nonexclusive*  
11           *licenses and royalties in good faith with any in-*  
12           *terested participant in the Industry Alliance de-*  
13           *scribed in subparagraph (A); and*

14           *(2) such other terms as the Secretary determines*  
15           *are required to promote accelerated commercialization*  
16           *of inventions made under the Initiative.*

17           *(g) NATIONAL ACADEMY REVIEW.—The Secretary shall*  
18           *enter into an arrangement with the National Academy of*  
19           *Sciences to conduct periodic reviews of the Next Generation*  
20           *Lighting Initiative. The Academy shall review the research*  
21           *priorities, technical milestones, and plans for technology*  
22           *transfer and progress towards achieving them. The Sec-*  
23           *retary shall consider the results of such reviews in evalu-*  
24           *ating the information obtained under subsection (d)(2).*

25           *(h) DEFINITIONS.—As used in this section:*

1           (1) *ADVANCED SOLID-STATE LIGHTING.*—The  
2 term “advanced solid-state lighting” means a  
3 semiconducting device package and delivery system  
4 that produces white light using externally applied  
5 voltage.

6           (2) *RESEARCH.*—The term “research” includes  
7 research on the technologies, materials, and manufac-  
8 turing processes required for white light emitting di-  
9 odes.

10          (3) *INDUSTRY ALLIANCE.*—The term “Industry  
11 Alliance” means an entity selected by the Secretary  
12 under subsection (c).

13          (4) *WHITE LIGHT EMITTING DIODE.*—The term  
14 “white light emitting diode” means a semiconducting  
15 package, utilizing either organic or inorganic mate-  
16 rials, that produces white light using externally ap-  
17 plied voltage.

18 **SEC. 308. DEFINITIONS.**

19 *For the purposes of this subtitle—*

20           (1) the term “cost-effective” means resulting in a  
21 simple payback of costs in 10 years or less; and

22           (2) the term “whole-buildings approach” in-  
23 cludes, on a life-cycle basis, the energy use, cost of op-  
24 erations, and ease of repair or upgrade of a building.

1 **SEC. 309. AUTHORIZATION OF APPROPRIATIONS.**

2 *The following sums are authorized to be appropriated*  
3 *to the Secretary for the purposes of carrying out this sub-*  
4 *title:*

5 (1) *For fiscal year 2006, \$620,000,000, includ-*  
6 *ing—*

7 (A) *\$200,000,000 for carrying out the vehi-*  
8 *cles program under section 302;*

9 (B) *\$100,000,000 for carrying out the build-*  
10 *ings program under section 303, of which*  
11 *\$10,000,000 shall be for the grant program*  
12 *under section 303(b);*

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

15 (D) *\$2,000,000 for carrying out the electric*  
16 *motor control technology program under section*  
17 *304(b);*

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

21 (F) *\$4,000,000 for carrying out the sec-*  
22 *ondary electric vehicle battery use program*  
23 *under section 306; and*

24 (G) *\$20,000,000 for carrying out the Next*  
25 *Generation Lighting Initiative under section*  
26 *307.*

1           (2) *For fiscal year 2007, \$700,000,000, includ-*  
2 *ing—*

3                   (A) *\$240,000,000 for carrying out the vehi-*  
4 *cles program under section 302;*

5                   (B) *\$130,000,000 for carrying out the build-*  
6 *ings program under section 303, of which*  
7 *\$10,000,000 shall be for the grant program*  
8 *under section 303(b);*

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

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

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

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

20                   (G) *\$30,000,000 for carrying out the Next*  
21 *Generation Lighting Initiative under section*  
22 *307.*

23           (3) *For fiscal year 2008, \$800,000,000, includ-*  
24 *ing—*

1           (A) \$270,000,000 for carrying out the vehi-  
2           cles program under section 302;

3           (B) \$160,000,000 for carrying out the build-  
4           ings program under section 303, of which  
5           \$10,000,000 shall be for the grant program  
6           under section 303(b);

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

9           (D) \$2,000,000 for carrying out the electric  
10          motor control technology program under section  
11          304(b);

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

15          (F) \$7,000,000 for carrying out the sec-  
16          ondary electric vehicle battery use program  
17          under section 306; and

18          (G) \$50,000,000 for carrying out the Next  
19          Generation Lighting Initiative under section  
20          307.

21          (4) For fiscal year 2009, \$925,000,000, includ-  
22          ing—

23                (A) \$310,000,000 for carrying out the vehi-  
24                cles program under section 302;

1           (B) \$200,000,000 for carrying out the build-  
2           ings program under section 303, of which  
3           \$10,000,000 shall be for the grant program  
4           under section 303(b);

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

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

10          (E) \$7,000,000 for carrying out the sec-  
11          ondary electric vehicle battery use program  
12          under section 306; and

13          (F) \$50,000,000 for carrying out the Next  
14          Generation Lighting Initiative under section  
15          307.

16          (5) For fiscal year 2010, \$1,000,000,000, includ-  
17          ing—

18               (A) \$340,000,000 for carrying out the vehi-  
19               cles program under section 302;

20               (B) \$240,000,000 for carrying out the build-  
21               ings program under section 303, of which  
22               \$10,000,000 shall be for the grant program  
23               under section 303(b);

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

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

4           (E) \$7,000,000 for carrying out the sec-  
5           ondary electric vehicle battery use program  
6           under section 306; and

7           (F) \$50,000,000 for carrying out the Next  
8           Generation Lighting Initiative under section  
9           307.

10 **SEC. 310. LIMITATION ON USE OF FUNDS.**

11       None of the funds authorized to be appropriated under  
12 this subtitle may be used for—

13           (1) the issuance and implementation of energy  
14           efficiency regulations;

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

18           (3) the State Energy Program under part D of  
19           title III of the Energy Policy and Conservation Act  
20           (42 U.S.C. 6321 et seq.); or

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

1 ***Subtitle B—Distributed Energy and***  
2 ***Electric Energy Systems***

3 ***SEC. 321. DISTRIBUTED ENERGY.***

4 *(a) IN GENERAL.—The Secretary shall conduct pro-*  
5 *grams of distributed energy resources and systems reli-*  
6 *ability and efficiency research, development, demonstration,*  
7 *and commercial application to improve the reliability and*  
8 *efficiency of distributed energy resources and systems, in-*  
9 *cluding activities described in this subtitle. The programs*  
10 *shall address advanced energy technologies and systems and*  
11 *advanced grid reliability technologies. The programs shall*  
12 *include the integration of—*

- 13 *(1) renewable energy resources;*  
14 *(2) fuel cells;*  
15 *(3) combined heat and power systems;*  
16 *(4) microturbines;*  
17 *(5) advanced natural gas turbines;*  
18 *(6) advanced internal combustion engine genera-*  
19 *tors;*  
20 *(7) energy storage devices;*  
21 *(8) interconnection standards, protocols, and*  
22 *equipment;*  
23 *(9) ancillary equipment for dispatch and control;*  
24 *and*

1           (10) *any other energy technologies, as appro-*  
2           *priate.*

3           (b) *MICRO-COGENERATION ENERGY TECHNOLOGY.—*

4           *The Secretary shall make competitive, merit-based grants*  
5           *to consortia for the development of micro-cogeneration en-*  
6           *ergy technology. The consortia shall explore—*

7           (1) *the use of small-scale combined heat and*  
8           *power in residential heating appliances; or*

9           (2) *the use of excess power to operate other appli-*  
10          *ances within the residence and supply excess gen-*  
11          *erated power to the power grid.*

12          (c) *GOALS.—*

13          (1) *INITIAL GOALS.—In accordance with the per-*  
14          *formance plan and report requirements in section 4*  
15          *of the Government Performance Results Act of 1993,*  
16          *the Secretary shall transmit to the Congress, along*  
17          *with the President's annual budget request for fiscal*  
18          *year 2007, a report containing outcome measures*  
19          *with explicitly stated cost and performance baselines.*  
20          *The measures shall specify performance goals, with*  
21          *quantifiable 5-year cost and energy savings target lev-*  
22          *els, for distributed energy resources and systems, and*  
23          *any other such goals the Secretary considers appro-*  
24          *priate.*

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 year*  
4           *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 **SEC. 322. ELECTRICITY TRANSMISSION AND DISTRIBUTION**  
12 **AND ENERGY ASSURANCE.**

13           (a) *PROGRAM.*—*The Secretary shall conduct a re-*  
14           *search, development, demonstration, and commercial appli-*  
15           *cation program on advanced control devices to improve the*  
16           *energy efficiency and reliability of the electric transmission*  
17           *and distribution systems and to protect the Nation against*  
18           *severe energy supply disruptions. This program shall ad-*  
19           *dress, at a minimum—*

20                   (1) *advanced energy delivery and storage tech-*  
21                   *nologies, materials, and systems, including new trans-*  
22                   *mission technologies, such as flexible alternating cur-*  
23                   *rent transmission systems, composite conductor mate-*  
24                   *rials, and other technologies that enhance reliability,*  
25                   *operational flexibility, or power-carrying capability;*

1           (2) *advanced grid reliability and efficiency tech-*  
2           *nology development;*

3           (3) *technologies contributing to significant load*  
4           *reductions;*

5           (4) *advanced metering, load management, and*  
6           *control technologies;*

7           (5) *technologies to enhance existing grid compo-*  
8           *nents;*

9           (6) *the development and use of high-temperature*  
10          *superconductors to—*

11                 (A) *enhance the reliability, operational*  
12                 *flexibility, or power-carrying capability of elec-*  
13                 *tric transmission or distribution systems; or*

14                 (B) *increase the efficiency of electric energy*  
15                 *generation, transmission, distribution, or storage*  
16                 *systems;*

17           (7) *integration of power systems, including sys-*  
18           *tems to deliver high-quality electric power, electric*  
19           *power reliability, and combined heat and power;*

20           (8) *supply of electricity to the power grid by*  
21           *small-scale, distributed, and residential-based power*  
22           *generators;*

23           (9) *the development and use of advanced grid de-*  
24           *sign, operation, and planning tools;*

1           (10) any other infrastructure technologies, as ap-  
2           propriate; and

3           (11) technology transfer and education.

4           (b) GOALS.—

5           (1) INITIAL GOALS.—In accordance with the per-  
6           formance plan and report requirements in section 4  
7           of the Government Performance Results Act of 1993,  
8           the Secretary shall transmit to the Congress, along  
9           with the President's annual budget request for fiscal  
10          year 2007, a report containing outcome measures  
11          with explicitly stated cost and performance baselines.  
12          The measures shall specify performance goals, with  
13          quantifiable 5-year cost and energy savings target lev-  
14          els, for electricity transmission and distribution and  
15          energy assurance, and any other such goals the Sec-  
16          retary 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 year  
20          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) *HIGH VOLTAGE TRANSMISSION LINES.*—As part of  
3 the program described in subsection (a), the Secretary shall  
4 award a grant to a university research program to design  
5 and test, in consultation with the Tennessee Valley Author-  
6 ity, state-of-the-art optimization techniques for power flow  
7 through existing high voltage transmission lines.

8 **SEC. 323. AUTHORIZATION OF APPROPRIATIONS.**

9           (a) *IN GENERAL.*—The following sums are authorized  
10 to be appropriated to the Secretary for the purposes of car-  
11 rying out this subtitle:

12                   (1) For fiscal year 2006, \$220,000,000.

13                   (2) For fiscal year 2007, \$240,000,000.

14                   (3) For fiscal year 2008, \$250,000,000.

15                   (4) For fiscal year 2009, \$265,000,000.

16                   (5) For fiscal year 2010, \$275,000,000.

17           (b) *MICRO-COGENERATION ENERGY TECHNOLOGY.*—  
18 From the amounts authorized under subsection (a),  
19 \$20,000,000 for each of fiscal years 2006 and 2007 are au-  
20 thorized for activities under section 321(b).

21           (c) *ELECTRICITY TRANSMISSION AND DISTRIBUTION*  
22 *AND ENERGY ASSURANCE.*—From the amounts authorized  
23 under subsection (a), the following sums are authorized for  
24 activities under section 322:

1           (1) *For fiscal year 2006, \$130,000,000, of which*  
2           *\$2,000,000 shall be for the program under section*  
3           *322(c).*

4           (2) *For fiscal year 2007, \$140,000,000.*

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

6           (4) *For fiscal year 2009, \$160,000,000.*

7           (5) *For fiscal year 2010, \$165,000,000.*

## 8       **TITLE IV—RENEWABLE ENERGY**

### 9       **SEC. 401. FINDINGS.**

10       *Congress makes the following findings:*

11           (1) *Renewable energy is a growth industry*  
12           *around the world. However, the United States has not*  
13           *been investing as heavily as other countries, and is*  
14           *losing market share.*

15           (2) *Since 1996, the United States has lost sig-*  
16           *nificant market share in the solar industry, dropping*  
17           *from 44 percent of the world market to 13 percent in*  
18           *2003.*

19           (3) *In 2003, Japan spent more than*  
20           *\$200,000,000 on solar research, development, dem-*  
21           *onstration, and commercial application and other in-*  
22           *centives, and Germany provided more than*  
23           *\$750,000,000 in low cost financing for solar photo-*  
24           *voltaic projects. This compares to United States Gov-*  
25           *ernment spending of \$139,000,000 in 2003 for re-*

1 search, development, demonstration, and commercial  
2 application and other incentives.

3 (4) Germany and Japan each had domestic pho-  
4 tovoltaic industries that employed more than 10,000  
5 people in 2003, while in the same year the United  
6 States photovoltaics industry employed only 2,000  
7 people.

8 (5) The United States is becoming increasingly  
9 dependent on imported energy.

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

12 (7) Small reductions in peak demand can result  
13 in very large reductions in price, according to energy  
14 market experts.

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

19 (9) Renewable energy can reduce the demand for  
20 imported energy, reducing costs and decreasing the  
21 variability of energy prices.

22 (10) By using domestic renewable energy re-  
23 sources, the United States can reduce the amount of  
24 money sent into unstable regions of the world and  
25 keep it in the United States.

1           (11) *By supporting renewable energy research*  
2           *and development, and funding demonstration and*  
3           *commercial application programs for renewable en-*  
4           *ergy, the United States can create an export industry*  
5           *and improve the balance of trade.*

6           (12) *Renewable energy can significantly reduce*  
7           *the environmental impacts of energy production.*

8 **SEC. 402. DEFINITIONS.**

9           *For purposes of this title:*

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

14                   (A) *composed, in whole or in significant*  
15                   *part, of—*

16                           (i) *biological products;*

17                           (ii) *renewable domestic agricultural*  
18                           *materials (including plant, animal, and*  
19                           *marine materials); or*

20                           (iii) *forestry materials; and*

21                   (B) *produced in connection with the conver-*  
22                   *sion of biomass to energy or fuel.*

23           (2) *CELLULOSIC BIOMASS.*—*The term “cellulosic*  
24           *biomass” means a crop containing lignocellulose or*  
25           *hemicellulose, including barley grain, grapeseed, forest*

1        *thinnings, rice bran, rice hulls, rice straw, soybean*  
2        *matter, sugarcane bagasse, and any crop grown spe-*  
3        *cifically for the purpose of producing cellulosic feed-*  
4        *stocks.*

5        **SEC. 403. PROGRAMS.**

6        *(a) IN GENERAL.—The Secretary shall conduct pro-*  
7        *grams of renewable energy research, development, dem-*  
8        *onstration, and commercial application, including activi-*  
9        *ties described in this title. Such programs shall be focused*  
10       *on the following objectives:*

11                *(1) Increasing the conversion efficiency of all*  
12                *forms of renewable energy through improved tech-*  
13                *nologies.*

14                *(2) Decreasing the cost of renewable energy gen-*  
15                *eration and delivery.*

16                *(3) Promoting the diversity of the energy supply.*

17                *(4) Decreasing the Nation's dependence on for-*  
18                *ign energy supplies.*

19                *(5) Improving United States energy security.*

20                *(6) Decreasing the environmental impact of en-*  
21                *ergy-related activities.*

22                *(7) Increasing the export of renewable generation*  
23                *equipment from the United States.*

24        *(b) GOALS.—*

1           (1) *INITIAL GOALS.*—*In accordance with the per-*  
2 *formance plan and report requirements in section 4*  
3 *of the Government Performance Results Act of 1993,*  
4 *the Secretary shall transmit to the Congress, along*  
5 *with the President’s annual budget request for fiscal*  
6 *year 2007, a report containing outcome measures*  
7 *with explicitly stated cost and performance baselines.*  
8 *The measures shall specify renewable energy perform-*  
9 *ance goals, with quantifiable 5-year cost and energy*  
10 *savings target levels, for wind power, photovoltaics,*  
11 *solar thermal systems (including concentrating and*  
12 *solar hot water), geothermal energy, biomass-based*  
13 *systems, biofuels, and hydropower, and any other such*  
14 *goals the Secretary considers appropriate.*

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

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

24                   (B) *any amendments to such goals.*

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

5 **SEC. 404. SOLAR.**

6       (a) *PROGRAM.*—*The Secretary shall conduct a pro-*  
7 *gram of research, development, demonstration, and commer-*  
8 *cial application for solar energy, including—*

9           (1) *photovoltaics;*

10          (2) *solar hot water and solar space heating; and*

11          (3) *concentrating solar power.*

12       (b) *BUILDING INTEGRATION.*—*For photovoltaics, solar*  
13 *hot water, and space heating, the Secretary shall conduct*  
14 *research, development, demonstration, and commercial ap-*  
15 *plication to support the development of products that can*  
16 *be easily integrated into new and existing buildings.*

17       (c) *MANUFACTURE.*—*The Secretary shall conduct re-*  
18 *search, development, demonstration, and commercial appli-*  
19 *cation of manufacturing techniques that can produce low-*  
20 *cost, high-quality solar systems.*

21 **SEC. 405. BIOENERGY PROGRAMS.**

22       (a) *PROGRAM.*—*The Secretary shall conduct a pro-*  
23 *gram of research, development, demonstration, and commer-*  
24 *cial application for cellulosic biomass, including—*

25           (1) *biomass conversion to heat and electricity;*

1           (2) *biomass conversion to liquid fuels;*

2           (3) *biobased products;*

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

5           (5) *cross-cutting activities on feedstocks and en-*  
6 *zymes; and*

7           (6) *life-cycle economic analysis.*

8           (b) *BIOFUELS AND BIOBASED PRODUCTS.—The objec-*  
9 *tives of the biofuels and biobased products programs under*  
10 *paragraphs (2), (3), and (4) of subsection (a), and of the*  
11 *biorefinery demonstration program under subsection (c),*  
12 *shall be to develop, in partnership with industry—*

13           (1) *advanced biochemical and thermochemical*  
14 *conversion technologies capable of making high-value*  
15 *biobased chemical feedstocks and products, to sub-*  
16 *stitute for petroleum-based feedstocks and products,*  
17 *biofuels that are price-competitive with gasoline or*  
18 *diesel in either internal combustion engines or fuel*  
19 *cell-powered vehicles, and biobased products from a*  
20 *variety of feedstocks, including grains, cellulosic bio-*  
21 *mass, and agricultural byproducts; and*

22           (2) *advanced biotechnology processes capable of*  
23 *making biofuels and biobased products, with emphasis*  
24 *on development of biorefinery technologies, including*  
25 *enzyme-based processing technologies.*

1       (c) *BIOMASS INTEGRATED REFINERY DEMONSTRATION.—*  
2 *TION.—*

3           (1) *IN GENERAL.—The Secretary shall conduct a*  
4 *program to demonstrate the commercial application*  
5 *of at least 5 integrated biorefineries. The Secretary*  
6 *shall ensure geographical distribution of biorefinery*  
7 *demonstrations under this subsection. The Secretary*  
8 *shall not provide more than \$100,000,000 under this*  
9 *subsection for any single biorefinery demonstration.*  
10 *The Secretary shall award the biorefinery demonstra-*  
11 *tions so as to encourage—*

12                   (A) *the demonstration of a wide variety of*  
13 *cellulosic biomass feedstocks;*

14                   (B) *the commercial application of biomass*  
15 *technologies for a variety of uses, including—*

16                           (i) *liquid transportation fuels;*

17                           (ii) *high-value biobased chemicals;*

18                           (iii) *substitutes for petroleum-based*  
19 *feedstocks and products; and*

20                           (iv) *energy in the form of electricity or*  
21 *useful heat; and*

22                   (C) *the demonstration of the collection and*  
23 *treatment of a variety of biomass feedstocks.*

24           (2) *PROPOSALS.—Not later than 6 months after*  
25 *the date of enactment of this Act, the Secretary shall*

1       *solicit proposals for demonstration of advanced bio-*  
2       *refineries. The Secretary shall select only proposals*  
3       *that—*

4                (A) *demonstrate that the project will be able*  
5                *to operate profitably without direct Federal sub-*  
6                *sidy after initial construction costs are paid;*  
7                *and*

8                (B) *enable the biorefinery to be easily rep-*  
9                *licated.*

10       (d) *GRANTS.—Of the funds authorized to be appro-*  
11       *priated for activities authorized under this section, not less*  
12       *than \$5,000,000 for each fiscal year shall be made available*  
13       *for grants to Historically Black Colleges and Universities,*  
14       *Tribal Colleges, and Hispanic-Serving Institutions.*

15       **SEC. 406. WIND.**

16       (a) *PROGRAM.—The Secretary shall conduct a pro-*  
17       *gram of research, development, demonstration, and commer-*  
18       *cial application for wind energy, including—*

19                (1) *low speed wind energy;*

20                (2) *offshore wind energy;*

21                (3) *testing and verification; and*

22                (4) *distributed wind energy generation.*

23       (b) *FACILITY.—The Secretary shall construct and op-*  
24       *erate a research and testing facility capable of testing the*  
25       *largest wind turbines that are expected to be manufactured*

1 *in the next 15 years. The Secretary shall consider the need*  
2 *for testing offshore turbine designs in siting the facility. All*  
3 *private users of the facility shall be required to pay the De-*  
4 *partment all costs associated with their use of the facility,*  
5 *including capital costs prorated at normal business amorti-*  
6 *zation rates.*

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

12 **SEC. 407. GEOTHERMAL.**

13 *The Secretary shall conduct a program of research, de-*  
14 *velopment, demonstration, and commercial application for*  
15 *geothermal energy. The program shall focus on developing*  
16 *improved technologies for reducing the costs of geothermal*  
17 *energy installations, including technologies for—*

18 *(1) improving detection of geothermal resources;*

19 *(2) decreasing drilling costs;*

20 *(3) decreasing maintenance costs through im-*  
21 *proved materials;*

22 *(4) increasing the potential for other revenue*  
23 *sources, such as mineral production; and*

24 *(5) increasing the understanding of reservoir life*  
25 *cycle and management.*

1 **SEC. 408. PHOTOVOLTAIC DEMONSTRATION PROGRAM.**

2 (a) *IN GENERAL.*—*The Secretary shall establish a pro-*  
3 *gram of grants to States to demonstrate advanced photo-*  
4 *voltaic technology.*

5 (b) *REQUIREMENTS.*—(1) *To receive funding under the*  
6 *program under this section, a State must submit a proposal*  
7 *that demonstrates, to the satisfaction of the Secretary, that*  
8 *the State will meet the requirements of subsection (f).*

9 (2) *If a State has received funding under this section*  
10 *for the preceding year, the State must demonstrate, to the*  
11 *satisfaction of the Secretary, that it complied with the re-*  
12 *quirements of subsection (f) in carrying out the program*  
13 *during that preceding year, and that it will do so in the*  
14 *future.*

15 (3) *Except as provided in subsection (c), each State*  
16 *submitting a qualifying proposal shall receive funding*  
17 *under the program based on the proportion of United States*  
18 *population in the State according to the 2000 census. In*  
19 *each fiscal year, the portion of funds attributable under this*  
20 *paragraph to States that have not submitted qualifying*  
21 *proposals in the time and manner specified by the Secretary*  
22 *shall be distributed pro rata to the States that have sub-*  
23 *mitted qualifying proposals in the specified time and man-*  
24 *ner.*

25 (c) *COMPETITION.*—*If more than \$80,000,000 is avail-*  
26 *able for the program under this section for any fiscal year,*

1 *the Secretary shall allocate 75 percent of the funds available*  
2 *according to subsection (b), and shall award the remaining*  
3 *25 percent on a competitive basis to the States with the*  
4 *proposals the Secretary considers most likely to encourage*  
5 *the widespread adoption of photovoltaic technologies.*

6 *(d) PROPOSALS.—Not later than 6 months after the*  
7 *date of enactment of this Act, and in each subsequent fiscal*  
8 *year for the life of the program, the Secretary shall solicit*  
9 *proposals from the States to participate in the program*  
10 *under this section.*

11 *(e) COMPETITIVE CRITERIA.—In awarding funds in a*  
12 *competitive allocation under subsection (c), the Secretary*  
13 *shall consider—*

14 *(1) the likelihood of a proposal to encourage the*  
15 *demonstration of, or lower the costs of, advanced pho-*  
16 *tovoltaic technologies; and*

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

18 *(A) maximize the amount of photovoltaics*  
19 *demonstrated;*

20 *(B) maximize the proportion of non-Federal*  
21 *cost share; and*

22 *(C) limit State administrative costs.*

23 *(f) STATE PROGRAM.—A program operated by a State*  
24 *with funding under this section shall provide competitive*

1 *awards for the demonstration of advanced photovoltaic tech-*  
2 *nologies. Each State program shall—*

3 *(1) require a contribution of at least 60 percent*  
4 *per award from non-Federal sources, which may in-*  
5 *clude any combination of State, local, and private*  
6 *funds, except that at least 10 percent of the funding*  
7 *must be supplied by the State;*

8 *(2) limit awards for any single project to a max-*  
9 *imum of \$1,000,000;*

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

12 *(4) endeavor to fund recipients in the commer-*  
13 *cial, industrial, institutional, governmental, and resi-*  
14 *dential sectors;*

15 *(5) limit State administrative costs to no more*  
16 *than 10 percent of the grant;*

17 *(6) report annually to the Department on—*

18 *(A) the amount of funds disbursed;*

19 *(B) the amount of photovoltaics purchased;*

20 *and*

21 *(C) the results of the monitoring under*  
22 *paragraph (7);*

23 *(7) provide for measurement and verification of*  
24 *the output of a representative sample of the*  
25 *photovoltaics systems demonstrated throughout the av-*

1 *erage working life of the systems, or at least 20 years;*  
2 *and*

3 *(8) require that applicant buildings must have*  
4 *received an independent energy efficiency audit dur-*  
5 *ing the 6-month period preceding the filing of the ap-*  
6 *plication.*

7 *(g) UNEXPENDED FUNDS.—If a State fails to expend*  
8 *any funds received under subsection (b) or (c) within 3*  
9 *years of receipt, such remaining funds shall be returned to*  
10 *the Treasury.*

11 *(h) REPORTS.—The Secretary shall report to Congress*  
12 *5 years after funds are first distributed to the States under*  
13 *this section—*

14 *(1) the amount of photovoltaics demonstrated;*

15 *(2) the number of projects undertaken;*

16 *(3) the administrative costs of the program;*

17 *(4) the amount of funds that each State has not*  
18 *received because of a failure to submit a qualifying*  
19 *proposal, as described in subsection (b)(3);*

20 *(5) the results of the monitoring under subsection*  
21 *(f)(7); and*

22 *(6) the total amount of funds distributed, includ-*  
23 *ing a breakdown by State.*

1 **SEC. 409. ADDITIONAL PROGRAMS.**

2 (a) *IN GENERAL.*—*The Secretary may conduct re-*  
3 *search, development, demonstration, and commercial appli-*  
4 *cation programs of—*

5 (1) *ocean energy, including wave energy;*

6 (2) *kinetic hydro turbines; and*

7 (3) *the combined use of renewable energy tech-*  
8 *nologies with one another and with other energy tech-*  
9 *nologies.*

10 (b) *MARINE RENEWABLE ENERGY STUDY.*—

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

14 (A) *the feasibility of various methods of re-*  
15 *newable generation of energy from the ocean, in-*  
16 *cluding energy from waves, tides, currents, and*  
17 *thermal gradients; and*

18 (B) *the research, development, demonstra-*  
19 *tion, and commercial application activities re-*  
20 *quired to make marine renewable energy genera-*  
21 *tion competitive with other forms of electricity*  
22 *generation.*

23 (2) *TRANSMITTAL.*—*Not later than 1 year after*  
24 *the date of enactment of this Act, the Secretary shall*  
25 *transmit the study to Congress along with the Sec-*

1        *retary's recommendations for implementing the re-*  
2        *sults of the study.*

3        *(c) RENEWABLE ENERGY IN PUBLIC BUILDINGS.—*

4                *(1) DEMONSTRATION AND TECHNOLOGY TRANS-*  
5        *FER PROGRAM.—The Secretary shall establish a pro-*  
6        *gram for the demonstration of innovative technologies*  
7        *for solar and other renewable energy sources in build-*  
8        *ings owned or operated by a State or local govern-*  
9        *ment, and for the dissemination of information re-*  
10       *sulting from such demonstration to interested parties.*

11               *(2) LIMIT ON FEDERAL FUNDING.—The Sec-*  
12       *retary shall provide under this subsection no more*  
13       *than 40 percent of the incremental costs of the solar*  
14       *or other renewable energy source project funded.*

15               *(3) REQUIREMENT.—As part of the application*  
16       *for awards under this subsection, the Secretary shall*  
17       *require all applicants—*

18               *(A) to demonstrate a continuing commit-*  
19       *ment to the use of solar and other renewable en-*  
20       *ergy sources in buildings they own or operate;*  
21       *and*

22               *(B) to state how they expect any award to*  
23       *further their transition to the significant use of*  
24       *renewable energy.*

1 **SEC. 410. ANALYSIS AND EVALUATION.**

2       (a) *IN GENERAL.*—*The Secretary shall conduct anal-*  
3 *ysis and evaluation in support of the renewable energy pro-*  
4 *grams under this title. These activities shall be used to guide*  
5 *budget and program decisions, and shall include—*

6           (1) *economic and technical analysis of renewable*  
7 *energy potential, including resource assessment;*

8           (2) *analysis of past program performance, both*  
9 *in terms of technical advances and in market intro-*  
10 *duction of renewable energy; and*

11           (3) *any other analysis or evaluation that the*  
12 *Secretary considers appropriate.*

13       (b) *FUNDING.*—*The Secretary may designate up to 1*  
14 *percent of the funds appropriated for carrying out this title*  
15 *for analysis and evaluation activities under this section.*

16 **SEC. 411. AUTHORIZATION OF APPROPRIATIONS.**

17       *The following sums are authorized to be appropriated*  
18 *to the Secretary for the purposes of carrying out this title:*

19           (1) *For fiscal year 2006, \$465,000,000, of*  
20 *which—*

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

23           (B) *\$200,000,000 shall be for carrying out*  
24 *the bioenergy program under section 405, includ-*  
25 *ing \$100,000,000 for the biorefinery demonstra-*  
26 *tion program under section 405(c);*

1           (C) \$55,000,000 shall be for carrying out  
2           the wind program under section 406, including  
3           \$10,000,000 for the facility described in section  
4           406(b);

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

7           (E) \$50,000,000 shall be for carrying out  
8           the photovoltaic demonstration program under  
9           section 408.

10          (2) For fiscal year 2007, \$605,000,000, of  
11          which—

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

14               (B) \$245,000,000 shall be for carrying out  
15               the bioenergy program under section 405, includ-  
16               ing \$125,000,000 for the biorefinery demonstra-  
17               tion program under section 405(c);

18               (C) \$60,000,000 shall be for carrying out  
19               the wind program under section 406, including  
20               \$15,000,000 for the facility described in section  
21               406(b);

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

1           (E) \$100,000,000 shall be for carrying out  
2           the photovoltaic demonstration program under  
3           section 408.

4           (3) For fiscal year 2008, \$775,000,000, of  
5           which—

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

8           (B) \$310,000,000 shall be for carrying out  
9           the bioenergy program under section 405, includ-  
10          ing \$150,000,000 for the biorefinery demonstra-  
11          tion program under section 405(c);

12          (C) \$65,000,000 shall be for carrying out  
13          the wind program under section 406, including  
14          \$10,000,000 for the facility described in section  
15          406(b);

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

18          (E) \$150,000,000 shall be for carrying out  
19          the photovoltaic demonstration program under  
20          section 408.

21          (4) For fiscal year 2009, \$940,000,000, of  
22          which—

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

1           (B) \$355,000,000 shall be for carrying out  
2           the bioenergy program under section 405, includ-  
3           ing \$175,000,000 for the biorefinery demonstra-  
4           tion program under section 405(c);

5           (C) \$65,000,000 shall be for carrying out  
6           the wind program under section 406, including  
7           \$5,000,000 for the facility described in section  
8           406(b);

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

11          (E) \$200,000,000 shall be for carrying out  
12          the photovoltaic demonstration program under  
13          section 408.

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

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

18               (B) \$400,000,000 shall be for carrying out  
19               the bioenergy program under section 405, includ-  
20               ing \$200,000,000 for the biorefinery demonstra-  
21               tion program under section 405(c);

22               (C) \$65,000,000 shall be for carrying out  
23               the wind program under section 406, including  
24               \$1,000,000 for the facility described in section  
25               406(b);

1           (D) \$30,000,000 shall be for carrying out  
2           the geothermal program under section 407; and  
3           (E) \$300,000,000 shall be for carrying out  
4           the photovoltaic demonstration program under  
5           section 408.

6           **TITLE V—NUCLEAR ENERGY**  
7           **PROGRAMS**

8           **SEC. 501. DEFINITION.**

9           In this title, the term “junior faculty” means a faculty  
10          member who was awarded a doctorate less than 10 years  
11          before receipt of an award from the grant program described  
12          in section 512(b)(2).

13          **SEC. 502. PROGRAMS.**

14          (a) *IN GENERAL.*—The Secretary shall conduct pro-  
15          grams of civilian nuclear energy research, development,  
16          demonstration, and commercial application, including ac-  
17          tivities described in this title. Programs under this title  
18          shall be focused on—

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

21                 (2) providing the technical means to reduce the  
22                 likelihood of nuclear proliferation;

23                 (3) maintaining a cadre of nuclear scientists  
24                 and engineers;

1           (4) *maintaining National Laboratory and uni-*  
2           *versity nuclear programs, including their infrastruc-*  
3           *ture;*

4           (5) *supporting both individual researchers and*  
5           *multidisciplinary teams of researchers to pioneer new*  
6           *approaches in nuclear energy, science, and technology;*

7           (6) *developing, planning, constructing, acquir-*  
8           *ing, and operating special equipment and facilities*  
9           *for the use of researchers;*

10          (7) *supporting technology transfer and other ap-*  
11          *propriate activities to assist the nuclear energy indus-*  
12          *try, and other users of nuclear science and engineer-*  
13          *ing, including activities addressing reliability, avail-*  
14          *ability, productivity, component aging, safety, and se-*  
15          *curity of nuclear power plants; and*

16          (8) *reducing the environmental impact of nu-*  
17          *clear energy-related activities.*

18          (b) *GOALS.—*

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

1       *The measures shall specify performance goals, with*  
2       *quantifiable 5-year cost improvement and reliability,*  
3       *availability, productivity, and component aging tar-*  
4       *get levels for a wide range of nuclear energy tech-*  
5       *nologies, and any other such goals the Secretary con-*  
6       *siders appropriate.*

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

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

16                       (B) *any amendments to such goals.*

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

21                       ***Subtitle A—Nuclear Energy***  
22                       ***Research Programs***

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

24               (a) *IN GENERAL.—The Secretary shall conduct an ad-*  
25       *vanced fuel recycling technology research, development,*

1 *demonstration, and commercial application program to*  
2 *evaluate fuel recycling or transmutation technologies which*  
3 *are proliferation-resistant and minimize environmental*  
4 *and public health and safety impacts, as an alternative to*  
5 *aqueous reprocessing technologies deployed as of the date of*  
6 *enactment of this Act, in support of evaluation of alter-*  
7 *native national strategies for spent nuclear fuel and ad-*  
8 *vanced reactor concepts. The program shall be subject to an-*  
9 *nual review by the Secretary's Nuclear Energy Research*  
10 *Advisory Committee or other independent entity, as appro-*  
11 *priate.*

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

16 **SEC. 512. UNIVERSITY NUCLEAR SCIENCE AND ENGINEER-**  
17 **ING SUPPORT.**

18 (a) *IN GENERAL.*—*The Secretary shall conduct a pro-*  
19 *gram to invest in human resources and infrastructure in*  
20 *the nuclear sciences and related fields, including health*  
21 *physics, nuclear engineering, and radiochemistry, con-*  
22 *sistent with Departmental missions related to civilian nu-*  
23 *clear research, development, demonstration, and commercial*  
24 *application.*

1       (b) *REQUIREMENTS.*—*In carrying out the program*  
2 *under this section, the Secretary shall—*

3           (1) *conduct a graduate and undergraduate fel-*  
4 *lowship program to attract new and talented stu-*  
5 *dents, which may include fellowships for students to*  
6 *spend time at National Laboratories in the areas of*  
7 *nuclear science, engineering, and health physics with*  
8 *a member of the National Laboratory staff acting as*  
9 *a mentor;*

10          (2) *conduct a junior faculty research initiation*  
11 *grant program to assist universities in recruiting and*  
12 *retaining new faculty in the nuclear sciences and en-*  
13 *gineering by awarding grants to junior faculty for re-*  
14 *search on issues related to nuclear energy engineering*  
15 *and science;*

16          (3) *support fundamental nuclear sciences, engi-*  
17 *neering, and health physics research through a nu-*  
18 *clear engineering education and research program;*

19          (4) *encourage collaborative nuclear research*  
20 *among industry, National Laboratories, and univer-*  
21 *sities; and*

22          (5) *support communication and outreach related*  
23 *to nuclear science, engineering, and health physics.*

24       (c) *STRENGTHENING UNIVERSITY RESEARCH AND*  
25 *TRAINING REACTORS AND ASSOCIATED INFRASTRUC-*

1 *TURE.—In carrying out the program under this section, the*

2 *Secretary may support—*

3           (1) *converting research reactors from high-en-*  
4 *richment fuels to low-enrichment fuels and upgrading*  
5 *operational instrumentation;*

6           (2) *consortia of universities to broaden access to*  
7 *university research reactors;*

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

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

17       (d) *OPERATIONS AND MAINTENANCE.—Funding for a*  
18 *project provided under this section may be used for a por-*  
19 *tion of the operating and maintenance costs of a research*  
20 *reactor at a university used in the project.*

21 **SEC. 513. UNIVERSITY-NATIONAL LABORATORY INTER-**  
22 **ACTIONS.**

23 *The Secretary shall conduct—*

1           (1) *a fellowship program for professors at uni-*  
2           *versities to spend sabbaticals at National Laboratories*  
3           *in the areas of nuclear science and technology; and*

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

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

8           *The Secretary shall carry out a Nuclear Power 2010*  
9           *Program, consistent with recommendations in the October*  
10          *2001 report entitled “A Roadmap to Deploy New Nuclear*  
11          *Power Plants in the United States by 2010” issued by the*  
12          *Nuclear Energy Research Advisory Committee of the De-*  
13          *partment. The Program shall include—*

14               (1) *the expertise and capabilities of industry,*  
15               *universities, and National Laboratories in evaluation*  
16               *of advanced nuclear fuel cycles and fuels testing;*

17               (2) *a variety of reactor designs suitable for both*  
18               *developed and developing nations;*

19               (3) *participation of international collaborators*  
20               *in research, development, and design efforts as appro-*  
21               *priate; and*

22               (4) *university and industry participation.*

1 **SEC. 515. GENERATION IV NUCLEAR ENERGY SYSTEMS INI-**  
2 **TIATIVE.**

3 *The Secretary shall carry out a Generation IV Nuclear*  
4 *Energy Systems Initiative to develop an overall technology*  
5 *plan and to support research, development, demonstration,*  
6 *and commercial application necessary to make an informed*  
7 *technical decision about the most promising candidates for*  
8 *the eventual commercial application of advanced fission re-*  
9 *actor technology for the generation of electricity. The Initia-*  
10 *tive shall examine advanced proliferation-resistant and*  
11 *passively safe reactor designs, including designs that—*

12 *(1) are economically competitive with other elec-*  
13 *tric power generation plants;*

14 *(2) have higher efficiency, lower cost, and im-*  
15 *proved safety compared to reactors in operation on*  
16 *the date of enactment of this Act;*

17 *(3) use fuels that are proliferation-resistant and*  
18 *have substantially reduced production of high-level*  
19 *waste per unit of output; and*

20 *(4) use improved instrumentation.*

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

22 *The Secretary shall operate and maintain infrastruc-*  
23 *ture and facilities to support the nuclear energy research,*  
24 *development, demonstration, and commercial application*  
25 *programs, including radiological facilities management,*  
26 *isotope production, and facilities management.*

1 **SEC. 517. NUCLEAR ENERGY RESEARCH AND DEVELOP-**  
2 **MENT INFRASTRUCTURE PLAN.**

3 *In carrying out section 209, the Secretary shall—*

4 *(1) develop an inventory of nuclear science and*  
5 *engineering facilities, equipment, expertise, and other*  
6 *assets at all of the National Laboratories;*

7 *(2) develop a prioritized list of nuclear science*  
8 *and engineering plant and equipment improvements*  
9 *needed at each of the National Laboratories;*

10 *(3) consider the available facilities and expertise*  
11 *at all National Laboratories and emphasize invest-*  
12 *ments which complement rather than duplicate capa-*  
13 *bilities; and*

14 *(4) develop a timeline and a proposed budget for*  
15 *the completion of deferred maintenance on plant and*  
16 *equipment,*

17 *with the goal of ensuring that Department programs under*  
18 *this title will be generally recognized to be among the best*  
19 *in the world.*

20 **SEC. 518. IDAHO NATIONAL LABORATORY FACILITIES PLAN.**

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

1           (1) *evaluate the facilities planning processes uti-*  
2 *lized by other physical science and engineering re-*  
3 *search and development institutions, both in the*  
4 *United States and abroad, that are generally recog-*  
5 *nized as being among the best in the world, and con-*  
6 *sider how those processes might be adapted toward de-*  
7 *veloping such facilities plan;*

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

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

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

19           (5) *consider the establishment of a fast neutron*  
20 *source as a user facility;*

21           (6) *consider the establishment of new “hot cells”*  
22 *and the configuration of “hot cells” most likely to ad-*  
23 *vance research, development, demonstration, and com-*  
24 *mmercial application in nuclear science and engineer-*  
25 *ing, especially in the context of the condition and*

1       *availability of these facilities elsewhere in the Na-*  
2       *tional Laboratories; and*

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

6       *(b) TRANSMITTAL TO CONGRESS.—Not later than one*  
7       *year after the date of enactment of this Act, the Secretary*  
8       *shall transmit such plan to Congress.*

9       **SEC. 519. AUTHORIZATION OF APPROPRIATIONS.**

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

13               *(1) \$407,000,000 for fiscal year 2006.*

14               *(2) \$427,000,000 for fiscal year 2007.*

15               *(3) \$449,000,000 for fiscal year 2008.*

16               *(4) \$471,000,000 for fiscal year 2009.*

17               *(5) \$495,000,000 for fiscal year 2010.*

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

21               *(1) \$35,200,000 for fiscal year 2006.*

22               *(2) \$44,350,000 for fiscal year 2007.*

23               *(3) \$49,200,000 for fiscal year 2008.*

24               *(4) \$55,000,000 for fiscal year 2009.*

25               *(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 demonstration*  
7           *plant, and the physical construction, purchase, or*  
8           *manufacture of equipment or components that are*  
9           *specifically designed for the demonstration plant, but*  
10           *does not mean the design of the facility, equipment,*  
11           *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 pro-*  
25           *gram of research, development, demonstration, and commer-*

1 *cial application of advanced nuclear fission reactor tech-*  
2 *nology. The objective of this program shall be to demonstrate*  
3 *the technical and economic feasibility of an advanced nu-*  
4 *clear fission reactor power plant design for the commercial*  
5 *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, demonstration,*  
13 *and commercial application activities necessary to support*  
14 *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 com-*  
22 *mercial production of electricity, by December 31, 2015.*

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

1 90 days have elapsed after the transmission of the plan de-  
2 scribed 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 Re-*  
6 *search Advisory Council to provide advice to the Secretary*  
7 *on technical matters and program management for the du-*  
8 *ration of the program and construction project under this*  
9 *subtitle.*

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

11 (a) *PARTNERSHIPS.*—*In carrying out the program*  
12 *under this subtitle, the Secretary shall make use of partner-*  
13 *ships with industry for the research, development, design,*  
14 *construction, and operation of the demonstration plant. In*  
15 *establishing such partnerships, the Secretary shall give pref-*  
16 *erence to companies for which the principal base of oper-*  
17 *ations 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 countries*  
22 *of the Generation IV International Forum, the Russian*  
23 *Federation, or other international partners where such spe-*  
24 *cialists or facilities provide access to cost-effective and rel-*  
25 *evant 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 the*  
6 *date of enactment of this Act, the Secretary shall transmit*  
7 *to Congress a comprehensive program plan. The program*  
8 *plan shall—*

9                   (1) *describe the plan for development, selection,*  
10 *management, ownership, operation, and decommiss-*  
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 criteria*  
15 *for any future commercial development of a reactor*  
16 *architecture based on that of the demonstration plant;*

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

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

23 **SEC. 535. AUTHORIZATION OF APPROPRIATIONS.**

24           (a) *RESEARCH, DEVELOPMENT, AND DESIGN PRO-*  
25 *GRAMS.*—*The following sums are authorized to be appro-*

1 *priated to the Secretary for the purposes of carrying out*  
 2 *this subtitle except for the demonstration plant activities*  
 3 *described in subsection (b):*

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

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

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

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

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

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

## 15 **TITLE VI—FOSSIL ENERGY**

### 16 **Subtitle A—Research Programs**

17 **SEC. 601. ENHANCED FOSSIL ENERGY RESEARCH AND DE-**  
 18 **VELOPMENT PROGRAMS.**

19 (a) *IN GENERAL.*—*The Secretary shall, in conjunction*  
 20 *with industry, conduct fossil energy research, development,*  
 21 *demonstration, and commercial applications programs, in-*  
 22 *cluding activities under this subtitle, with the goal of im-*  
 23 *proving the efficiency, effectiveness, and environmental per-*  
 24 *formance of fossil energy production, upgrading, conver-*

1 sion, and consumption. Such programs shall be focused  
2 on—

3 (1) increasing the conversion efficiency of all  
4 forms of fossil energy through improved technologies;

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

7 (3) promoting diversity of energy supply;

8 (4) decreasing the Nation's dependence on foreign  
9 energy supplies;

10 (5) improving United States energy security;

11 (6) decreasing the environmental impact of en-  
12 ergy-related activities; and

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

16 (b) GOALS.—

17 (1) INITIAL GOALS.—In accordance with the per-  
18 formance plan and report requirements in section 4  
19 of the Government Performance Results Act of 1993,  
20 the Secretary shall transmit to the Congress, along  
21 with the President's annual budget request for fiscal  
22 year 2007, a report containing outcome measures  
23 with explicitly stated cost and performance baselines.  
24 The measures shall specify production or efficiency  
25 performance goals, with quantifiable 5-year cost and

1 *energy savings target levels, for fossil energy, and any*  
2 *other such goals the Secretary 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 year*  
6 *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) *COVERED ACTIVITIES.—The Secretary shall ensure*  
14 *that the goals stated in subsection (b) are illustrative of the*  
15 *outcomes necessary to promote acceptance of the programs’*  
16 *efforts in the marketplace, but at a minimum shall encom-*  
17 *pass the following areas:*

18 (1) *Coal gasifiers.*

19 (2) *Turbine generators, including both natural*  
20 *gas and syngas fueled.*

21 (3) *Oxygen separation devices, hydrogen separa-*  
22 *tion devices, and carbon dioxide separation tech-*  
23 *nologies.*

1           (4) *Coal gas and post-combustion emission clean-*  
2           *up and disposal equipment, including carbon dioxide*  
3           *capture and disposal equipment.*

4           (5) *Average per-foot drilling costs for oil and*  
5           *gas, segregated by appropriate drilling regimes, in-*  
6           *cluding onshore versus offshore and depth categories.*

7           (6) *Production of liquid fuels from nontradi-*  
8           *tional feedstocks, including syngas, biomass, methane,*  
9           *and combinations thereof.*

10          (7) *Environmental discharge per barrel of oil or*  
11          *oil-equivalent production, including reinjected waste.*

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

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

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

19          (a) *OBJECTIVES.*—*The Secretary shall conduct a pro-*  
20          *gram of fossil research, development, demonstration, and*  
21          *commercial application, whose objective shall be to reduce*  
22          *emissions from fossil fuel use by developing technologies, in-*  
23          *cluding precombustion technologies, by 2015 with the capa-*  
24          *bility of—*

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

3           (2) *improving combined heat and power thermal*  
4           *efficiencies;*

5           (3) *improving fuels utilization efficiency of pro-*  
6           *duction of liquid transportation fuels from coal;*

7           (4) *achieving near-zero emissions of mercury and*  
8           *of emissions that form fine particles, smog, and acid*  
9           *rain;*

10          (5) *reducing carbon dioxide emissions by at least*  
11          *40 percent through efficiency improvements and by*  
12          *100 percent with sequestration; and*

13          (6) *improved reliability, efficiency, reductions of*  
14          *air pollutant emissions, and reductions in solid waste*  
15          *disposal requirements.*

16          (b) *COAL-BASED PROJECTS.—The coal-based projects*  
17          *authorized under this section shall be consistent with the*  
18          *objective stated in subsection (a). The program shall empha-*  
19          *size carbon capture and sequestration technologies and gas-*  
20          *ification technologies, including gasification combined*  
21          *cycle, gasification fuel cells, gasification coproduction, hy-*  
22          *brid gasification/combustion, or other technologies with the*  
23          *potential to address the capabilities described in para-*  
24          *graphs (4) and (5) of subsection (a).*

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

2       *The Secretary shall conduct a program of oil and gas*  
3 *research, development, demonstration, and commercial ap-*  
4 *plication, whose objective shall be to advance the science and*  
5 *technology available to domestic petroleum producers, par-*  
6 *ticularly independent operators, to minimize the economic*  
7 *dislocation caused by the decline of domestic supplies of oil*  
8 *and natural gas resources by focusing research on—*

9           (1) *assisting small domestic producers of oil and*  
10 *gas to develop new and improved technologies to dis-*  
11 *cover and extract additional supplies;*

12           (2) *developing technologies to extract methane*  
13 *hydrates in an environmentally sound manner;*

14           (3) *improving the ability of the domestic indus-*  
15 *try to extract hydrocarbons from known reservoirs*  
16 *and classes of reservoirs; and*

17           (4) *reducing the cost, and improving the effi-*  
18 *ciency and environmental performance, of oil and gas*  
19 *exploration and extraction activities, focusing espe-*  
20 *cially on unconventional sources such as tar sands,*  
21 *heavy oil, and shale oil.*

22 **SEC. 604. TRANSPORTATION FUELS.**

23       *The Secretary shall conduct a program of transpor-*  
24 *tation fuels research, development, demonstration, and com-*  
25 *mmercial application, whose objective shall be to increase the*

1 *price elasticity of oil supply and demand by focusing re-*  
2 *search on—*

3           (1) *reducing the cost of producing transportation*  
4 *fuels from coal and natural gas; and*

5           (2) *indirect liquefaction of coal and biomass.*

6 **SEC. 605. FUEL CELLS.**

7           (a) *PROGRAM.—The Secretary shall conduct a pro-*  
8 *gram of research, development, demonstration, and commer-*  
9 *cial application of fuel cells for low-cost, high-efficiency,*  
10 *fuel-flexible, modular power systems.*

11           (b) *DEMONSTRATION.—The program under this sec-*  
12 *tion shall include demonstration of fuel cell proton exchange*  
13 *membrane technology for commercial, residential, and*  
14 *transportation applications, and distributed generation*  
15 *systems, utilizing improved manufacturing production and*  
16 *processes.*

17 **SEC. 606. CARBON DIOXIDE CAPTURE RESEARCH AND DE-**  
18 **VELOPMENT.**

19           (a) *PROGRAM.—The Secretary of Energy shall support*  
20 *a 10-year program of research and development aimed at*  
21 *developing carbon dioxide capture technologies for pulver-*  
22 *ized coal combustion units. The program shall focus on—*

23           (1) *developing add-on carbon dioxide capture*  
24 *technologies, such as adsorption and absorption tech-*  
25 *niques and chemical processes, to remove carbon diox-*

1        *ide from flue gas, producing concentrated streams of*  
2        *carbon dioxide potentially amenable to sequestration;*

3            *(2) combustion technologies that would directly*  
4        *produce concentrated streams of carbon dioxide poten-*  
5        *tially amenable to sequestration; and*

6            *(3) increasing the efficiency of the overall com-*  
7        *bustion system in order to reduce the amount of car-*  
8        *bon dioxide emissions released from the system per*  
9        *megawatt generated.*

10        *(b) CARBON SEQUESTRATION.—In conjunction with*  
11        *the program under subsection (a), the Secretary shall con-*  
12        *tinue pursuing a robust carbon sequestration program with*  
13        *the private sector, through regional carbon sequestration*  
14        *partnerships.*

15        **SEC. 607. AUTHORIZATION OF APPROPRIATIONS.**

16        *(a) IN GENERAL.—The following sums are authorized*  
17        *to be appropriated to the Secretary for the purposes of car-*  
18        *rying out this subtitle:*

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

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

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

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

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

1       (b) *ALLOCATION.*—From amounts authorized under  
2 subsection (a), there are authorized to be appropriated for  
3 carrying out the program under section 606—

4           (1) \$20,000,000 for fiscal year 2006;

5           (2) \$25,000,000 for fiscal year 2007;

6           (3) \$30,000,000 for fiscal year 2008;

7           (4) \$35,000,000 for fiscal year 2009; and

8           (5) \$40,000,000 for fiscal year 2010.

9       **Subtitle B—Ultra-Deepwater and**  
10       **Unconventional Natural Gas**  
11       **and Other Petroleum Resources**

12       **SEC. 611. PROGRAM AUTHORITY.**

13       (a) *IN GENERAL.*—The Secretary shall carry out a  
14 program under this subtitle of research, development, dem-  
15 onstration, and commercial application of technologies for  
16 ultra-deepwater and unconventional natural gas and other  
17 petroleum resource exploration and production, including  
18 addressing the technology challenges for small producers,  
19 safe operations, and environmental mitigation (including  
20 reduction of greenhouse gas emissions and sequestration of  
21 carbon).

22       (b) *METHANE HYDRATE REPORT.*—Within 6 months  
23 of enactment, the Secretary shall report to Congress on  
24 whether the activities described in the Methane Hydrates

1 *Act of 2000 (114 Stat. 234 or 30 U.S.C. 1902 note) should*  
2 *be carried out under this subtitle.*

3 (c) *PROGRAM ELEMENTS.—The program under this*  
4 *subtitle shall address the following areas, including improv-*  
5 *ing safety and minimizing environmental impacts of ac-*  
6 *tivities within each area:*

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

10 (2) *Ultra-deepwater architecture.*

11 (3) *Unconventional natural gas and other petro-*  
12 *leum resource exploration and production technology,*  
13 *including the technology challenges of small pro-*  
14 *ducers.*

15 (d) *LIMITATION ON LOCATION OF FIELD ACTIVI-*  
16 *TIES.—Field activities under the program under this sub-*  
17 *title shall be carried out only—*

18 (1) *in—*

19 (A) *areas in the territorial waters of the*  
20 *United States not under any Outer Continental*  
21 *Shelf moratorium as of September 30, 2002;*

22 (B) *areas onshore in the United States on*  
23 *public land administered by the Secretary of the*  
24 *Interior available for oil and gas leasing, where*

1           *consistent with applicable law and land use*  
2           *plans; and*

3                   *(C) areas onshore in the United States on*  
4           *State or private land, subject to applicable law;*  
5           *and*

6                   *(2) with the approval of the appropriate Federal*  
7           *or State land management agency or private land*  
8           *owner.*

9           *(e) RESEARCH AT NATIONAL ENERGY TECHNOLOGY*  
10          *LABORATORY.—The Secretary, through the National En-*  
11          *ergy Technology Laboratory, shall carry out research com-*  
12          *plementary to research under subsection (b).*

13           *(f) CONSULTATION WITH SECRETARY OF THE INTE-*  
14          *RIOR.—In carrying out this subtitle, the Secretary shall*  
15          *consult regularly with the Secretary of the Interior.*

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

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

1       **(b) ROLE OF THE SECRETARY.**—*The Secretary shall*  
2 *have ultimate responsibility for, and oversight of, all aspects*  
3 *of the program under this section.*

4       **(c) ROLE OF THE PROGRAM CONSORTIUM.**—

5           **(1) IN GENERAL.**—*The Secretary may contract*  
6 *with a consortium to—*

7                   **(A)** *manage awards pursuant to subsection*  
8 *(f)(4);*

9                   **(B)** *make recommendations to the Secretary*  
10 *for project solicitations;*

11                   **(C)** *disburse funds awarded under sub-*  
12 *section (f) as directed by the Secretary in accord-*  
13 *ance with the annual plan under subsection (e);*  
14 *and*

15                   **(D)** *carry out other activities assigned to*  
16 *the program consortium by this section.*

17           **(2) LIMITATION.**—*The Secretary may not assign*  
18 *any activities to the program consortium except as*  
19 *specifically authorized under this section.*

20           **(3) CONFLICT OF INTEREST.**—

21                   **(A) PROCEDURES.**—*The Secretary shall es-*  
22 *tablish procedures—*

23                           **(i)** *to ensure that each board member,*  
24 *officer, or employee of the program consor-*  
25 *tium who is in a decision-making capacity*

1           under subsection (f)(3) or (4) shall disclose  
2           to the Secretary any financial interests in,  
3           or financial relationships with, applicants  
4           for or recipients of awards under this sec-  
5           tion, including those of his or her spouse or  
6           minor child, unless such relationships or in-  
7           terests would be considered to be remote or  
8           inconsequential; and

9                   (ii) to require any board member, offi-  
10           cer, or employee with a financial relation-  
11           ship or interest disclosed under clause (i) to  
12           recuse himself or herself from any review  
13           under subsection (f)(3) or oversight under  
14           subsection (f)(4) with respect to such appli-  
15           cant or recipient.

16           (B) *FAILURE TO COMPLY.*—The Secretary  
17           may disqualify an application or revoke an  
18           award under this section if a board member, offi-  
19           cer, or employee has failed to comply with proce-  
20           dures required under subparagraph (A)(ii).

21           (d) *SELECTION OF THE PROGRAM CONSORTIUM.*—

22                   (1) *IN GENERAL.*—The Secretary shall select the  
23           program consortium through an open, competitive  
24           process.

1           (2) *MEMBERS.*—*The program consortium may*  
2 *include corporations, trade associations, institutions*  
3 *of higher education, National Laboratories, or other*  
4 *research institutions. After submitting a proposal*  
5 *under paragraph (4), the program consortium may*  
6 *not add members without the consent of the Secretary.*

7           (3) *TAX STATUS.*—*The program consortium shall*  
8 *be an entity that is exempt from tax under section*  
9 *501(c)(3) of the Internal Revenue Code of 1986.*

10          (4) *SCHEDULE.*—*Not later than 180 days after*  
11 *the date of enactment of this Act, the Secretary shall*  
12 *solicit proposals from eligible consortia to perform the*  
13 *duties in subsection (c)(1), which shall be submitted*  
14 *not later than 360 days after the date of enactment*  
15 *of this Act. The Secretary shall select the program*  
16 *consortium not later than 18 months after such date*  
17 *of enactment.*

18          (5) *APPLICATION.*—*Applicants shall submit a*  
19 *proposal including such information as the Secretary*  
20 *may require. At a minimum, each proposal shall—*

21                   (A) *list all members of the consortium;*

22                   (B) *fully describe the structure of the con-*  
23 *sortium, including any provisions relating to in-*  
24 *tellectual property; and*

1           (C) describe how the applicant would carry  
2           out the activities of the program consortium  
3           under this section.

4           (6) *ELIGIBILITY.*—To be eligible to be selected as  
5           the program consortium, an applicant must be an en-  
6           tity whose members collectively have demonstrated ca-  
7           pabilities in planning and managing research, devel-  
8           opment, demonstration, and commercial application  
9           programs in natural gas or other petroleum explo-  
10          ration or production.

11          (7) *CRITERION.*—The Secretary shall consider  
12          the amount of the fee an applicant proposes to receive  
13          under subsection (g) in selecting a consortium under  
14          this section.

15          (e) *ANNUAL PLAN.*—

16          (1) *IN GENERAL.*—The program under this sec-  
17          tion shall be carried out pursuant to an annual plan  
18          prepared by the Secretary in accordance with para-  
19          graph (2).

20          (2) *DEVELOPMENT.*—

21                  (A) *SOLICITATION OF RECOMMENDA-*  
22                  *TIONS.*—Before drafting an annual plan under  
23                  this subsection, the Secretary shall solicit specific  
24                  written recommendations from the program con-  
25                  sortium for each element to be addressed in the

1           *plan, including those described in paragraph (4).*  
2           *The Secretary may request that the program*  
3           *consortium submit its recommendations in the*  
4           *form of a draft annual plan.*

5           *(B) SUBMISSION OF RECOMMENDATIONS;*  
6           *OTHER COMMENT.—The Secretary shall submit*  
7           *the recommendations of the program consortium*  
8           *under subparagraph (A) to the Ultra-Deepwater*  
9           *Advisory Committee established under section*  
10           *615(a) for review, and such Advisory Committee*  
11           *shall provide to the Secretary written comments*  
12           *by a date determined by the Secretary. The Sec-*  
13           *retary may also solicit comments from any other*  
14           *experts.*

15           *(C) CONSULTATION.—The Secretary shall*  
16           *consult regularly with the program consortium*  
17           *throughout the preparation of the annual plan.*

18           *(3) PUBLICATION.—The Secretary shall transmit*  
19           *to Congress and publish in the Federal Register the*  
20           *annual plan, along with any written comments re-*  
21           *ceived under paragraph (2)(A) and (B).*

22           *(4) CONTENTS.—The annual plan shall describe*  
23           *the ongoing and prospective activities of the program*  
24           *under this section and shall include—*

1           (A) a list of any solicitations for awards  
2           that the Secretary plans to issue to carry out re-  
3           search, development, demonstration, or commer-  
4           cial application activities, including the topics  
5           for such work, who would be eligible to apply, se-  
6           lection criteria, and the duration of awards; and

7           (B) a description of the activities expected  
8           of the program consortium to carry out sub-  
9           section (f)(4).

10          (5) *ESTIMATES OF INCREASED ROYALTY RE-*  
11          *CEIPTS.—The Secretary, in consultation with the Sec-*  
12          *retary of the Interior, shall provide an annual report*  
13          *to Congress with the President’s budget on the esti-*  
14          *mated cumulative increase in Federal royalty receipts*  
15          *(if any) resulting from the implementation of this*  
16          *subtitle. The initial report under this paragraph shall*  
17          *be submitted in the first President’s budget following*  
18          *the completion of the first annual plan required*  
19          *under this subsection.*

20          (f) *AWARDS.—*

21                 (1) *IN GENERAL.—The Secretary shall make*  
22                 *awards to carry out research, development, dem-*  
23                 *onstration, and commercial application activities*  
24                 *under the program under this section. The program*  
25                 *consortium shall not be eligible to receive such*

1        *awards, but members of the program consortium may*  
2        *receive such awards.*

3                (2) *PROPOSALS.*—*The Secretary shall solicit pro-*  
4        *posals for awards under this subsection in such man-*  
5        *ner and at such time as the Secretary may prescribe,*  
6        *in consultation with the program consortium.*

7                (3) *REVIEW.*—*The Secretary shall make awards*  
8        *under this subsection through a competitive process,*  
9        *which shall include a review by individuals selected*  
10       *by the Secretary. Such individuals shall include, for*  
11       *each application, Federal officials, the program con-*  
12       *sortium, and non-Federal experts who are not board*  
13       *members, officers, or employees of the program consor-*  
14       *tium or of a member of the program consortium.*

15                (4) *OVERSIGHT.*—

16                        (A) *IN GENERAL.*—*The program consortium*  
17        *shall oversee the implementation of awards under*  
18        *this subsection, consistent with the annual plan*  
19        *under subsection (e), including disbursing funds*  
20        *and monitoring activities carried out under such*  
21        *awards for compliance with the terms and condi-*  
22        *tions of the awards.*

23                        (B) *EFFECT.*—*Nothing in subparagraph*  
24        (A) *shall limit the authority or responsibility of*  
25        *the Secretary to oversee awards, or limit the au-*

1            *thority of the Secretary to review or revoke*  
2            *awards.*

3            *(C) PROVISION OF INFORMATION.—The Sec-*  
4            *retary shall provide to the program consortium*  
5            *the information necessary for the program con-*  
6            *sortium to carry out its responsibilities under*  
7            *this paragraph.*

8            *(g) ADMINISTRATIVE COSTS.—*

9            *(1) IN GENERAL.—To compensate the program*  
10           *consortium for carrying out its activities under this*  
11           *section, the Secretary shall provide to the program*  
12           *consortium funds sufficient to administer the pro-*  
13           *gram. This compensation may include a management*  
14           *fee consistent with Department of Energy contracting*  
15           *practices and procedures.*

16           *(2) ADVANCE.—The Secretary shall advance*  
17           *funds to the program consortium upon selection of the*  
18           *consortium, which shall be deducted from amounts to*  
19           *be provided under paragraph (1).*

20           *(h) AUDIT.—The Secretary shall retain an inde-*  
21           *pendent, commercial auditor to determine the extent to*  
22           *which funds provided to the program consortium, and funds*  
23           *provided under awards made under subsection (f), have*  
24           *been expended in a manner consistent with the purposes*  
25           *and requirements of this subtitle. The auditor shall trans-*

1 *mit a report annually to the Secretary, who shall transmit*  
2 *the report to Congress, along with a plan to remedy any*  
3 *deficiencies cited in the report.*

4 **SEC. 613. UNCONVENTIONAL NATURAL GAS AND OTHER PE-**  
5 **TROLEUM RESOURCES PROGRAM.**

6 *(a) IN GENERAL.—The Secretary shall carry out ac-*  
7 *tivities under section 611(b)(3), to maximize the use of the*  
8 *onshore unconventional natural gas and other petroleum re-*  
9 *sources of the United States, by increasing the supply of*  
10 *such resources, through reducing the cost and increasing the*  
11 *efficiency of exploration for and production of such re-*  
12 *sources, while improving safety and minimizing environ-*  
13 *mental impacts.*

14 *(b) AWARDS.—*

15 *(1) IN GENERAL.—The Secretary shall carry out*  
16 *this section through awards to research consortia*  
17 *made through an open, competitive process. As a con-*  
18 *dition of award of funds, qualified research consortia*  
19 *shall—*

20 *(A) demonstrate capability and experience*  
21 *in unconventional onshore natural gas or other*  
22 *petroleum research and development;*

23 *(B) provide a research plan that dem-*  
24 *onstrates how additional natural gas or oil pro-*  
25 *duction will be achieved; and*

1           (C) at the request of the Secretary, provide  
2           technical advice to the Secretary for the purposes  
3           of developing the annual plan required under  
4           subsection (e).

5           (2) *PRODUCTION POTENTIAL.*—The Secretary  
6           shall seek to ensure that the number and types of  
7           awards made under this subsection have reasonable  
8           potential to lead to additional oil and natural gas  
9           production on Federal lands.

10          (3) *SCHEDULE.*—To carry out this subsection,  
11          not later than 180 days after the date of enactment  
12          of this Act, the Secretary shall solicit proposals from  
13          research consortia, which shall be submitted not later  
14          than 360 days after the date of enactment of this Act.  
15          The Secretary shall select the first group of research  
16          consortia to receive awards under this subsection not  
17          later than 18 months after such date of enactment.

18          (c) *AUDIT.*—The Secretary shall retain an inde-  
19          pendent, commercial auditor to determine the extent to  
20          which funds provided under awards made under this sec-  
21          tion have been expended in a manner consistent with the  
22          purposes and requirements of this subtitle. The auditor shall  
23          transmit a report annually to the Secretary, who shall  
24          transmit the report to Congress, along with a plan to rem-  
25          edy any deficiencies cited in the report.

1       (d) *FOCUS AREAS FOR AWARDS.*—

2           (1) *UNCONVENTIONAL RESOURCES.*—Awards  
3       from allocations under section 619(d)(2) shall focus  
4       on areas including advanced coalbed methane, deep  
5       drilling, natural gas production from tight sands,  
6       natural gas production from gas shales, stranded gas,  
7       innovative exploration and production techniques, en-  
8       hanced recovery techniques, and environmental miti-  
9       gation of unconventional natural gas and other petro-  
10      leum resources exploration and production.

11          (2) *SMALL PRODUCERS.*—Awards from alloca-  
12      tions under section 619(d)(3) shall be made to con-  
13      sortia consisting of small producers or organized pri-  
14      marily for the benefit of small producers, and shall  
15      focus on areas including complex geology involving  
16      rapid changes in the type and quality of the oil and  
17      gas reservoirs across the reservoir; low reservoir pres-  
18      sure; unconventional natural gas reservoirs in coal-  
19      beds, deep reservoirs, tight sands, or shales; and un-  
20      conventional oil reservoirs in tar sands and oil shales.

21      (e) *ANNUAL PLAN.*—

22          (1) *IN GENERAL.*—The program under this sec-  
23      tion shall be carried out pursuant to an annual plan  
24      prepared by the Secretary in accordance with para-  
25      graph (2).

1           (2) *DEVELOPMENT.*—

2                   (A) *WRITTEN RECOMMENDATIONS.*—*Before*  
3 *drafting an annual plan under this subsection,*  
4 *the Secretary shall solicit specific written rec-*  
5 *ommendations from the research consortia receiv-*  
6 *ing awards under subsection (b) and the Uncon-*  
7 *ventional Resources Technology Advisory Com-*  
8 *mittee for each element to be addressed in the*  
9 *plan, including those described in subparagraph*  
10 *(D).*

11                   (B) *CONSULTATION.*—*The Secretary shall*  
12 *consult regularly with the research consortia*  
13 *throughout the preparation of the annual plan.*

14                   (C) *PUBLICATION.*—*The Secretary shall*  
15 *transmit to Congress and publish in the Federal*  
16 *Register the annual plan, along with any writ-*  
17 *ten comments received under subparagraph (A).*

18                   (D) *CONTENTS.*—*The annual plan shall de-*  
19 *scribe 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, dem-*  
23 *onstration, or commercial application activities,*  
24 *including the topics for such work, who would be*

1           *eligible to apply, selection criteria, and the dura-*  
2           *tion of awards.*

3           (3) *ESTIMATES OF INCREASED ROYALTY RE-*  
4           *CEIPTS.—The Secretary, in consultation with the Sec-*  
5           *retary of the Interior, shall provide an annual report*  
6           *to Congress with the President’s budget on the esti-*  
7           *mated cumulative increase in Federal royalty receipts*  
8           *(if any) resulting from the implementation of this*  
9           *subtitle. The initial report under this paragraph shall*  
10          *be submitted in the first President’s budget following*  
11          *the completion of the first annual plan required*  
12          *under this subsection.*

13          (f) *ACTIVITIES BY THE UNITED STATES GEOLOGICAL*  
14          *SURVEY.—The Secretary of the Interior, through the United*  
15          *States Geological Survey, shall, where appropriate, carry*  
16          *out programs of long-term research to complement the pro-*  
17          *grams 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), a*  
25          *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 provide*  
6 *to the Secretary a signed contract agreed to by all members*  
7 *of the consortium describing the rights of each member to*  
8 *intellectual property used or developed under the award.*

9 (d) *TECHNOLOGY TRANSFER.—2.5 percent of the*  
10 *amount of each award made under this subtitle shall be des-*  
11 *ignated for technology transfer and outreach activities*  
12 *under this subtitle.*

13 (e) *COST SHARING REDUCTION FOR INDEPENDENT*  
14 *PRODUCERS.—In applying the cost sharing requirements*  
15 *under [section \_\_\_\_] to an award under this subtitle the*  
16 *Secretary may reduce or eliminate the non-Federal require-*  
17 *ment if the Secretary determines that the reduction is nec-*  
18 *essary and appropriate considering the technological risks*  
19 *involved in the project.*

20 **SEC. 615. ADVISORY COMMITTEES.**

21 (a) *ULTRA-DEEPWATER ADVISORY COMMITTEE.—*

22 (1) *ESTABLISHMENT.—Not later than 270 days*  
23 *after the date of enactment of this Act, the Secretary*  
24 *shall establish an advisory committee to be known as*  
25 *the Ultra-Deepwater Advisory Committee.*

1           (2) *MEMBERSHIP.*—*The advisory committee*  
2 *under this subsection shall be composed of members*  
3 *appointed by the Secretary including—*

4           (A) *individuals with extensive research ex-*  
5 *perience or operational knowledge of offshore*  
6 *natural gas and other petroleum exploration and*  
7 *production;*

8           (B) *individuals broadly representative of*  
9 *the affected interests in ultra-deepwater natural*  
10 *gas and other petroleum production, including*  
11 *interests in environmental protection and safe*  
12 *operations;*

13           (C) *no individuals who are Federal employ-*  
14 *ees; and*

15           (D) *no individuals who are board members,*  
16 *officers, or employees of the program consortium.*

17           (3) *DUTIES.*—*The advisory committee under this*  
18 *subsection shall—*

19           (A) *advise the Secretary on the development*  
20 *and implementation of programs under this sub-*  
21 *title related to ultra-deepwater natural gas and*  
22 *other petroleum resources; and*

23           (B) *carry out section 612(e)(2)(B).*

24           (4) *COMPENSATION.*—*A member of the advisory*  
25 *committee under this subsection shall serve without*

1       *compensation but shall receive travel expenses in ac-*  
2       *cordance with applicable provisions under subchapter*  
3       *I of chapter 57 of title 5, United States Code.*

4       **(b) UNCONVENTIONAL RESOURCES TECHNOLOGY AD-**  
5       **VISORY COMMITTEE.—**

6               **(1) ESTABLISHMENT.—***Not later than 270 days*  
7       *after the date of enactment of this Act, the Secretary*  
8       *shall establish an advisory committee to be known as*  
9       *the Unconventional Resources Technology Advisory*  
10       *Committee.*

11               **(2) MEMBERSHIP.—***The advisory committee*  
12       *under this subsection shall be composed of members*  
13       *appointed by the Secretary including—*

14                       **(A)** *a majority of members who are employ-*  
15       *ees or representatives of independent producers of*  
16       *natural gas and other petroleum, including*  
17       *small producers;*

18                       **(B)** *individuals with extensive research ex-*  
19       *perience or operational knowledge of unconven-*  
20       *tional natural gas and other petroleum resource*  
21       *exploration and production;*

22                       **(C)** *individuals broadly representative of*  
23       *the affected interests in unconventional natural*  
24       *gas and other petroleum resource exploration*

1           *and production, including interests in environ-*  
2           *mental protection and safe operations; and*

3                   *(D) no individuals who are Federal employ-*  
4           *ees.*

5           *(3) DUTIES.—The advisory committee under this*  
6           *subsection shall advise the Secretary on the develop-*  
7           *ment and implementation of activities under this sub-*  
8           *title related to unconventional natural gas and other*  
9           *petroleum resources.*

10           *(4) COMPENSATION.—A member of the advisory*  
11           *committee under this subsection shall serve without*  
12           *compensation but shall receive travel expenses in ac-*  
13           *cordance with applicable provisions under subchapter*  
14           *I of chapter 57 of title 5, United States Code.*

15           *(c) PROHIBITION.—No advisory committee established*  
16           *under this section shall make recommendations on funding*  
17           *awards to particular consortia or other entities, or for spe-*  
18           *cific projects.*

19   **SEC. 616. LIMITS ON PARTICIPATION.**

20           *An entity shall be eligible to receive an award under*  
21           *this subtitle only if the Secretary finds—*

22                   *(1) that the entity's participation in the pro-*  
23           *gram under this subtitle would be in the economic in-*  
24           *terest of the United States; and*

25                   *(2) that either—*

1           (A) *the entity is a United States-owned en-*  
2 *tity organized under the laws of the United*  
3 *States; or*

4           (B) *the entity is organized under the laws*  
5 *of the United States and has a parent entity or-*  
6 *ganized under the laws of a country that af-*  
7 *fords—*

8                   (i) *to United States-owned entities op-*  
9 *portunities, comparable to those afforded to*  
10 *any other entity, to participate in any co-*  
11 *operative research venture similar to those*  
12 *authorized under this subtitle;*

13                   (ii) *to United States-owned entities*  
14 *local investment opportunities comparable*  
15 *to those afforded to any other entity; and*

16                   (iii) *adequate and effective protection*  
17 *for the intellectual property rights of United*  
18 *States-owned entities.*

19 **SEC. 617. SUNSET.**

20           *The authority provided by this subtitle shall terminate*  
21 *on September 30, 2015.*

22 **SEC. 618. DEFINITIONS.**

23           *In this subtitle:*

1           (1) *DEEPWATER.*—*The term “deepwater” means*  
2 *a water depth that is greater than 200 but less than*  
3 *1,500 meters.*

4           (2) *INDEPENDENT PRODUCER OF OIL OR GAS.*—

5           (A) *IN GENERAL.*—*The term “independent*  
6 *producer of oil or gas” means any person that*  
7 *produces oil or gas other than a person to whom*  
8 *subsection (c) of section 613A of the Internal*  
9 *Revenue Code of 1986 does not apply by reason*  
10 *of paragraph (2) (relating to certain retailers) or*  
11 *paragraph (4) (relating to certain refiners) of*  
12 *section 613A(d) of such Code.*

13           (B) *RULES FOR APPLYING PARAGRAPHS (2)*  
14 *AND (4) OF SECTION 613A(d).*—*For purposes of*  
15 *subparagraph (A), paragraphs (2) and (4) of*  
16 *section 613A(d) of the Internal Revenue Code of*  
17 *1986 shall be applied by substituting “calendar*  
18 *year” for “taxable year” each place it appears in*  
19 *such paragraphs.*

20           (3) *PROGRAM CONSORTIUM.*—*The term “pro-*  
21 *gram consortium” means the consortium selected*  
22 *under section 612(d).*

23           (4) *REMOTE OR INCONSEQUENTIAL.*—*The term*  
24 *“remote or inconsequential” has the meaning given*  
25 *that term in regulations issued by the Office of Gov-*

1 *ernment Ethics under section 208(b)(2) of title 18,*  
2 *United States Code.*

3 (5) *SMALL PRODUCER.*—*The term “small pro-*  
4 *ducer” means an entity organized under the laws of*  
5 *the United States with production levels of less than*  
6 *1,000 barrels per day of oil equivalent.*

7 (6) *ULTRA-DEEPWATER.*—*The term “ultra-deep-*  
8 *water” means a water depth that is equal to or great-*  
9 *er than 1,500 meters.*

10 (7) *ULTRA-DEEPWATER ARCHITECTURE.*—*The*  
11 *term “ultra-deepwater architecture” means the inte-*  
12 *gration of technologies for the exploration for, or pro-*  
13 *duction of, natural gas or other petroleum resources*  
14 *located at ultra-deepwater depths.*

15 (8) *ULTRA-DEEPWATER TECHNOLOGY.*—*The term*  
16 *“ultra-deepwater technology” means a discrete tech-*  
17 *nology that is specially suited to address 1 or more*  
18 *challenges associated with the exploration for, or pro-*  
19 *duction of, natural gas or other petroleum resources*  
20 *located at ultra-deepwater depths.*

21 (9) *UNCONVENTIONAL NATURAL GAS AND OTHER*  
22 *PETROLEUM RESOURCE.*—*The term “unconventional*  
23 *natural gas and other petroleum resource” means nat-*  
24 *ural gas and other petroleum resource located onshore*

1        *in an economically inaccessible geological formation,*  
2        *including resources of small producers.*

3    **SEC. 619. FUNDING.**

4        *(a) IN GENERAL.—*

5            *(1) OIL AND GAS LEASE INCOME.—For each of*  
6        *fiscal years 2006 through 2015, from any Federal*  
7        *royalties, rents, and bonuses derived from Federal on-*  
8        *shore and offshore oil and gas leases issued under the*  
9        *Outer Continental Shelf Lands Act and the Mineral*  
10       *Leasing Act which are deposited in the Treasury, and*  
11       *after distribution of any such funds as described in*  
12       *subsection (c), \$150,000,000 shall be deposited into*  
13       *the Ultra-Deepwater and Unconventional Natural*  
14       *Gas and Other Petroleum Research Fund (in this sec-*  
15       *tion referred to as the Fund). For purposes of this sec-*  
16       *tion, the term “royalties” excludes proceeds from the*  
17       *sale of royalty production taken in kind and royalty*  
18       *production that is transferred under section 27(a)(3)*  
19       *of the Outer Continental Shelf Lands Act (43 U.S.C.*  
20       *1353(a)(3)).*

21            *(2) AUTHORIZATION OF APPROPRIATIONS.—In*  
22        *addition to amounts described in paragraph (1), there*  
23        *are authorized to be appropriated to the Secretary, to*  
24        *be deposited in the Fund, \$50,000,000 for each of the*

1       *fiscal years 2006 through 2015, to remain available*  
2       *until expended.*

3       **(b) OBLIGATIONAL AUTHORITY.**—*Monies in the Fund*  
4       *shall be available to the Secretary for obligation under this*  
5       *subtitle without fiscal year limitation, to remain available*  
6       *until expended.*

7       **(c) PRIOR DISTRIBUTIONS.**—*The distributions de-*  
8       *scribed in subsection (a) are those required by law—*

9               *(1) to States and to the Reclamation Fund under*  
10       *the Mineral Leasing Act (30 U.S.C. 191(a)); and*

11               *(2) to other funds receiving monies from Federal*  
12       *oil and gas leasing programs, including—*

13                       *(A) any recipients pursuant to section 8(g)*  
14                       *of the Outer Continental Shelf Lands Act (43*  
15                       *U.S.C. 1337(g));*

16                       *(B) the Land and Water Conservation*  
17                       *Fund, pursuant to section 2(c) of the Land and*  
18                       *Water Conservation Fund Act of 1965 (16*  
19                       *U.S.C. 4601–5(c));*

20                       *(C) the Historic Preservation Fund, pursu-*  
21                       *ant to section 108 of the National Historic Pres-*  
22                       *ervation Act (16 U.S.C. 470h); and*

23                       *(D) the Secure Energy Reinvestment Fund.*

1       (d) *ALLOCATION.*—Amounts obligated from the Fund  
2 under this section in each fiscal year shall be allocated as  
3 follows:

4           (1) 50 percent shall be for activities under sec-  
5 tion 612.

6           (2) 35 percent shall be for activities under sec-  
7 tion 613(d)(1).

8           (3) 10 percent shall be for activities under sec-  
9 tion 613(d)(2).

10          (4) 5 percent shall be for research under section  
11 611(d).

12       (e) *FUND.*—There is hereby established in the Treasury  
13 of the United States a separate fund to be known as the  
14 “Ultra-Deepwater and Unconventional Natural Gas and  
15 Other Petroleum Research Fund”.

## 16                           **TITLE VII—HYDROGEN**

### 17       **SEC. 701. DEFINITIONS.**

18       *In this title:*

19           (1) *ADVISORY COMMITTEE.*—The term “Advisory  
20 Committee” means the Hydrogen Technical and Fuel  
21 Cell Advisory Committee established under section  
22 705.

23           (2) *FUEL CELL.*—The term “fuel cell” means a  
24 device that directly converts the chemical energy of a  
25 fuel and an oxidant into electricity by an electro-

1       *chemical process taking place at separate electrodes in*  
2       *the device.*

3           (3) *INFRASTRUCTURE.—The term “infrastruc-*  
4       *ture” means the equipment, systems, or facilities used*  
5       *to produce, distribute, deliver, or store hydrogen.*

6           (4) *LIGHT DUTY VEHICLE.—The term “light*  
7       *duty vehicle” means a car or truck classified by the*  
8       *Department of Transportation as a Class I or IIA ve-*  
9       *hicle.*

10 **SEC. 702. PLAN.**

11       *Not later than 6 months after the date of enactment*  
12       *of this Act, the Secretary shall transmit to Congress a co-*  
13       *ordinated plan for the programs described in this title and*  
14       *any other programs of the Department that are directly re-*  
15       *lated to fuel cells or hydrogen. The plan shall describe, at*  
16       *a minimum—*

17           (1) *the agenda for the next 5 years for the pro-*  
18       *grams authorized under this title, including the agen-*  
19       *da for each activity enumerated in section 703(a);*

20           (2) *the types of entities that will carry out the*  
21       *activities under this title and what role each entity*  
22       *is expected to play;*

23           (3) *the milestones that will be used to evaluate*  
24       *the programs for the next 5 years;*

1           (4) *the most significant technical and nontechnical*  
2           *hurdles that stand in the way of achieving the*  
3           *goals described in section 703(b), and how the pro-*  
4           *grams will address those hurdles; and*

5           (5) *the policy assumptions that are implicit in*  
6           *the plan, including any assumptions that would affect*  
7           *the sources of hydrogen or the marketability of hydro-*  
8           *gen-related products.*

9   **SEC. 703. PROGRAMS.**

10          (a) *ACTIVITIES.*—*The Secretary, in partnership with*  
11          *the private sector, shall conduct programs to address—*

12               (1) *production of hydrogen from diverse energy*  
13               *sources, including—*

14                       (A) *fossil fuels, which may include carbon*  
15                       *capture and sequestration;*

16                       (B) *hydrogen-carrier fuels (including eth-*  
17                       *anol and methanol);*

18                       (C) *renewable energy resources, including*  
19                       *biomass; and*

20                       (D) *nuclear energy;*

21               (2) *use of hydrogen for commercial, industrial,*  
22               *and residential electric power generation;*

23               (3) *safe delivery of hydrogen or hydrogen-carrier*  
24               *fuels, including—*

1           (A) transmission by pipeline and other dis-  
2           tribution methods; and

3           (B) convenient and economic refueling of  
4           vehicles either at central refueling stations or  
5           through distributed on-site generation;

6           (4) advanced vehicle technologies, including—

7                 (A) engine and emission control systems;

8                 (B) energy storage, electric propulsion, and  
9                 hybrid systems;

10                (C) automotive materials; and

11                (D) other advanced vehicle technologies;

12           (5) storage of hydrogen or hydrogen-carrier fuels,  
13           including development of materials for safe and eco-  
14           nomic storage in gaseous, liquid, or solid form at re-  
15           fueling facilities and onboard vehicles;

16           (6) development of safe, durable, affordable, and  
17           efficient fuel cells, including fuel-flexible fuel cell  
18           power systems, improved manufacturing processes,  
19           high-temperature membranes, cost-effective fuel proc-  
20           essing for natural gas, fuel cell stack and system reli-  
21           ability, low temperature operation, and cold start ca-  
22           pability;

23           (7) development, after consultation with the pri-  
24           vate sector, of necessary codes and standards (includ-  
25           ing international codes and standards and voluntary

1 *consensus standards adopted in accordance with OMB*  
2 *Circular A–119) and safety practices for the produc-*  
3 *tion, distribution, storage, and use of hydrogen, hy-*  
4 *drogen-carrier fuels, and related products; and*

5 *(8) a public education program to develop im-*  
6 *proved knowledge and acceptability of hydrogen-based*  
7 *systems.*

8 *(b) PROGRAM GOALS.—*

9 *(1) VEHICLES.—For vehicles, the goals of the*  
10 *program are—*

11 *(A) to enable a commitment by automakers*  
12 *no later than year 2015 to offer safe, affordable,*  
13 *and technically viable hydrogen fuel cell vehicles*  
14 *in the mass consumer market; and*

15 *(B) to enable production, delivery, and ac-*  
16 *ceptance by consumers of model year 2020 hy-*  
17 *drogen fuel cell and other hydrogen-powered ve-*  
18 *hicles that will have—*

19 *(i) a range of at least 300 miles;*

20 *(ii) improved performance and ease of*  
21 *driving;*

22 *(iii) safety and performance com-*  
23 *parable to vehicle technologies in the mar-*  
24 *ket; and*

1                   (iv) when compared to light duty vehi-  
2                   cles in model year 2003—

3                   (I) fuel economy that is substan-  
4                   tially higher;

5                   (II) substantially lower emissions  
6                   of air pollutants; and

7                   (III) equivalent or improved vehi-  
8                   cle fuel system crash integrity and oc-  
9                   cupant protection.

10               (2) *HYDROGEN ENERGY AND ENERGY INFRA-*  
11               *STRUCTURE.—For hydrogen energy and energy infra-*  
12               *structure, the goals of the program are to enable a*  
13               *commitment not later than 2015 that will lead to in-*  
14               *frastructure by 2020 that will provide—*

15                   (A) safe and convenient refueling;

16                   (B) improved overall efficiency;

17                   (C) widespread availability of hydrogen  
18                   from domestic energy sources through—

19                   (i) production, with consideration of  
20                   emissions levels;

21                   (ii) delivery, including transmission  
22                   by pipeline and other distribution methods  
23                   for hydrogen; and

24                   (iii) storage, including storage in sur-  
25                   face transportation vehicles;

1                   (D) hydrogen for fuel cells, internal combus-  
2                   tion engines, and other energy conversion devices  
3                   for portable, stationary, and transportation ap-  
4                   plications; and

5                   (E) other technologies consistent with the  
6                   Department's plan.

7                   (3) FUEL CELLS.—The goals for fuel cells and  
8                   their portable, stationary, and transportation appli-  
9                   cations are to enable—

10                   (A) safe, economical, and environmentally  
11                   sound hydrogen fuel cells;

12                   (B) fuel cells for light duty and other vehi-  
13                   cles; and

14                   (C) other technologies consistent with the  
15                   Department's plan.

16                   (c) DEMONSTRATION.—In carrying out the programs  
17                   under this section, the Secretary shall fund a limited num-  
18                   ber of demonstration projects, consistent with a determina-  
19                   tion of the maturity, cost-effectiveness, and environmental  
20                   impacts of technologies supporting each project. In selecting  
21                   projects under this subsection, the Secretary shall, to the  
22                   extent practicable and in the public interest, select projects  
23                   that—

24                   (1) involve using hydrogen and related products  
25                   at existing facilities or installations, such as existing

1 *office buildings, military bases, vehicle fleet centers,*  
2 *transit bus authorities, or units of the National Park*  
3 *System;*

4 *(2) depend on reliable power from hydrogen to*  
5 *carry out essential activities;*

6 *(3) lead to the replication of hydrogen tech-*  
7 *nologies and draw such technologies into the market-*  
8 *place;*

9 *(4) include vehicle, portable, and stationary*  
10 *demonstrations of fuel cell and hydrogen-based energy*  
11 *technologies;*

12 *(5) address the interdependency of demand for*  
13 *hydrogen fuel cell applications and hydrogen fuel in-*  
14 *frastructure;*

15 *(6) raise awareness of hydrogen technology*  
16 *among the public;*

17 *(7) facilitate identification of an optimum tech-*  
18 *nology among competing alternatives;*

19 *(8) address distributed generation using renew-*  
20 *able sources; and*

21 *(9) address applications specific to rural or re-*  
22 *mate locations, including isolated villages and is-*  
23 *lands, the National Park System, and tribal entities.*

24 *The Secretary shall give preference to projects which address*  
25 *multiple elements contained in paragraphs (1) through (9).*

1       (d) *DEPLOYMENT.*—*In carrying out the programs*  
2 *under this section, the Secretary shall, in partnership with*  
3 *the private sector, conduct activities to facilitate the deploy-*  
4 *ment of hydrogen energy and energy infrastructure, fuel*  
5 *cells, and advanced vehicle technologies.*

6       (e) *FUNDING.*—

7           (1) *IN GENERAL.*—*The Secretary shall carry out*  
8 *the programs under this section using a competitive,*  
9 *merit-based review process and consistent with the*  
10 *generally applicable Federal laws and regulations*  
11 *governing awards of financial assistance, contracts,*  
12 *or other agreements.*

13           (2) *RESEARCH CENTERS.*—*Activities under this*  
14 *section may be carried out by funding nationally rec-*  
15 *ognized university-based or Federal laboratory re-*  
16 *search centers.*

17       (f) *DISCLOSURE.*—*Section 623 of the Energy Policy*  
18 *Act of 1992 (42 U.S.C. 13293) relating to the protection*  
19 *of information shall apply to projects carried out through*  
20 *grants, cooperative agreements, or contracts under this title.*

21 **SEC. 704. INTERAGENCY TASK FORCE.**

22       (a) *ESTABLISHMENT.*—*Not later than 120 days after*  
23 *the date of enactment of this Act, the President shall estab-*  
24 *lish an interagency task force chaired by the Secretary with*  
25 *representatives from each of the following:*

1           (1) *The Office of Science and Technology Policy*  
2           *within the Executive Office of the President.*

3           (2) *The Department of Transportation.*

4           (3) *The Department of Defense.*

5           (4) *The Department of Commerce (including the*  
6           *National Institute of Standards and Technology).*

7           (5) *The Department of State.*

8           (6) *The Environmental Protection Agency.*

9           (7) *The National Aeronautics and Space Admin-*  
10          *istration.*

11          (8) *Other Federal agencies as the Secretary de-*  
12          *termines appropriate.*

13          (b) *DUTIES.—*

14               (1) *PLANNING.—The interagency task force shall*  
15               *work toward—*

16                       (A) *a safe, economical, and environmentally*  
17                       *sound fuel infrastructure for hydrogen and hy-*  
18                       *drogen-carrier fuels, including an infrastructure*  
19                       *that supports buses and other fleet transpor-*  
20                       *tation;*

21                       (B) *fuel cells in government and other ap-*  
22                       *plications, including portable, stationary, and*  
23                       *transportation applications;*

1           (C) distributed power generation, including  
2           the generation of combined heat, power, and  
3           clean fuels including hydrogen;

4           (D) uniform hydrogen codes, standards, and  
5           safety protocols; and

6           (E) vehicle hydrogen fuel system integrity  
7           safety performance.

8           (2) *ACTIVITIES.*—*The interagency task force may*  
9           *organize workshops and conferences, may issue publi-*  
10           *cations, and may create databases to carry out its du-*  
11           *ties. The interagency task force shall—*

12           (A) foster the exchange of generic, non-  
13           proprietary information and technology among  
14           industry, academia, and government;

15           (B) develop and maintain an inventory and  
16           assessment of hydrogen, fuel cells, and other ad-  
17           vanced technologies, including the commercial  
18           capability of each technology for the economic  
19           and environmentally safe production, distribu-  
20           tion, delivery, storage, and use of hydrogen;

21           (C) integrate technical and other informa-  
22           tion made available as a result of the programs  
23           and activities under this title;

24           (D) promote the marketplace introduction of  
25           infrastructure for hydrogen fuel vehicles; and

1                   (E) conduct an education program to pro-  
2                   vide hydrogen and fuel cell information to poten-  
3                   tial end-users.

4           (c) AGENCY COOPERATION.—The heads of all agencies,  
5 including those whose agencies are not represented on the  
6 interagency task force, shall cooperate with and furnish in-  
7 formation to the interagency task force, the Advisory Com-  
8 mittee, and the Department.

9 **SEC. 705. ADVISORY COMMITTEE.**

10           (a) ESTABLISHMENT.—The Hydrogen Technical and  
11 Fuel Cell Advisory Committee is established to advise the  
12 Secretary on the programs and activities under this title.

13           (b) MEMBERSHIP.—

14                   (1) MEMBERS.—The Advisory Committee shall  
15                   be comprised of not fewer than 12 nor more than 25  
16                   members. The members shall be appointed by the Sec-  
17                   retary to represent domestic industry, academia, pro-  
18                   fessional societies, government agencies, Federal lab-  
19                   oratories, previous advisory panels, and financial, en-  
20                   vironmental, and other appropriate organizations  
21                   based on the Department's assessment of the technical  
22                   and other qualifications of committee members and  
23                   the needs of the Advisory Committee.

24                   (2) TERMS.—The term of a member of the Advi-  
25                   sory Committee shall not be more than 3 years. The

1     *Secretary may appoint members of the Advisory*  
2     *Committee in a manner that allows the terms of the*  
3     *members serving at any time to expire at spaced in-*  
4     *tervals so as to ensure continuity in the functioning*  
5     *of the Advisory Committee. A member of the Advisory*  
6     *Committee whose term is expiring may be re-*  
7     *appointed.*

8             (3) *CHAIRPERSON.—The Advisory Committee*  
9     *shall have a chairperson, who is elected by the mem-*  
10    *bers from among their number.*

11    (c) *REVIEW.—The Advisory Committee shall review*  
12    *and make recommendations to the Secretary on—*

13             (1) *the implementation of programs and activi-*  
14    *ties under this title;*

15             (2) *the safety, economical, and environmental*  
16    *consequences of technologies for the production, dis-*  
17    *tribution, delivery, storage, or use of hydrogen energy*  
18    *and fuel cells; and*

19             (3) *the plan under section 702.*

20    (d) *RESPONSE.—*

21             (1) *CONSIDERATION OF RECOMMENDATIONS.—*  
22    *The Secretary shall consider, but need not adopt, any*  
23    *recommendations of the Advisory Committee under*  
24    *subsection (c).*

1           (2) *BIENNIAL REPORT.*—*The Secretary shall*  
2           *transmit a biennial report to Congress describing any*  
3           *recommendations made by the Advisory Committee*  
4           *since the previous report. The report shall include a*  
5           *description of how the Secretary has implemented or*  
6           *plans to implement the recommendations, or an ex-*  
7           *planation of the reasons that a recommendation will*  
8           *not be implemented. The report shall be transmitted*  
9           *along with the President’s budget proposal.*

10          (e) *SUPPORT.*—*The Secretary shall provide resources*  
11          *necessary in the judgment of the Secretary for the Advisory*  
12          *Committee to carry out its responsibilities under this title.*

13          **SEC. 706. EXTERNAL REVIEW.**

14          (a) *PLAN.*—*The Secretary shall enter into an arrange-*  
15          *ment with the National Academy of Sciences to review the*  
16          *plan prepared under section 702, which shall be completed*  
17          *not later than 6 months after the Academy receives the plan.*  
18          *Not later than 45 days after receiving the review, the Sec-*  
19          *retary shall transmit the review to Congress along with a*  
20          *plan to implement the review’s recommendations or an ex-*  
21          *planation of the reasons that a recommendation will not*  
22          *be implemented.*

23          (b) *ADDITIONAL REVIEW.*—*The Secretary shall enter*  
24          *into an arrangement with the National Academy of*  
25          *Sciences under which the Academy will review the pro-*

1 *grams under section 703 during the fourth year following*  
2 *the date of enactment of this Act. The Academy's review*  
3 *shall include the research priorities and technical mile-*  
4 *stones, and evaluate the progress toward achieving them.*  
5 *The review shall be completed not later than 5 years after*  
6 *the date of enactment of this Act. Not later than 45 days*  
7 *after receiving the review, the Secretary shall transmit the*  
8 *review to Congress along with a plan to implement the re-*  
9 *view's recommendations or an explanation for the reasons*  
10 *that a recommendation will not be implemented.*

11 **SEC. 707. MISCELLANEOUS PROVISIONS.**

12       (a) *REPRESENTATION.*—*The Secretary may represent*  
13 *the United States interests with respect to activities and*  
14 *programs under this title, in coordination with the Depart-*  
15 *ment of Transportation, the National Institute of Stand-*  
16 *ards and Technology, and other relevant Federal agencies,*  
17 *before governments and nongovernmental organizations in-*  
18 *cluding—*

19               (1) *other Federal, State, regional, and local gov-*  
20               *ernments and their representatives;*

21               (2) *industry and its representatives, including*  
22               *members of the energy and transportation industries;*  
23               *and*

1           (3) *in consultation with the Department of*  
2           *State, foreign governments and their representatives*  
3           *including international organizations.*

4           (b) *REGULATORY AUTHORITY.*—*Nothing in this title*  
5           *shall be construed to alter the regulatory authority of the*  
6           *Department.*

7           **SEC. 708. SAVINGS CLAUSE.**

8           *Nothing in this title shall be construed to affect the*  
9           *authority of the Secretary of Transportation that may exist*  
10          *prior to the date of enactment of this Act with respect to—*

11           (1) *research into, and regulation of, hydrogen-*  
12           *powered vehicles fuel systems integrity, standards,*  
13           *and safety under subtitle VI of title 49, United States*  
14           *Code;*

15           (2) *regulation of hazardous materials transpor-*  
16           *tation under chapter 51 of title 49, United States*  
17           *Code;*

18           (3) *regulation of pipeline safety under chapter*  
19           *601 of title 49, United States Code;*

20           (4) *encouragement and promotion of research,*  
21           *development, and deployment activities relating to*  
22           *advanced vehicle technologies under section 5506 of*  
23           *title 49, United States Code;*

24           (5) *regulation of motor vehicle safety under*  
25           *chapter 301 of title 49, United States Code;*

1           (6) *automobile fuel economy under chapter 329*  
2           *of title 49, United States Code; or*

3           (7) *representation of the interests of the United*  
4           *States with respect to the activities and programs*  
5           *under the authority of title 49, United States Code.*

6 **SEC. 709. AUTHORIZATION OF APPROPRIATIONS.**

7           *There are authorized to be appropriated to the Sec-*  
8           *retary to carry out this title, in addition to any amounts*  
9           *made available for these purposes under other Acts—*

10           (1) *\$273,500,000 for fiscal year 2006;*

11           (2) *\$375,000,000 for fiscal year 2007;*

12           (3) *\$450,000,000 for fiscal year 2008;*

13           (4) *\$500,000,000 for fiscal year 2009; and*

14           (5) *\$550,000,000 for fiscal year 2010.*

15           **TITLE VIII—ADVANCED**

16                           **VEHICLES**

17                           **Subtitle A—Pilot Program**

18 **SEC. 801. DEFINITIONS.**

19           *In this subtitle:*

20           (1) **ALTERNATIVE FUELED VEHICLE.**—

21                           (A) **IN GENERAL.**—*The term “alternative*  
22                           *fueled vehicle” means a vehicle propelled solely*  
23                           *on an alternative fuel (as defined in section 301*  
24                           *of the Energy Policy Act of 1992 (42 U.S.C.*  
25                           *13211)).*

1           (B) *EXCLUSION.*—The term “alternative  
2           fueled vehicle” does not include a vehicle that the  
3           Secretary determines, by regulation, does not  
4           yield substantial environmental benefits over a  
5           vehicle operating solely on gasoline or diesel de-  
6           rived from fossil fuels.

7           (2) *FUEL CELL VEHICLE.*—The term “fuel cell  
8           vehicle” means a vehicle propelled by an electric  
9           motor powered by a fuel cell system that converts  
10          chemical energy into electricity by combining oxygen  
11          (from air) with hydrogen fuel that is stored on the ve-  
12          hicle or is produced onboard by reformation of a hy-  
13          drocarbon fuel. Such fuel cell system may or may not  
14          include the use of auxiliary energy storage systems to  
15          enhance vehicle performance.

16          (3) *HYBRID VEHICLE.*—The term “hybrid vehi-  
17          cle” means a medium or heavy duty vehicle propelled  
18          by an internal combustion engine or heat engine  
19          using any combustible fuel and an onboard recharge-  
20          able energy storage device.

21          (4) *NEIGHBORHOOD ELECTRIC VEHICLE.*—The  
22          term “neighborhood electric vehicle” means a motor  
23          vehicle that—

1           (A) meets the definition of a low-speed vehi-  
2 cle (as defined in part 571 of title 49, Code of  
3 Federal Regulations);

4           (B) meets the definition of a zero-emission  
5 vehicle (as defined in section 86.1702–99 of title  
6 40, Code of Federal Regulations);

7           (C) meets the requirements of Federal Motor  
8 Vehicle Safety Standard No. 500; and

9           (D) has a maximum speed of not greater  
10 than 25 miles per hour.

11           (5) *PILOT PROGRAM*.—The term “pilot program”  
12 means the competitive grant program established  
13 under section 802.

14           (6) *ULTRA-LOW SULFUR DIESEL VEHICLE*.—The  
15 term “ultra-low sulfur diesel vehicle” means a vehicle  
16 manufactured in model year 2005 or 2006 powered  
17 by a heavy-duty diesel engine that—

18           (A) is fueled by diesel fuel that contains sul-  
19 fur at not more than 15 parts per million; and

20           (B) emits not more than the lesser of—

21           (i) 2.5 grams per brake horsepower-  
22 hour of nonmethane hydrocarbons and ox-  
23 ides of nitrogen and .01 grams per brake  
24 horsepower-hour of particulate matter; or

1                   (ii) the quantity of emissions of non-  
2 methane hydrocarbons, oxides of nitrogen,  
3 and particulate matter of the best-per-  
4 forming technology of ultra-low sulfur diesel  
5 vehicles of the same class and application  
6 that are commercially available.

7 **SEC. 802. PILOT PROGRAM.**

8           (a) *ESTABLISHMENT.*—The Secretary, in consultation  
9 with the Secretary of Transportation, shall establish a com-  
10 petitive grant pilot program, to be administered through  
11 the Clean Cities Program of the Department of Energy, to  
12 provide not more than 15 geographically dispersed project  
13 grants to State governments, local governments, or metro-  
14 politan transportation authorities to carry out a project or  
15 projects for the purposes described in subsection (b).

16           (b) *GRANT PURPOSES.*—A grant under this section  
17 may be used for the following purposes:

18                   (1) *The acquisition of alternative fueled vehicles*  
19 *or fuel cell vehicles, including—*

20                           (A) *passenger vehicles (including neighbor-*  
21 *hood electric vehicles); and*

22                           (B) *motorized 2-wheel bicycles, scooters, or*  
23 *other vehicles for use by law enforcement per-*  
24 *sonnel or other State or local government or met-*  
25 *ropolitan transportation authority employees.*

1           (2) *The acquisition of alternative fueled vehicles,*  
2           *hybrid vehicles, or fuel cell vehicles, including—*

3                   (A) *buses used for public transportation or*  
4                   *transportation to and from schools;*

5                   (B) *delivery vehicles for goods or services;*  
6                   *and*

7                   (C) *ground support vehicles at public air-*  
8                   *ports (including vehicles to carry baggage or*  
9                   *push or pull airplanes toward or away from ter-*  
10                   *minal gates).*

11           (3) *The acquisition of ultra-low sulfur diesel ve-*  
12           *hicles.*

13           (4) *Installation or acquisition of infrastructure*  
14           *necessary to directly support an alternative fueled ve-*  
15           *hicle, fuel cell vehicle, or hybrid vehicle project funded*  
16           *by the grant, including fueling and other support*  
17           *equipment.*

18           (5) *Operation and maintenance of vehicles, in-*  
19           *frastructure, and equipment acquired as part of a*  
20           *project funded by the grant.*

21           (c) *APPLICATIONS.—*

22                   (1) *REQUIREMENTS.—*

23                           (A) *IN GENERAL.—The Secretary shall issue*  
24                           *requirements for applying for grants under the*  
25                           *pilot program.*

1           (B) *MINIMUM REQUIREMENTS.*—*At a minimum,*  
2 *the Secretary shall require that an appli-*  
3 *cation for a grant—*

4           *(i) be submitted by the head of a State*  
5 *or local government or a metropolitan*  
6 *transportation authority, or any combina-*  
7 *tion thereof, and a registered participant in*  
8 *the Clean Cities Program of the Department*  
9 *of Energy; and*

10          *(ii) include—*

11           *(I) a description of the project*  
12 *proposed in the application, including*  
13 *how the project meets the requirements*  
14 *of this subtitle;*

15           *(II) an estimate of the ridership*  
16 *or degree of use of the project;*

17           *(III) an estimate of the air pollu-*  
18 *tion emissions reduced and fossil fuel*  
19 *displaced as a result of the project, and*  
20 *a plan to collect and disseminate envi-*  
21 *ronmental data, related to the project*  
22 *to be funded under the grant, over the*  
23 *life of the project;*

24           *(IV) a description of how the*  
25 *project will be sustainable without Fed-*

1                    *eral assistance after the completion of*  
2                    *the term of the grant;*

3                    *(V) a complete description of the*  
4                    *costs of the project, including acquisi-*  
5                    *tion, construction, operation, and*  
6                    *maintenance costs over the expected life*  
7                    *of the project;*

8                    *(VI) a description of which costs*  
9                    *of the project will be supported by Fed-*  
10                    *eral assistance under this subtitle; and*

11                    *(VII) documentation to the satis-*  
12                    *faction of the Secretary that diesel fuel*  
13                    *containing sulfur at not more than 15*  
14                    *parts per million is available for car-*  
15                    *rying out the project, and a commit-*  
16                    *ment by the applicant to use such fuel*  
17                    *in carrying out the project.*

18                    *(2) PARTNERS.—An applicant under paragraph*  
19                    *(1) may carry out a project under the pilot program*  
20                    *in partnership with public and private entities.*

21                    *(d) SELECTION CRITERIA.—In evaluating applica-*  
22                    *tions under the pilot program, the Secretary shall—*

23                    *(1) consider each applicant's previous experience*  
24                    *with similar projects; and*

1           (2) *give priority consideration to applications*  
2 *that—*

3                   (A) *are most likely to maximize protection*  
4 *of the environment;*

5                   (B) *demonstrate the greatest commitment*  
6 *on the part of the applicant to ensure funding*  
7 *for the proposed project and the greatest likeli-*  
8 *hood that the project will be maintained or ex-*  
9 *panded after Federal assistance under this sub-*  
10 *title is completed; and*

11                   (C) *exceed the minimum requirements of*  
12 *subsection (c)(1)(B)(ii).*

13 *(e) PILOT PROJECT REQUIREMENTS.—*

14                   (1) *MAXIMUM AMOUNT.—The Secretary shall not*  
15 *provide more than \$20,000,000 in Federal assistance*  
16 *under the pilot program to any applicant.*

17                   (2) *COST SHARING.—The Secretary shall not*  
18 *provide more than 50 percent of the cost, incurred*  
19 *during the period of the grant, of any project under*  
20 *the pilot program.*

21                   (3) *MAXIMUM PERIOD OF GRANTS.—The Sec-*  
22 *retary shall not fund any applicant under the pilot*  
23 *program for more than 5 years.*

24                   (4) *DEPLOYMENT AND DISTRIBUTION.—The Sec-*  
25 *retary shall seek to the maximum extent practicable*

1       to ensure a broad geographic distribution of project  
2       sites.

3               (5) *TRANSFER OF INFORMATION AND KNOWL-*  
4       *EDGE.*—The Secretary shall establish mechanisms to  
5       ensure that the information and knowledge gained by  
6       participants in the pilot program are transferred  
7       among the pilot program participants and to other  
8       interested parties, including other applicants that  
9       submitted applications.

10       (f) *SCHEDULE.*—

11               (1) *PUBLICATION.*—Not later than 90 days after  
12       the date of enactment of this Act, the Secretary shall  
13       publish in the *Federal Register*, *Commerce Business*  
14       *Daily*, and elsewhere as appropriate, a request for ap-  
15       plications to undertake projects under the pilot pro-  
16       gram. Applications shall be due not later than 180  
17       days after the date of publication of the notice.

18               (2) *SELECTION.*—Not later than 180 days after  
19       the date by which applications for grants are due, the  
20       Secretary shall select by competitive, peer reviewed  
21       proposal, all applications for projects to be awarded  
22       a grant under the pilot program.

23               (g) *LIMIT ON FUNDING.*—The Secretary shall provide  
24       not less than 20 nor more than 25 percent of the grant fund-

1 *ing made available under this section for the acquisition*  
2 *of ultra-low sulfur diesel vehicles.*

3 **SEC. 803. REPORTS TO CONGRESS.**

4 *(a) INITIAL REPORT.—Not later than 60 days after the*  
5 *date on which grants are awarded under this subtitle, the*  
6 *Secretary shall submit to Congress a report containing—*

7 *(1) an identification of the grant recipients and*  
8 *a description of the projects to be funded;*

9 *(2) an identification of other applicants that*  
10 *submitted applications for the pilot program; and*

11 *(3) a description of the mechanisms used by the*  
12 *Secretary to ensure that the information and knowl-*  
13 *edge gained by participants in the pilot program are*  
14 *transferred among the pilot program participants*  
15 *and to other interested parties, including other appli-*  
16 *cants that submitted applications.*

17 *(b) EVALUATION.—Not later than 3 years after the*  
18 *date of enactment of this Act, and annually thereafter until*  
19 *the pilot program ends, the Secretary shall submit to Con-*  
20 *gress a report containing an evaluation of the effectiveness*  
21 *of the pilot program, including—*

22 *(1) an assessment of the benefits to the environ-*  
23 *ment derived from the projects included in the pilot*  
24 *program; and*

1           (2) *an estimate of the potential benefits to the*  
2 *environment to be derived from widespread applica-*  
3 *tion of alternative fueled vehicles and ultra-low sulfur*  
4 *diesel vehicles.*

5 **SEC. 804. AUTHORIZATION OF APPROPRIATIONS.**

6           *There are authorized to be appropriated to the Sec-*  
7 *retary to carry out this subtitle \$200,000,000, to remain*  
8 *available until expended.*

9           ***Subtitle B—Clean School Buses***

10 **SEC. 811. DEFINITIONS.**

11           *In this subtitle:*

12           (1) *ADMINISTRATOR.*—*The term “Adminis-*  
13 *trator” means the Administrator of the Environ-*  
14 *mental Protection Agency.*

15           (2) *ALTERNATIVE FUEL.*—*The term “alternative*  
16 *fuel” means liquefied natural gas, compressed natural*  
17 *gas, liquefied petroleum gas, hydrogen, propane, or*  
18 *methanol or ethanol at no less than 85 percent by vol-*  
19 *ume.*

20           (3) *ALTERNATIVE FUEL SCHOOL BUS.*—*The term*  
21 *“alternative fuel school bus” means a school bus that*  
22 *meets all of the requirements of this subtitle and is*  
23 *operated solely on an alternative fuel.*

24           (4) *EMISSIONS CONTROL RETROFIT TECH-*  
25 *NOLOGY.*—*The term “emissions control retrofit tech-*

1        *nology” means a particulate filter or other emissions*  
2        *control equipment that is verified or certified by the*  
3        *Administrator or the California Air Resources Board*  
4        *as an effective emission reduction technology when in-*  
5        *stalled on an existing school bus.*

6                (5) *IDLING.—The term “idling” means operating*  
7        *an engine while remaining stationary for more than*  
8        *approximately 15 minutes, except that the term does*  
9        *not apply to routine stoppages associated with traffic*  
10       *movement or congestion.*

11               (6) *ULTRA-LOW SULFUR DIESEL FUEL.—The*  
12       *term “ultra-low sulfur diesel fuel” means diesel fuel*  
13       *that contains sulfur at not more than 15 parts per*  
14       *million.*

15               (7) *ULTRA-LOW SULFUR DIESEL FUEL SCHOOL*  
16       *BUS.—The term “ultra-low sulfur diesel fuel school*  
17       *bus” means a school bus that meets all of the require-*  
18       *ments of this subtitle and is operated solely on ultra-*  
19       *low sulfur diesel fuel.*

20       **SEC. 812. PROGRAM FOR REPLACEMENT OF CERTAIN**  
21               **SCHOOL BUSES WITH CLEAN SCHOOL BUSES.**

22               (a) *ESTABLISHMENT.—The Administrator, in con-*  
23       *sultation with the Secretary and other appropriate Federal*  
24       *departments and agencies, shall establish a program for*  
25       *awarding grants on a competitive basis to eligible entities*

1 *for the replacement of existing school buses manufactured*  
2 *before model year 1991 with alternative fuel school buses*  
3 *and ultra-low sulfur diesel fuel school buses.*

4 *(b) REQUIREMENTS.—*

5 *(1) IN GENERAL.—Not later than 90 days after*  
6 *the date of enactment of this Act, the Administrator*  
7 *shall establish and publish in the Federal Register*  
8 *grant requirements on eligibility for assistance, and*  
9 *on implementation of the program established under*  
10 *subsection (a), including instructions for the submis-*  
11 *sion of grant applications and certification require-*  
12 *ments to ensure compliance with this subtitle.*

13 *(2) APPLICATION DEADLINES.—The requirements*  
14 *established under paragraph (1) shall require submis-*  
15 *sion of grant applications not later than—*

16 *(A) in the case of the first year of program*  
17 *implementation, the date that is 180 days after*  
18 *the publication of the requirements in the Fed-*  
19 *eral Register; and*

20 *(B) in the case of each subsequent year,*  
21 *June 1 of the year.*

22 *(c) ELIGIBLE RECIPIENTS.—A grant shall be awarded*  
23 *under this section only—*

24 *(1) to 1 or more local or State governmental en-*  
25 *tities responsible for providing school bus service to 1*

1       or more public school systems or responsible for the  
2       purchase of school buses;

3               (2) to 1 or more contracting entities that provide  
4       school bus service to 1 or more public school systems,  
5       if the grant application is submitted jointly with the  
6       1 or more school systems to be served by the buses, ex-  
7       cept that the application may provide that buses pur-  
8       chased using funds awarded shall be owned, operated,  
9       and maintained exclusively by the 1 or more con-  
10      tracting entities; or

11              (3) to a nonprofit school transportation associa-  
12      tion representing private contracting entities, if the  
13      association has notified and received approval from  
14      the 1 or more school systems to be served by the buses.

15      (d) AWARD DEADLINES.—

16              (1) IN GENERAL.—Subject to paragraph (2), the  
17      Administrator shall award a grant made to a quali-  
18      fied applicant for a fiscal year—

19                      (A) in the case of the first fiscal year of pro-  
20                      gram implementation, not later than the date  
21                      that is 90 days after the application deadline es-  
22                      tablished under subsection (b)(2); and

23                      (B) in the case of each subsequent fiscal  
24                      year, not later than August 1 of the fiscal year.

1           (2) *INSUFFICIENT NUMBER OF QUALIFIED GRANT*  
2 *APPLICATIONS.*—*If the Administrator does not receive*  
3 *a sufficient number of qualified grant applications to*  
4 *meet the requirements of subsection (i)(1) for a fiscal*  
5 *year, the Administrator shall award a grant made to*  
6 *a qualified applicant under subsection (i)(2) not later*  
7 *than September 30 of the fiscal year.*

8           (e) *TYPES OF GRANTS.*—

9           (1) *IN GENERAL.*—*A grant under this section*  
10 *shall be used for the replacement of school buses man-*  
11 *ufactured before model year 1991 with alternative fuel*  
12 *school buses and ultra-low sulfur diesel fuel school*  
13 *buses.*

14           (2) *NO ECONOMIC BENEFIT.*—*Other than the re-*  
15 *ceipt of the grant, a recipient of a grant under this*  
16 *section may not receive any economic benefit in con-*  
17 *nection with the receipt of the grant.*

18           (3) *PRIORITY OF GRANT APPLICATIONS.*—*The*  
19 *Administrator shall give priority to applicants that*  
20 *propose to replace school buses manufactured before*  
21 *model year 1977.*

22           (f) *CONDITIONS OF GRANT.*—*A grant provided under*  
23 *this section shall include the following conditions:*

24           (1) *SCHOOL BUS FLEET.*—*All buses acquired*  
25 *with funds provided under the grant shall be operated*

1       *as part of the school bus fleet for which the grant was*  
2       *made for a minimum of 5 years.*

3           (2) *USE OF FUNDS.—Funds provided under the*  
4       *grant may only be used—*

5                   (A) *to pay the cost, except as provided in*  
6                   *paragraph (3), of new alternative fuel school*  
7                   *buses or ultra-low sulfur diesel fuel school buses,*  
8                   *including State taxes and contract fees associ-*  
9                   *ated with the acquisition of such buses; and*

10                   (B) *to provide—*

11                           (i) *up to 20 percent of the price of the*  
12                           *alternative fuel school buses acquired, for*  
13                           *necessary alternative fuel infrastructure if*  
14                           *the infrastructure will only be available to*  
15                           *the grant recipient; and*

16                           (ii) *up to 25 percent of the price of the*  
17                           *alternative fuel school buses acquired, for*  
18                           *necessary alternative fuel infrastructure if*  
19                           *the infrastructure will be available to the*  
20                           *grant recipient and to other bus fleets.*

21           (3) *GRANT RECIPIENT FUNDS.—The grant re-*  
22       *cipient shall be required to provide at least—*

23                   (A) *in the case of a grant recipient de-*  
24                   *scribed in paragraph (1) or (3) of subsection (c),*  
25                   *the lesser of—*

1                   (i) an amount equal to 15 percent of  
2                   the total cost of each bus received; or

3                   (ii) \$15,000 per bus; and

4                   (B) in the case of a grant recipient de-  
5                   scribed in subsection (c)(2), the lesser of—

6                   (i) an amount equal to 20 percent of  
7                   the total cost of each bus received; or

8                   (ii) \$20,000 per bus.

9                   (4) *ULTRA-LOW SULFUR DIESEL FUEL.*—In the  
10                  case of a grant recipient receiving a grant for ultra-  
11                  low sulfur diesel fuel school buses, the grant recipient  
12                  shall be required to provide documentation to the sat-  
13                  isfaction of the Administrator that diesel fuel con-  
14                  taining sulfur at not more than 15 parts per million  
15                  is available for carrying out the purposes of the  
16                  grant, and a commitment by the applicant to use  
17                  such fuel in carrying out the purposes of the grant.

18                  (5) *TIMING.*—All alternative fuel school buses,  
19                  ultra-low sulfur diesel fuel school buses, or alternative  
20                  fuel infrastructure acquired under a grant awarded  
21                  under this section shall be purchased and placed in  
22                  service as soon as practicable.

23                  (g) *BUSES.*—

24                  (1) *IN GENERAL.*—Except as provided in para-  
25                  graph (2), funding under a grant made under this

1 *section for the acquisition of new alternative fuel*  
2 *school buses or ultra-low sulfur diesel fuel school buses*  
3 *shall only be used to acquire school buses—*

4 *(A) with a gross vehicle weight of greater*  
5 *than 14,000 pounds;*

6 *(B) that are powered by a heavy duty en-*  
7 *gine;*

8 *(C) in the case of alternative fuel school*  
9 *buses manufactured in model years 2005 and*  
10 *2006, that emit not more than 1.8 grams per*  
11 *brake horsepower-hour of nonmethane hydro-*  
12 *carbons and oxides of nitrogen and .01 grams*  
13 *per brake horsepower-hour of particulate matter;*  
14 *and*

15 *(D) in the case of ultra-low sulfur diesel*  
16 *fuel school buses manufactured in model years*  
17 *2005 and 2006, that emit not more than 2.5*  
18 *grams per brake horsepower-hour of nonmethane*  
19 *hydrocarbons and oxides of nitrogen and .01*  
20 *grams per brake horsepower-hour of particulate*  
21 *matter.*

22 *(2) LIMITATIONS.—A bus shall not be acquired*  
23 *under this section that emits nonmethane hydro-*  
24 *carbons, oxides of nitrogen, or particulate matter at*  
25 *a rate greater than the best performing technology of*

1       *the same class of ultra-low sulfur diesel fuel school*  
2       *buses commercially available at the time the grant is*  
3       *made.*

4       *(h) DEPLOYMENT AND DISTRIBUTION.—The Adminis-*  
5       *trator shall—*

6               *(1) seek, to the maximum extent practicable, to*  
7       *achieve nationwide deployment of alternative fuel*  
8       *school buses and ultra-low sulfur diesel fuel school*  
9       *buses through the program under this section; and*

10              *(2) ensure a broad geographic distribution of*  
11       *grant awards, with a goal of no State receiving more*  
12       *than 10 percent of the grant funding made available*  
13       *under this section for a fiscal year.*

14       *(i) ALLOCATION OF FUNDS.—*

15              *(1) IN GENERAL.—Subject to paragraph (2), of*  
16       *the amount of grant funding made available to carry*  
17       *out this section for any fiscal year, the Administrator*  
18       *shall use—*

19                      *(A) 70 percent for the acquisition of alter-*  
20                      *native fuel school buses or supporting infrastruc-*  
21                      *ture; and*

22                      *(B) 30 percent for the acquisition of ultra-*  
23                      *low sulfur diesel fuel school buses.*

24              *(2) INSUFFICIENT NUMBER OF QUALIFIED GRANT*  
25       *APPLICATIONS.—After the first fiscal year in which*

1        *this program is in effect, if the Administrator does*  
2        *not receive a sufficient number of qualified grant ap-*  
3        *plications to meet the requirements of subparagraph*  
4        *(A) or (B) of paragraph (1) for a fiscal year, effective*  
5        *beginning on August 1 of the fiscal year, the Admin-*  
6        *istrator shall make the remaining funds available to*  
7        *other qualified grant applicants under this section.*

8        *(j) REDUCTION OF SCHOOL BUS IDLING.—Each local*  
9        *educational agency (as defined in section 9101 of the Ele-*  
10       *mentary and Secondary Education Act of 1965 (20 U.S.C.*  
11       *7801)) that receives Federal funds under the Elementary*  
12       *and Secondary Education Act of 1965 (20 U.S.C. 6301 et*  
13       *seq.) is encouraged to develop a policy, consistent with the*  
14       *health, safety, and welfare of students and the proper oper-*  
15       *ation and maintenance of school buses, to reduce the inci-*  
16       *dence of unnecessary school bus idling at schools when pick-*  
17       *ing up and unloading students.*

18       *(k) ANNUAL REPORT.—*

19                *(1) IN GENERAL.—Not later than January 31 of*  
20        *each year, the Administrator shall transmit to Con-*  
21        *gress a report evaluating implementation of the pro-*  
22        *grams under this section and section 813.*

23                *(2) COMPONENTS.—The reports shall include a*  
24        *description of—*

1           (A) the total number of grant applications  
2 received;

3           (B) the number and types of alternative fuel  
4 school buses, ultra-low sulfur diesel fuel school  
5 buses, and retrofitted buses requested in grant  
6 applications;

7           (C) grants awarded and the criteria used to  
8 select the grant recipients;

9           (D) certified engine emission levels of all  
10 buses purchased or retrofitted under the pro-  
11 grams under this section and section 813;

12           (E) an evaluation of the in-use emission  
13 level of buses purchased or retrofitted under the  
14 programs under this section and section 813;  
15 and

16           (F) any other information the Adminis-  
17 trator considers appropriate.

18       (l) *AUTHORIZATION OF APPROPRIATIONS.*—There are  
19 authorized to be appropriated to the Administrator to carry  
20 out this section—

21           (1) \$45,000,000 for fiscal year 2006; and

22           (2) \$65,000,000 for fiscal year 2007.

23 **SEC. 813. DIESEL RETROFIT PROGRAM.**

24       (a) *ESTABLISHMENT.*—The Administrator, in con-  
25 sultation with the Secretary, shall establish a program for

1 *awarding grants on a competitive basis to entities for the*  
2 *installation of retrofit technologies for diesel school buses.*

3 (b) *ELIGIBLE RECIPIENTS.—A grant shall be awarded*  
4 *under this section only—*

5 (1) *to a local or State governmental entity re-*  
6 *sponsible for providing school bus service to 1 or more*  
7 *public school systems;*

8 (2) *to 1 or more contracting entities that provide*  
9 *school bus service to 1 or more public school systems,*  
10 *if the grant application is submitted jointly with the*  
11 *1 or more school systems that the buses will serve, ex-*  
12 *cept that the application may provide that buses pur-*  
13 *chased using funds awarded shall be owned, operated,*  
14 *and maintained exclusively by the 1 or more con-*  
15 *tracting entities; or*

16 (3) *to a nonprofit school transportation associa-*  
17 *tion representing private contracting entities, if the*  
18 *association has notified and received approval from*  
19 *the 1 or more school systems to be served by the buses.*

20 (c) *AWARDS.—*

21 (1) *IN GENERAL.—The Administrator shall seek,*  
22 *to the maximum extent practicable, to ensure a broad*  
23 *geographic distribution of grants under this section.*

1           (2) *PREFERENCES.*—*In making awards of*  
2           *grants under this section, the Administrator shall give*  
3           *preference to proposals that—*

4                   (A) *will achieve the greatest reductions in*  
5                   *emissions of nonmethane hydrocarbons, oxides of*  
6                   *nitrogen, or particulate matter per proposal or*  
7                   *per bus; or*

8                   (B) *involve the use of emissions control ret-*  
9                   *rofit technology on diesel school buses that oper-*  
10                  *ate solely on ultra-low sulfur diesel fuel.*

11          (d) *CONDITIONS OF GRANT.*—*A grant shall be pro-*  
12          *vided under this section on the conditions that—*

13                  (1) *buses on which retrofit emissions-control*  
14                  *technology are to be demonstrated—*

15                       (A) *will operate on ultra-low sulfur diesel*  
16                       *fuel where such fuel is reasonably available or re-*  
17                       *quired for sale by State or local law or regula-*  
18                       *tion;*

19                       (B) *were manufactured in model year 1991*  
20                       *or later; and*

21                       (C) *will be used for the transportation of*  
22                       *school children to and from school for a min-*  
23                       *imum of 5 years;*

1           (2) *grant funds will be used for the purchase of*  
2           *emission control retrofit technology, including State*  
3           *taxes and contract fees; and*

4           (3) *grant recipients will provide at least 15 per-*  
5           *cent of the total cost of the retrofit, including the pur-*  
6           *chase of emission control retrofit technology and all*  
7           *necessary labor for installation of the retrofit.*

8           (e) *VERIFICATION.*—*Not later than 90 days after the*  
9           *date of enactment of this Act, the Administrator shall pub-*  
10          *lish in the Federal Register procedures to verify—*

11           (1) *the retrofit emissions-control technology to be*  
12          *demonstrated;*

13           (2) *that buses powered by ultra-low sulfur diesel*  
14          *fuel on which retrofit emissions-control technology are*  
15          *to be demonstrated will operate on diesel fuel con-*  
16          *taining not more than 15 parts per million of sulfur;*  
17          *and*

18           (3) *that grants are administered in accordance*  
19          *with this section.*

20          (f) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
21          *authorized to be appropriated to the Administrator to carry*  
22          *out this section—*

23           (1) *\$20,000,000 for fiscal year 2006; and*

24           (2) *\$35,000,000 for fiscal year 2007.*

1 **SEC. 814. FUEL CELL SCHOOL BUSES.**

2 (a) *ESTABLISHMENT.*—*The Secretary shall establish a*  
3 *program for entering into cooperative agreements—*

4 (1) *with private sector fuel cell bus developers for*  
5 *the development of fuel cell-powered school buses; and*

6 (2) *subsequently, with not less than 2 units of*  
7 *local government using natural gas-powered school*  
8 *buses and such private sector fuel cell bus developers*  
9 *to demonstrate the use of fuel cell-powered school*  
10 *buses.*

11 (b) *COST SHARING.*—*The non-Federal contribution for*  
12 *activities funded under this section shall be not less than—*

13 (1) *20 percent for fuel infrastructure develop-*  
14 *ment activities; and*

15 (2) *50 percent for demonstration activities and*  
16 *for development activities not described in paragraph*  
17 *(1).*

18 (c) *REPORTS TO CONGRESS.*—*Not later than 3 years*  
19 *after the date of enactment of this Act, the Secretary shall*  
20 *transmit to Congress a report that—*

21 (1) *evaluates the process of converting natural*  
22 *gas infrastructure to accommodate fuel cell-powered*  
23 *school buses; and*

24 (2) *assesses the results of the development and*  
25 *demonstration program under this section.*

1       (d) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
2 *authorized to be appropriated to the Secretary to carry out*  
3 *this section \$25,000,000 for the period of fiscal years 2006*  
4 *through 2008.*

5       ***Subtitle C—Fuel Cell Transit Bus***  
6                                   ***Demonstration***

7       ***SEC. 821. FUEL CELL TRANSIT BUS DEMONSTRATION.***

8       (a) *IN GENERAL.*—*The Secretary, in consultation with*  
9 *the Secretary of Transportation, shall establish a transit*  
10 *bus demonstration program to make competitive, merit-*  
11 *based awards for 5-year projects to demonstrate not more*  
12 *than 25 fuel cell transit buses (and necessary infrastruc-*  
13 *ture) in 5 geographically dispersed localities.*

14       (b) *PREFERENCE.*—*In selecting projects under this sec-*  
15 *tion, the Secretary shall give preference to projects that are*  
16 *most likely to mitigate congestion and improve air quality.*

17       (c) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
18 *authorized to be appropriated to the Secretary to carry out*  
19 *this section \$10,000,000 for each of fiscal years 2006*  
20 *through 2010.*

21       ***TITLE IX—CLEAN COAL POWER***  
22                                   ***INITIATIVE***

23       ***SEC. 901. AUTHORIZATION OF APPROPRIATIONS.***

24       (a) *CLEAN COAL POWER INITIATIVE.*—*There are au-*  
25 *thorized to be appropriated to the Secretary to carry out*

1 *the activities authorized by this title \$200,000,000 for each*  
2 *of fiscal years 2006 through 2012, to remain available until*  
3 *expended.*

4 *(b) REPORT.—The Secretary shall transmit to Con-*  
5 *gress the report required by this subsection not later than*  
6 *March 31, 2006. The report shall include, with respect to*  
7 *subsection (a), a 10-year plan containing—*

8 *(1) a detailed assessment of whether the aggre-*  
9 *gate funding levels provided under subsection (a) are*  
10 *the appropriate funding levels for that program;*

11 *(2) a detailed description of how proposals will*  
12 *be solicited and evaluated, including a list of all ac-*  
13 *tivities expected to be undertaken;*

14 *(3) a detailed list of technical milestones for each*  
15 *coal and related technology that will be pursued; and*

16 *(4) a detailed description of how the program*  
17 *will avoid problems enumerated in General Account-*  
18 *ing Office reports on the Clean Coal Technology Pro-*  
19 *gram, including problems that have resulted in*  
20 *unspent funds and projects that failed either finan-*  
21 *cially or scientifically.*

22 **SEC. 902. PROJECT CRITERIA.**

23 *(a) IN GENERAL.—The Secretary shall not provide*  
24 *funding under this title for any project that does not ad-*  
25 *vance efficiency, environmental performance, and cost com-*

1 *petitiveness well beyond the level of technologies that are*  
2 *in commercial service or have been demonstrated on a scale*  
3 *that the Secretary determines is sufficient to demonstrate*  
4 *that commercial service is viable as of the date of enactment*  
5 *of this Act.*

6 (b) *TECHNICAL CRITERIA FOR CLEAN COAL POWER*  
7 *INITIATIVE.—*

8 (1) *GASIFICATION PROJECTS.—*

9 (A) *IN GENERAL.—In allocating the funds*  
10 *made available under section 901(a), the Sec-*  
11 *retary shall ensure that at least 60 percent of the*  
12 *funds are used only for projects on coal-based*  
13 *gasification technologies, including gasification*  
14 *combined cycle, gasification fuel cells, gasifi-*  
15 *cation coproduction, and hybrid gasification/*  
16 *combustion.*

17 (B) *TECHNICAL MILESTONES.—The Sec-*  
18 *retary shall periodically set technical milestones*  
19 *specifying the emission and thermal efficiency*  
20 *levels that coal gasification projects under this*  
21 *title shall be designed, and reasonably expected,*  
22 *to achieve. The technical milestones shall become*  
23 *more restrictive during the life of the program.*  
24 *The Secretary shall set the periodic milestones so*

1           *as to achieve by 2020 coal gasification projects*  
2           *able—*

3                     *(i) to remove 99 percent of sulfur diox-*  
4                     *ide;*

5                     *(ii) to emit not more than .05 lbs of*  
6                     *NO<sub>x</sub> per million Btu;*

7                     *(iii) to achieve substantial reductions*  
8                     *in mercury emissions; and*

9                     *(iv) to achieve a thermal efficiency*  
10                    *of—*

11                             *(I) 60 percent for coal of more*  
12                             *than 9,000 Btu;*

13                             *(II) 59 percent for coal of 7,000 to*  
14                             *9,000 Btu; and*

15                             *(III) 50 percent for coal of less*  
16                             *than 7,000 Btu.*

17                    (2) *OTHER PROJECTS.—The Secretary shall pe-*  
18                    *riodically set technical milestones and ensure that up*  
19                    *to 40 percent of the funds appropriated pursuant to*  
20                    *section 901(a) are used for projects not described in*  
21                    *paragraph (1). The milestones shall specify the emis-*  
22                    *sion and thermal efficiency levels that projects funded*  
23                    *under this paragraph shall be designed to and reason-*  
24                    *ably expected to achieve. The technical milestones*  
25                    *shall become more restrictive during the life of the*

1        *program. The Secretary shall set the periodic mile-*  
2        *stones so as to achieve by 2010 projects able—*

3                *(A) to remove 97 percent of sulfur dioxide;*

4                *(B) to emit no more than .08 lbs of NO<sub>x</sub> per*  
5        *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 technical*  
16        *milestones under paragraphs (1)(B) and (2), the Sec-*  
17        *retary shall consult with the Administrator of the En-*  
18        *vironmental Protection Agency and interested enti-*  
19        *ties, including coal producers, industries using coal,*  
20        *organizations to promote coal or advanced coal tech-*  
21        *nologies, environmental organizations, and organiza-*  
22        *tions representing workers.*

23                *(4) EXISTING UNITS.—In the case of projects at*  
24        *units in existence on the date of enactment of this*  
25        *Act, in lieu of the thermal efficiency requirements set*

1        *forth in paragraph (1)(B)(iv) and (2)(D), the mile-*  
2        *stones shall be designed to achieve an overall thermal*  
3        *design efficiency improvement, compared to the effi-*  
4        *ciency of the unit as operated, of not less than—*

5                *(A) 7 percent for coal of more than 9,000*

6                *Btu;*

7                *(B) 6 percent for coal of 7,000 to 9,000 Btu;*

8                *or*

9                *(C) 4 percent for coal of less than 7,000*

10               *Btu.*

11               *(5) PERMITTED USES.—In carrying out this*  
12        *title, the Secretary may fund projects that include, as*  
13        *part of the project, the separation and capture of car-*  
14        *bon dioxide.*

15               *(c) FINANCIAL CRITERIA.—The Secretary shall not*  
16        *provide a funding award under this title unless the recipi-*  
17        *ent documents to the satisfaction of the Secretary that—*

18               *(1) the award recipient is financially viable*  
19        *without the receipt of additional Federal funding;*

20               *(2) the recipient will provide sufficient informa-*  
21        *tion to the Secretary to enable the Secretary to ensure*  
22        *that the award funds are spent efficiently and effec-*  
23        *tively; and*

24               *(3) a market exists for the technology being dem-*  
25        *onstrated or applied, as evidenced by statements of*

1        *interest in writing from potential purchasers of the*  
2        *technology.*

3        *(d) FINANCIAL ASSISTANCE.—The Secretary shall pro-*  
4        *vide financial assistance to projects that meet the require-*  
5        *ments of subsections (a), (b), and (c) and are likely to—*

6                *(1) achieve overall cost reductions in the utiliza-*  
7        *tion of coal to generate useful forms of energy;*

8                *(2) improve the competitiveness of coal among*  
9        *various forms of energy in order to maintain a diver-*  
10        *sity of fuel choices in the United States to meet elec-*  
11        *tricity generation requirements; and*

12                *(3) demonstrate methods and equipment that are*  
13        *applicable to 25 percent of the electricity generating*  
14        *facilities, using various types of coal, that use coal as*  
15        *the primary feedstock as of the date of enactment of*  
16        *this Act.*

17        *(e) FEDERAL SHARE.—The Federal share of the cost*  
18        *of a coal or related technology project funded by the Sec-*  
19        *retary under this title shall not exceed 50 percent.*

20        *(f) APPLICABILITY.—No technology, or level of emis-*  
21        *sion reduction, shall be treated as adequately demonstrated*  
22        *for purposes of section 111 of the Clean Air Act (42 U.S.C.*  
23        *7411), achievable for purposes of section 169 of that Act*  
24        *(42 U.S.C. 7479), or achievable in practice for purposes of*  
25        *section 171 of that Act (42 U.S.C. 7501) solely by reason*

1 *of the use of such technology, or the achievement of such*  
2 *emission reduction, by 1 or more facilities receiving assist-*  
3 *ance under this title.*

4 **SEC. 903. REPORT.**

5 *Not later than 1 year after the date of enactment of*  
6 *this Act, and once every 2 years thereafter through 2012,*  
7 *the Secretary, in consultation with other appropriate Fed-*  
8 *eral agencies, shall transmit to Congress a report describ-*  
9 *ing—*

10 *(1) the technical milestones set forth in section*  
11 *902 and how those milestones ensure progress toward*  
12 *meeting the requirements of subsections (b)(1)(B) and*  
13 *(b)(2) of section 902; and*

14 *(2) the status of projects funded under this title.*

15 **SEC. 904. CLEAN COAL CENTERS OF EXCELLENCE.**

16 *As part of the program authorized in section 901, the*  
17 *Secretary shall award competitive, merit-based grants to*  
18 *universities for the establishment of Centers of Excellence*  
19 *for Energy Systems of the Future. The Secretary shall pro-*  
20 *vide grants to universities that show the greatest potential*  
21 *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 OF*  
9 *THE OFFICE OF SCIENCE.—Section 209 of the Department*  
10 *of Energy Organization Act (42 U.S.C. 7139) is amended*  
11 *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 Secretary*  
15 *of Science, who shall be appointed by the President, by and*  
16 *with the advice and consent of the Senate, and who shall*  
17 *be compensated at the rate provided for level IV of the Exec-*  
18 *utive Schedule under section 5315 of title 5, United States*  
19 *Code.*

20 *“(b) The Assistant Secretary of Science shall be in ad-*  
21 *dition to the Assistant Secretaries provided for under sec-*  
22 *tion 203 of this Act.*

23 *“(c) It shall be the duty and responsibility of the As-*  
24 *stant 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 in*  
3 *the Secretary which he may assign to the Assistant Sec-*  
4 *retary.”.*

5       **(b) ADDITIONAL ASSISTANT SECRETARY POSITION TO**  
6 **ENABLE IMPROVED MANAGEMENT OF NUCLEAR ENERGY**  
7 **ISSUES.—(1) Section 203(a) of the Department of Energy**  
8 **Organization Act (42 U.S.C. 7133(a)) is amended by strik-**  
9 **ing “There shall be in the Department six Assistant Secre-**  
10 **taries” and inserting “Except as provided in section 209,**  
11 **there shall be in the Department seven Assistant Secre-**  
12 **taries”.**

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.—(1)**  
17 **Section 5315 of title 5, United States Code, is amended**  
18 **by—**

19               **(A) striking “Director, Office of Science, Depart-**  
20 **ment of Energy.”; and**

21               **(B) striking “Assistant Secretaries of Energy**  
22 **(6)” and inserting “Assistant Secretaries of Energy**  
23 **(8)”.**

24       **(2) The table of contents for the Department of Energy**  
25 **Organization Act (42 U.S.C. 7101 note) is amended—**

1           (A) *by striking “Section 209” and inserting*  
2           *“Sec. 209”;*

3           (B) *by striking “213.” and inserting “Sec. 213.”;*

4           (C) *by striking “214.” and inserting “Sec. 214.”;*

5           (D) *by striking “215.” and inserting “Sec.*  
6           *215.”; and*

7           (E) *by striking “216.” and inserting “Sec. 216.”.*

Union Calendar No. 123

109<sup>TH</sup> CONGRESS  
1<sup>ST</sup> Session

**H. R. 610**

[Report No. 109-216, Part I]

---

---

**A BILL**

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

---

---

JULY 29, 2005

Reported from the Committee on Science with an amendment

JULY 29, 2005

Referred to the Committee on Transportation and Infrastructure for a period not ending later than July 29, 2005, for consideration of such provisions of the bill and the amendment as fall within the jurisdiction of that committee pursuant to clause 1(r), rule X

JULY 29, 2005

Committees on Energy and Commerce, Resources, and Transportation and Infrastructure discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed